# NUREG Section 1 - Introduction

**Comment #1:** Section 1.1 NRC regulation discussion needs to be updated to reflect the updated OM Code Editions that are incorporated by reference.

**Basis for comment #1**: The current approved Code is the 2020 Code and soon to be the 2022 Edition of the Code.

**Comment #2**: Recommend removing the 120-month IST program interval references in the document.

**Basis for comment #2:** The 2023 proposed rulemaking shows allowing two concurrent intervals providing the "Code of Record" being used is at minimum the 2020 Edition of the ASME OM Code.

**Comment #3:** Generically across the document, is it possible to hyperlink when mentioning other sections. Example: Section 2.3 (page 2-16) references Tables 2.1 and 2.2. It would be nice to select this and automatically go to that reference.

**Basis for comment #3:** Ease of use for the document.

# NUREG Section 2 – Developing and Implementing an IST Program

## Section 2.1 – Compliance Considerations

**Comment # 1:** Throughout document where there is discussion on the 120-month intervals (initial and successive) – update to match latest rulemaking.

**Basis for comment #1**: Update NUREG with latest rulemaking.

**Comment #2:** Section 2.1.1 and elsewhere, consider deleting discussion in references to 10 CFR 50.55a(g).

**Basis for comment #2**: 10 CFR 50.55a(g) discusses requirements for the ISI program and NUREG-1482 concentrates on the IST program.

**Comment #3:** Section 2.1.1 last paragraph, I don't believe the risk informed code cases need to be discussed here anymore with the use of 50.69 and Subsection ISTE not being restricted for use. Perhaps RG 1.174 and RG 1.175 can be moved to Section 8, Risk Informed.

**Basis for comment #3**: Subsection ISTE is now approved for use.

**Comment # 4: (Section 2.1.2.1)** 50.55a(b)(3)(ii)(B) "MOV testing impact on risk" requires that 'Licensees shall ensure that the potential increase in core damage frequency and large early release frequency associated with the extension is acceptably small when extending exercise test intervals for high risk MOVs beyond a quarterly frequency.' This condition is an additional requirement beyond the justification requirements of III-3600 or III-3721. The historical extension requirement for components with a refueling outage/cold shutdown justification is impracticality to perform under certain plant conditions.

**Basis for comment #4:** Risk review of HSSCs with a cold-shutdown/refueling outage justification is not explicitly required by Appendix III. III-3600 states that if exercising an MOV is not practical during plant operations or cold shutdown shall be performed during refueling outages. III-3721 requires that "HSSC MOVs that can be operated during plant operation shall be exercised quarterly, unless the potential increase in core damage frequency (CDF) and large early release (LER) associated with the longer exercise interval is small."

The NUREG should address the delta between the condition on implementation of the ASME Code and the addition requirements imposed by the condition. If there is intent to perform a risk assessment on components which are impractical or unable to be performed online (such as PIVs, inaccessible valves, etc), this section should provide additional guidance for the analysis necessary to be supplemented in the cold shutdown/refueling outage justification. It should directly address the requirements for implementation of III-3721 and if a risk assessment is required for high-risk MOVs which were previously or currently addressed by a deferred test justification.

# NUREG Section 2 – Developing and Implementing an IST Program

**Comment #5:** Section 2.1.2.2, For the (b)(3)(ii)(D) condition on MOV Exercising Requirements, consider adding discussion to clarify that the stroke time is required to be verified on an MOV when there is a specific surveillance requirement in Tech Specs and there is a specific stroke time for the MOV in the plant's licensing documents.

**Basis for comment #5**: This is based on discussions that have taken place at ISTOG and ASME Code meetings and the condition as worded in 10 CFR 50.55a(b)(3)(ii)(D).

**Comment # 6:** Section 2.1.2.3 references conditions which are no longer in the CFR.

**Basis for comment #6:** Remove or provide clarification for utilities which may utilize older editions of the OM Code (likely outside US if any).

**Comment #7:** Section 2.1.4 discusses identification of Code noncompliance. Recommend updating to incorporate other types of nonconformances to the ASME OM Code as these are not specifically addressed by NRC Inspection Manual Chapter (IMC) 0326 (September 30, 2019), "Operability Determinations" or the ASME OM Code. Examples of these types of nonconformances include 1) Not meeting the frequency requirement for an IST activity, 2) A scope deficiency that has resulted in not performing an IST activity, 3) Incorrect performance of an IST activity, or 4) Inadequate post-maintenance testing on an IST component. These types of nonconformances should be entered into the Licensees Corrective Action Program. Based on the information that is available, the Licensee should determine operability, as applicable, and take the necessary corrective actions to resolve the condition.

Language for consideration: If the ASME OM code requires a pump or valve to be declared inoperable (for example ISTC-3630(f) for valves or valve combinations with leakage rates exceeding the valve leakage rates specified by the Owner) then the licensee is required to declare the affected pump or valve inoperable and enter the applicable Technical Specification Required Action. Declaring the pump or valve operable or degraded is not acceptable in these cases.

**Basis for comment #7:** These are not included in the current NUREG 1482 Rev. 3 and would be helpful to discuss the other nonconformances.

**Comment # 8:** Section 2.1.2.5 references conditions which are no longer in the CFR.

**Basis for comment #8:** Remove. 2011 not approved for use.

**Comment # 9:** Section 2.1.2.8 needs to be updated to reflect current conditions on ISTC-3700 and the requirements for deferred testing to a refueling outage if meeting the condition is impractical during unit operation.

**Basis for comment #9:** The CFR has been updated with additional guidance. The recommended methods for compliance with these terms should be included.

# NUREG Section 2 – Developing and Implementing an IST Program

## Section 2.2 – Scope of Inservice Testing Programs

**Comment #1:** Section 2.2 "Scope of Inservice Testing Programs" (2nd Para. Pg. 2-12) states the NRC staff considers the ASME OM Code to apply to pumps, valves, and dynamic restraints installed in piping systems. As an example, the NRC staff states that they do not consider the OM Code to apply to rupture panels in building structures.

**Basis for Comment #1:** Use of the example of a building rupture panel as a component not applicable to OM requirements is too obvious. During recent Program updates there have been much discussion of the application of Appendix III and IV to valves in ductwork. The use of valves in ductwork, or guidance on their treatment would be welcomed, as ductwork is not a piping system.

**Comment #2:** Section 2.2.1 "Basis for Scope Requirements" (Bottom, Pg. 2-13) references Appendix R as specifying requirements for plant SSCs that might be relied on to mitigate fire events, and further states that these SSCs (fire protection only) need not be included in the IST program required by the OM Code as incorporated by reference in 10 CFR 50.55a. This section may want to reference both Appendix R and NFPA 805.

**Basis for Comment #2:** Utilities may be using either Appendix R or NFPA-805 Regulations.

**Comment # 3:** Section 2.2.1 notes that Appendix R/NFPA requirements have their own tests and requirements. The NRC staff does not consider that a pump or valve relied on only to satisfy the Appendix R requirements must also be included in the IST program required by the OM Code as incorporated by reference in 10 CFR 50.55a. An additional paragraph would be desirable for flood mode/flood protection with the same basis.

**Basis for comment #3:** Based on Section 2.2.1, The NRC staff does not consider that a pump or valve relied on only to satisfy the Appendix R requirements must also be included in the IST program required by the OM Code as incorporated by reference in 10 CFR 50.55a. Additional discussion would be beneficial for future program scoping. The justification would be that this is not a design bases accident per ISTA-1100, unless explicitly crediting as coincident with, causing, or complicating a design bases accident per the plant licensing basis. If the plant licensing basis considers a flood event as a DBA event or contributor, then it should be evaluated for inclusion based on the site license requirements.

**Comment #4:** Section 2.2.3 "Testing of Additional Components," should clarify the expectations for Licensees that choose to include non-ISTA scoped components in the IST Program. Licensees should clearly document the basis for inclusion of components beyond the scope of ISTA-1100 in their program or basis document. The licensee shall comply with the ASME OM Code testing requirements for optionally included components except as allowed by 10CFR50.55a(f)(4).

If the licensee is unable to meet certain OM Code provisions for these components, the regulations do not require the licensee to submit a relief or alternative request to the NRC. Optional inclusion of additional components is acceptable without prior NRC approval provided the basis for deviations from the ASME OM Code, demonstrates an acceptable level of quality

and safety, or that implementing the Code provisions would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, where documented and available for NRC review.

**Basis for Comment #4:** While Section 2.2.3 outlines the requirements for optional testing utilizing the ASME OM Code and IST Program for test requirements, the implementation of those requirements optionally may result in undesirable requirements for the licensee. This section should be amended to better clarify what is necessary for licensees who choose to utilize the IST Program for additional scope beyond the requirements of ISTA-1100. Optionally included components should be held to the same standard as non-code class components which perform an ISTA-1100 function.

**Comment #5:** Section 2.2.5 "Components Added to IST Programs" (2nd Para., Pg. 2-15) discusses the preservice test period, noting the initial set of reference values is established (when added). This section of the NUREG should be updated to include the preservice requirements of Appendix III (III-3200) and Appendix IV (IV-3300).

**Basis for Comment #5:** The current use of "reference value" implies a measured stroke time but is inadequate when describing Appendix III and Appendix IV preservice requirements. Appendix III and IV involve diagnostics to establish performance parameters and margins for future monitoring/trending.

**Comment #6:** Section 2.2.5, Components Added to IST Programs, contains the statement “For components added to the scope of IST program, it is expected that a preservice test will be performed at the time when the component is added to the IST program.”. The timing of when the component is required to be tested should be driven by the licensee’s Tech Spec. In some cases the TS would allow the test to take place at the next available opportunity.

**Basis for comment #6**: This is based off of certain tech specs that would allow this to happen.

## Section 2.3 – Systems Containing Safety-Related Pumps and Valves

**No comments.**

## Section 2.4 – IST Program Document

**Comment #1:** Section 2.4 "IST Program Document" (Pg. 2-16) lists various sections of the ASME OM Code. Appendix III, and Appendix IV are not listed, both omitted Appendixes consider risk ranking. They should be added to this section, the risk ranking of these components would be part of the Program valve Tables or used to prepare the Tables.

**Basis for Comment #1:** The risk rankings of MOVs (App. III) and AOVs (App. IV) are required to prepare the related sections of the IST Plan.

# NUREG Section 2 – Developing and Implementing an IST Program

**Comment #2:** Section 2.4.1 "Pumps" lists information to be included in Pump Tables, the NUREG omits discussing Mandatory Appendix V, "Pump Periodic Verification Test Program".

**Basis for Comment #2:** Pumps subject to requiring a PPV Test would be identified in the Pump Program Tables.

**Comment #3:** Section 2.4.2 "Valves" lists information to be included in Valve Tables. For plants implementing Appendix III and IV, the risk rankings of theses SSCs would establish tests and/or associated frequencies of said test activities. Therefore, the NRC should provide guidance or expectations for risk ranking information when implementing Appendix III/IV.

**Basis for Comment #3:** Current guidance in NUREG-1482 omits the risk ranking aspects of App. III/IV when preparing Valve Test Tables.

**Comment #4:** Section 2.4.5 "Deferring Valve Testing to Cold Shutdown or Refueling Outages" (1st Para, Pg. 2-20) references ISTC-3520 as providing guidance for testing valves during cold shutdowns or RFO's if it is impractical to test during operation. For plants implementing Appendix III, III-3610 provides guidance for MOV exercise intervals if not practical during operations, as III-3620 has other considerations, such as risk rankings, the pre-App. III deferral would still be valid. IV-3420, for plants implementing App. IV, provides the AOV deferrals.

**Basis for Comment #4:** ISTC-3520 does not address App. III or App. IV deferrals.

## Section 2.5 – Relief Requests and Proposed Alternatives

**Comment #1:** Section 2.5 states “or 12 months after the current IST program interval starts”. This should be removed.

**Basis for Comment #1:** This is not allowed in IST space to our knowledge and seems carried over from ISI.

**Comment #2:** See attached comments/questions/markups.

## Section 2.6 – IST Program Documents

**No comments.**

## Section 2.7 – Developing IST Programs for New Nuclear Power Plants

**No comments.**

**2.5 Relief Requests and Proposed Alternatives**

Relief Requests

When it is impractical to comply with the IST requirements of 10 CFR 50.55a or the OM Code, ~~L~~licensees can request that the NRC grant relief ~~from an ASME OM Code or ASME BPV Code, Section XI, requirement~~ in accordance with 10 CFR 50.55a(f)(~~5~~6)(~~ii~~i) ~~and (iv), and (g)(5)(iii) and (iv)~~. Requests made under these paragraphs are called "relief."

**Commented [WRD1]:** this NUREG only applies to IST which is why references to ISI should be deleted

The NRC regulations in 10 CFR 50.55a(f)(4) require licensees to test pumps and valves in the IST program to the "extent practical" within the limitations of the design, geometry, and materials of construction. The regulations in 10 CFR 50.55a(f)(6~~5~~)(i) ~~and (g)(5)~~ allow licensees to request relief from ASME OM Code requirements that are "impractical" for the facility. For example, OM Code, Subsection ISTC, requires that the limiting stroke time for POVs be specified by the licensee and measured within limits based on the full-stroke time of the valves. At some plants, the scram discharge volume vent and drain valves are not designed to be individually actuated. These valves are required by TS to close within a specified time (45 seconds for some plants) upon receipt of a scram signal. The valves are tested quarterly by cycling the valves to assess their operational readiness and performing a valve sequence response time test during each RFO. This testing is essentially a design basis test of the valve combination. Requiring these valves to be stroke timed individually is impractical and places a burden on the licensee because of the extensive modification that would be required to the system to individually stroke the valve. In addition, jumpering the control circuit during plant operation to test these valves individually would be impractical because of the potential for a reactor scram. Some licensees may have difficulty fully implementing these ISTC-5131 (2015 edition of the OM Code or earlier) or ISTC-5113 (2017 edition of the OM Code or later) required tests, and, in certain cases, because of the impracticality of implementation, a request for relief under 10 CFR 50.55a(f)~~(5)~~(6)(i) would be appropriate. In addition to design, geometry, and materials issues, licensees might also identify testing requirements specified in the ASME OM Code that are impractical because their performance might be unwise or unreasonable for certain pumps or valves and their applications at a specific facility. Licensees may request relief from such requirements in accordance with 10 CFR 50.55a(f)(6)(i)~~(5) or (g)(5)~~.

Additionally, as noted in LIC-102, "Review of Relief Requests, Proposed Alternatives, and Requests to Use Later Code Editions and Addenda," (ADAMS Accession No. ML18351A218) other examples of impracticality are as follows:

- being inaccessible for IST or ISI due to design features
- requiring major plant or hardware modification
- having high potential to cause a reactor trip
- causing system or component damage
- replacing equipment or in-line components
- existing technology will not give meaningful results

In accordance with the regulations, when updating a program to a later edition of the OM Code, licensees must implement the updated program at the beginning of an ~~120-month~~ IST program interval. The regulations state that in cases in which a licensee determines that an OM Code-specified pump or valve test is impractical and is not included in the revised IST program, it must submit a relief request demonstrating the basis for its determination to the NRC no later than 12 months after the previous ~~120-month~~ IST program interval ends, or 12 months after the current IST program interval starts. However, experience has shown that licensees also identify

**Commented [WRD2]:** proposed rulemaking would allow licensees that adopt the 2020 or later edition of the OM Code to have 340 month intervals

impractical test provisions throughout the interval. In such cases, licensees may request relief as soon as they identify the condition. Where the OM Code requirements are impractical, the licensee would test the applicable components using the method proposed in the relief request in the period of time from the beginning of the new interval or time of discovery (or from the time of identification) and using method granted by the NRC for the applicable IST program interval.

Alternative Requests

Licensees can request that the NRC authorize an alternative to an ASME OM Code requirement in accordance with 10 CFR 50.55a(z). Requests made under 10 CFR 50.55a(z) are called "alternatives."

The OM Code establishes the requirements for preservice testing and IST and the examination of certain components to assess their operational readiness in water-cooled reactor nuclear power plants. These requirements apply to pumps, valves, pressure relief devices, and snubbers within the scope of the OM Code. The requirements are constantly being reviewed and improved in order to meet the basic function of maintaining the safe and reliable operation and maintenance of nuclear power plants.

It is understood that not all plants are designed the same. It is also understood that the general requirements developed in the OM Code may not be applicable or that complying with these requirements may be difficult. Licensees may propose alternatives to the OM Code provided that (1) the alternative would provide an acceptable level of quality and safety under 10 CFR 50.55a(z)(1); or (2) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety under 10 CFR 50.55a(z)(2). Hardships generally involve reductions in radiation exposure to as low as reasonably achievable (ALARA), challenges to operators or plant equipment, components that are somewhat unique in design such as jockey (waterleg) pumps, having to enter multiple technical specification limiting conditions for operations, creating significant hazards to plant personnel, or systems where pump flow is fixed and cannot be adjusted.

**Commented [WRD3]:** per LIC-102

Licensees shall not implement proposed alternatives to the OM Code requirements under 10 CFR 50.55a(z) until the NRC staff completes its evaluation and authorizes the alternative. For example, if a licensee proposes to implement a pump vibration program based on the use of spectral analysis rather than the OM Code-specified method, the licensee must continue to meet the OM Code requirements until the NRC staff completes its evaluation and authorizes the alternative.

### 2.5.1 Justifications for Relief or Alternatives

In determining whether to grant relief from the OM Code requirements or to authorize alternatives, the NRC staff considers the merits of the submitted technical information. In requesting relief or use of an alternative, the licensee would typically identify the specific OM Code requirement and associated paragraph for which relief or use of an alternative is requested, describe the proposed alternative(s), describe the basis for relief or authorization of the proposed alternative(s), and clarify the burden that would result if the NRC enforced the specified requirements. Situations that warrant granting relief or authorizing alternatives (as determined by the NRC staff in previous safety evaluations for plant-specific requests) may include the following examples:

1. In complying with the OM Code requirements, the licensee would not obtain information that would be more useful than the information that is currently available. For example, installing an analog gauge with a range of three times the reference value (or less) to comply with OM Code requirements may not yield more accurate readings than those provided by the gauge that is presently installed (see Section 5.5.1).

2. Compliance with the OM Code is impractical because of design limitations. Imposition of the OM Code requirements would require significant system redesign and modifications. For example, a flow meter does not meet the accuracy requirements of ISTB-3510 and Table ISTB 3510-1 because the present system configuration does not have a straight section of pipe of sufficient length in which to measure flow accurately (see Section 5.5).

3. The required measurements or appropriate observations cannot be made because of physical constraints. Examples include a component located in an area that is inaccessible during power operation or a pump that is totally immersed in system fluid.

4. The need to keep personnel radiation exposure ALARA may present an adequate justification. The licensee should include information about the general area radiation field, local hot spots, plant radiation limits and stay times, the amount of exposure personnel would receive in performing the testing, and the safety significance of deferring testing or performing an alternative method. ALARA relates to controlling exposure during an activity, not specifically to eliminating activities; however, it may be a basis for relief or for deferring a test on the basis of hardship when exposure limits are prohibitive for performing testing (or possibly for accessing a valve for repair in the event that it could fail during a test). If the exposure limits are prohibitive, the licensee should defer testing to cold shutdown or refueling outages during which the exposure limits would no longer be prohibitive. ALARA is part of an overall program, including activities such as IST, as required by 10 CFR 20.1101, “Radiation Protection Programs.” The NRC has not established “predetermined acceptable limits” for deferring an IST activity, based on maintaining occupational exposure ALARA.

5. Testing as required by the OM Code could cause significant equipment damage. For example, shutting off cooling flow to an operating pump by exercising a valve in the cooling flow path could damage the pump.

6. Failure of a component during testing could disable multiple trains of a reactor safety system and cause a loss of system function. For example, a motor-operated suction valve common to both trains of high-pressure safety injection could not be tested during power operation because a failure of the valve would result in both trains being out of service. Another example would be where a valve is undergoing maintenance in one train and testing of the valve in the other train would result in a loss of system function.

Inconvenience or administrative burden are not, in and of themselves, adequate justification for deviating from the OM Code requirements. Similarly, entering a TS LCO is not, in and of itself, adequate justification for deviating from the OM Code-specified frequency, except when entering the LCO would be prohibited because the total system function would be out of service.

### 2.5.2 Categories of Relief or Alternative Requests

The NRC staff categorizes relief or alternative requests as follows:

- General: A general relief or alternative request is appropriate when the requested relief or alternative applies to a broad range of similar components in the program, such as all pumps or all containment isolation valves.

- Specific: A relief or alternative request is specific when the requested relief or alternative applies only to a single component or a specified group of similar components in the program, such as service water pump discharge check valves.

Commented [WRD4]: not sure if NRC still does this

### 2.5.3 Content and Format of Relief or Alternative Requests

Relief or Alternative Requests can be submitted to the NRC either in writing or electronically using the NRC Map-X portal (https://mapx.nrc-gateway.gov/). As a minimum, the NRC staff recommends that each relief or alternative request should include the following information:

- Title and relief or alternative request number: Licensees should title each relief or alternative request and specify a unique identifier. The identifier should remain unique to avoid confusion with later revisions. Examples include (1) "Relief Request Number 1," (2) "Safety Injection Pumps Relief Request," or (3) "Check Valves in Series Relief Request." The staff recommends that the licensee determine whether the request involves relief under 10 CFR 50.55a(f)(56) ~~or (g)(5)~~, or an alternative under 10 CFR 50.55a(z); and label the request as relief or an alternative as appropriate.

- Page number: List the page number and total number of pages in the program document or the relevant section, such as "Page 15 of 135."

- Program revision or page revision date: List the program or page revision number and date (on each page). List the revision number for each program change submitted.

- Code of Record: List the applicable Code Editions for the plant's IST interval including the start and end dates of the IST interval for which relief or alternative is requested.

- System and Code class: List the plant system and Code class of the system in which the component is located. Pump/valve category or group: List the ASME category or group for each pump or valve (i.e., A, A/B, A/C, B, C, or D).

- Component identification: List the identification number for each component in a specific relief or alternative request. Each individual component need not be listed in a general relief or alternative request, such as one for all pumps in the IST program. However, the NRC staff recommends that the list of program components (pump or valve table) should include the relief or alternative request number.

- Component function: Briefly describe the functions of the affected components and specify the function that is the subject of the relief or alternative request.

- OM Code test requirement(s): List and describe the OM Code requirement(s) from which relief or alternative is being requested.

- Basis for relief or alternative: Clearly state the legal basis under which relief or an alternative is requested, and then explain the reasons why complying with the OM Code requirements is impractical, poses a hardship, or otherwise should not be enforced. Include all information that the NRC staff might need to complete its review. For example, most relief requests for check valves list the test direction(s) for which relief is requested.

- Proposed alternative testing and basis for use: Clearly and thoroughly discuss the proposed alternative in sufficient detail to clearly demonstrate why it is a reasonable alternative to the OM Code requirement, and provide a technical basis for its acceptability.

- Duration of Proposed Alternative or Relief ~~IST Interval~~: Provide the requested duration for ~~start and end dates of the 10-year IST interval for~~ which relief or alternative is requested (e.g., typical alternative requests are for the remainder of the current IST interval).

- Drawings and/or diagrams: If the relief request or alternative testing is complex, or if drawings or diagrams are available for further clarification, include them in the relief or alternative request, or include them in the IST program document and reference them in the relief or alternative request.

- References: List references to FSAR sections, technical specifications, and other pertinent documents. Any document referenced in the relief or alternative request should be submitted to the NRC on the plant docket. If a document is not docketed but contains pertinent information, the relief request should explicitly include the information (if it is not readily available to the NRC staff and the public), rather than merely referencing the document.

To improve the effectiveness and efficiency of the request process, the Nuclear Energy Institute (NEI) developed a white paper entitled, “Standard Format for Requests from Commercial Reactor Licensees Pursuant to 10 CFR 50.55a, Revision 1,” dated June 7, 2004 (ADAMS Accession No. ML070100400). This white paper provides useful guidance for determining the appropriate regulatory requirement under which a “relief request” is submitted for NRC approval, as well as the appropriate format and content to use in the request. The term “relief request” is used loosely in this instance to denote the various types of submittals allowed by 10 CFR 50.55a, including alternatives to the regulations [10 CFR 50.55a(z)], impractical relief requests [10 CFR 50.55a(f)(~~5~~6)], and requests to use later Code Editions and Addenda [10 CFR 50.55a(f)(4)(iv)]. ~~The NRC staff has reviewed the NEI White Paper and encourages licensees to use the specified format and content.~~

**Commented [WRD5]:** the template for alternative or relief requests in the NEI document is way out of date and does not reflect the format in this section.

### 2.5.4 Revising NRC-Authorized Relief or Alternative

RG 1.187, “Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments,” ~~dated May 2019,~~ provides guidance related to use of 10 CFR 50.59 process and endorses NEI 96-07, . ~~This 10 CFR 50.59 process does not allow the licensee to change an NRC granted or authorized relief request or alternative.~~

**Commented [WRD6]:** RG 1.187 is up to Rev 3 dated 6/2021

**Commented [WRD7]:** This is not stated RG 1.187

NEI 96-07, "Guidelines for 10 CFR 50.59 Implementation," NEI 96-07 Revision 1, dated November 2000, states that licensees' activities that are controlled by the regulations in 10 CFR 50.55a take precedence over 10 CFR 50.59. RG 1.187 endorses NEI 96-07, Revision 1.

**2.5.5 NRC Temporary Verbal Authorization of an Alternative Request**

On rare occasions, the NRC may grant verbal authorizations as an alternative under 10 CFR 50.55a(z) when, because of unforeseen circumstances, licensees need NRC authorization before the agency is able to issue its written safety evaluation as described in NRC Office Instruction LIC-102, Revision 3 "Review of Relief Requests, Proposed Alternatives, and Requests to Use Later Code Editions and Addenda," (ADAMS Accession No. ML18351A218).

Temporary verbal authorization for an alternative under 10 CFR 50.55a(z) is subject to the following:

- The proposed alternative is in writing, and all the information that the NRC requires to complete the safety evaluation has been docketed.
- An identified need for the verbal authorization is recognized given the circumstances of the licensee's request.
- The NRC has completed its review and determined that the proposed alternative is technically justified, but the agency has not yet formally documented it in a safety evaluation.
- The technical branch and reactor licensing branch chiefs have agreed to the verbal authorization.

Verbal authorization is most likely conveyed in a telephone conversation with a summary of the NRC staff evaluation. As such, appropriate NRC personnel who are normally involved in authorizing the alternative must be present in the telephone conversation. The NRC project manager should promptly (i.e., in 1 or 2 days) generate a record of the conversation; this record will meet the definition of an Official Agency Record (OAR) and must be entered into ADAMS and made publicly available. The NRC should issue the final written authorization within 150 days after giving verbal authorization.

**2.5.6 NRC Authorization of Proposed Alternative Similar to Prior NRC-Authorized Alternative and Reliefs**

Licensees occasionally submit alternative and relief requests that are very similar to NRC-authorized alternative and relief requests for the previous 10-year IST program intervals when updating their IST program in accordance with 10 CFR 50.55a(f)(4)(ii). This practice is acceptable provided that the licensee compares the requirements between the old and new ASME OM Codes and evaluates whether changes to the alternative request are necessary. For example, the OM Code has provisions added for exercising check valves such as disassembly and condition monitoring programs. Addressing the check valve disassembly and condition monitoring programs in the alternative request may be appropriate if these provisions were not included in the OM Code upon which the original alternative request was based. Furthermore, the addition of disassembly and condition monitoring programs to the OM Code may eliminate the need for the alternative request.

Licensees also should review new OM Code Cases before submitting an alternative and relief request for updated IST programs. For example, OM Code Case OMN-9, “Use of Pump Curve for Testing,” provides an alternative method for testing centrifugal and vertical line shaft pumps when the licensee is unable to obtain a specific reference value in accordance with Subsection ISTB of the OM Code. The NRC conditionally approved Code Case OMN-9 in RG 1.192, Revision 3. Code Case OMN-16, “Use of Pump Curve for Testing,” incorporates all the conditions specified for approval of Code Case OMN-9. OMN-16 is approved for use in RG 1.192, Revision 3. The use of Code Case OMN-9 or OMN-16 may eliminate the need for an alternative request.

# NUREG Section 3 – General Guidance on Inservice Testing

## Section 3.1 – Inservice Test Frequencies and Extensions for Valve Test

**Comment # 1:** Section 3.1.1.4 refences reactor coolant pumps for a test deferral to cold shutdown/refueling outage. Add a reference to Reactor Recirculation Pumps for BWRs (same limitations).

**Basis for comment #1:** Section 3.1.1.4 refences reactor coolant pumps for a test deferral to cold shutdown/refueling outage. BWR Reactor Recirculation Pumps have the same limitations where a pump shutdown is undesirable due to implications for core flow or power generation, and cooling water supply to this pump may result in damage to plant equipment within the RCPB.

## Section 3.2 – Initial 120-Month IST Program Interval

**No comments.**

## Section 3.3 – 120-Month Updates Required by 10 CFR 50.55a(f)(4)(ii)

**Comment #1:** Section 3.1.1, Page 3-3, "The guidance in this NUREG and in the NRC's letters issued in 1976 to licensees do not supersede the TS requirements" Please clarify which letters are being referred to or delete the sentence.

**Basis for comment #1**: This sentence is not clear what letters are being referred to.

**Comment #2:** Section 3.3.1, In addition to updating the discussion on the 120-month intervals, consider adding discussion related to Code Case OMN-31 on interval extensions. It may be helpful if this includes discussion on how to apply start and end dates to proposed alternatives and relief requests.

**Basis for comment #2**: Historically licensees have specified a specific end date for alternatives and relief requests that corresponds to the interval end date. Given that intervals can be extended via ISTA-3120(d) and/or Code Case OMN-31 (potentially), without prior NRC approval, these relief requests and/or alternative end dates can get out of step with the licensees prescribed interval date.

## Section 3.4 – Skid-Mounted Components and Component Subassemblies

**No comments.**

## Section 3.5 – Preconditioning of Pumps and Valves

### Section 3.5.1 -Background (Preconditioning of Pumps and Valves)

**Comment #1:** Appendix-III, subsection III-3600(b) states the following below, this wording would be appropriate to add here, as it represents ASME OM Code requirements for MOV "as-found" testing.

> "Inservice tests shall be conducted in the as-found condition. Activities shall not be conducted if they invalidate the inservice test results. If maintenance is needed between the inservice tests, see para. III-3400. As-found testing is not required prior to maintenance activities as long as the MOV is not due for an inservice test. If maintenance

> activities are scheduled concurrently with an MOVs inservice test, then the inservice test shall be conducted in the as-found condition, prior to the maintenance activity."

**Basis for Comment #1:** ASME OM Code Appendix III requires scheduled inservice tests be performed prior to maintenance.

**Comment #2:** Appendix-IV, subsection IV-3410(d) states the following below, this wording would be appropriate to add here, as it represents ASME OM Code requirements for AOV "as-found" periodic performance assessment testing.

> "(d) If maintenance activities are scheduled concurrent with an AOV's periodic performance assessment test, then the performance assessment test shall be conducted prior to the maintenance activity, where practicable. See para. IV-3520 for guidance on the effects of AOV replacement, repair, modification, or maintenance."

**Basis for Comment #2:** ASME OM Code Appendix IV requires AOV scheduled periodic performance assessment testing be performed prior to maintenance.

**Comment #3:** Appendix IV, Subsection IV-3420(c) states requirements for when AOV stroke tests are scheduled concurrently with performance assessment tests, this guidance would be appropriate to add here.

> "(c) Stroke testing should be performed prior to performance assessment testing when these tests are scheduled concurrently. This action ensures that the stroke test and its associated trendable parameters are performed under repeatable conditions to the extent practicable."

**Basis for Comment #3:** ASME OM Code Appendix IV provides guidance to ensure stroke tests and their associated trended parameters are performed under repeatable conditions.

**Section 3.5.2 – NRC Guidance**

**No comments.**

**Section 3.5.3 -ASME OM Code Guidance (Preconditioning of Pumps and Valves)**

**Comment #1:** If the Comments (#1,2,3) provided against section 3.51, associated with III-3600(b), IV-3410(d), and IV-3420(c) are added, they should also be listed in this section.

**Basis for Comment #1:** III-3600(b), IV-3410(d), and IV-3420(c) are specific examples of ASME OM Code requirements for collecting as-found data.

**Section 3.6 – Testing in the As-Found Condition**

**No comments.**

**Section 3.7 – Testing at Power**

**No comments.**

# NUREG Section 3 – General Guidance on Inservice Testing

## Section 3.8 – Potential Adverse Impact on Plant Components from Flow-Induced Vibration

**No comments.**

# NUREG Section 4 – Supplemental Guidance on Inservice Testing of Valves

## Section 4 – General Comments

**Comment #1:** Code Section ISTC- 1300 (a) Valve Categories Section states: "Category A valves for which seat leakage is limited to a specific amount in the closed position" are limited to valves identified in the design and license basis as having specific leakage limits. This includes Technical Specifications, USAR, Design Basis Documents, Calculations etc.

For valves that do not have a specified seat leakage limit, they can be maintained as Category B or other categories as applicable.

Additional guidance providing better clarification regarding these definitions would be helpful.

**Basis for Comment #1:** In some cases that an overall system leakage limit exists, it has been implied that since the category B valves contribute to total system leakage that they should be as category A. This consideration is not consistent with the plant design and licensing basis. Category B uses the term inconsequential. However, the term is not specifically defined and is not interpreted by utilities to include being a contributor to overall system leakage or creating an individual valve limit based on a variable or system disabling gross leakage rate.

## Section 4.1 – Check Valves

**Comment #1:** Section 4.1.3 states that a check valve must be full stroked to the open position, but I don't see anywhere in section 4.1 that clarifies that this is only required when testing a check valve via IST-C.

**Basis for comment #1**: OM Code Appendix II requires that a check valve be tested bi-directly, but it does not require a full stroke to the open position. A statement should be added to 4.1.8 to clarify that full stroke testing is only required when testing valves in accordance with ISTC-5221 and not Appendix II

**Comment #2:** Section 4.1.5.1 Closure Capability of Check Valves that Do Not Have Defined Seat Leakage Limits. This section provides guidance to clarify that a plants safety analysis may include leakage limits for a particular valve or may only require that the valve close to inhibit gross leakage. When a valve has a safety-related function to close to prevent diversion of flow between trains of a system there may be a leakage limit based on total system requirements. The guidance goes on to explain that OM Code does not specifically require these valves to be Category A. This section is focused on check valves as described in the section title. This insight should be expanded to address other types of valves in general or reasoning why this information is limited to check valves should be provided.

**Basis for Comment #2:** The ASME OM Code Category A and B description are not focused on the type of valves. They are focused on the valve function. This is the only guidance regarding separation of system leakage from individual component leakage in NUREG 1482. However, it has been implied that this guidance is only applicable to check valves.

# NUREG Section 4 – Supplemental Guidance on Inservice Testing of Valves

## Section 4.2 – Power-Operated Valves

**Comment #1:** The introductory 4.2 section of the NUREG, associated with power-operated valves, should be updated to reflect Appendix III provides requirements for active motor operated valves, and the new requirements for AOVs under Appendix IV (in general terms).

**Basis for Comment #1:** Appendixes III, and IV provide new requirements not alluded to in this introductory section on power-operated valves.

### Section 4.2.1 – Stroke Time Testing Reference Values for Power-Operated Valves

**Comment #2:** Consider modifying section 4.2.1 to include a discussion of the stroke timing of active motor-operated valves under NRC Condition 10 CFR 50.55a(b)(3)(xi)(D) when implementing Appendix III. The valves are timed, and the measured times are compared to a TS (safety analysis) assumed value without reference values utilized.

**Basis for Comment #2:** Reference values are no longer used under Appendix III, as modified by NRC Condition 10 CFR 50.55a(b)(3)(xi)(D), the safety analysis may also impose assumed times that are not given in Technical Specifications.

### Section 4.2.2 – Stroke Time Measurements for Rapid Acting Valves

**No comments.**

### Section 4.2.3 – Stroke Time for Solenoid-Operated Valves

**No comments.**

### Section 4.2.4 – Supplement to the POV Stroke-Time Test Provisions of the ASME OM Code

**Comment #3:** (Draft addition after fourth? paragraph page 4-21) OMN-26 was developed to apply Risk-informed MOV inservice testing that incorporate risk insights in conjunction with MOV Functional Margin to establish MOV grouping, acceptance criteria, exercising requirements and test interval may be implemented. Potentially allowing for longer test intervals more aligned with MOV Division Outage scheduling considerations for both PWR and BWR US Nuclear Licensees.

**Basis for Comment #3:** RG 1.192, OMN-26 Preamble

### Section 4.2.5 – Alternatives to POV Stroke-Time Testing

**No comments.**

### Section 4.2.6 Main Steam Isolation Valves

**Comment #4:** ASME XI paragraph IWV-3415 requires that the fail-safe valves be tested by observing the operation of the valves upon loss of actuator power. Whereas the stations then could test your MSIVs with instrument air valved in and valved out. If closure times are virtually equal, then the stations could take the position that normal inservice testing (instrument air valved in) of the MSIVs fulfills the requirements of AMSE XI-1980-IWV-3415. If the time are

appreciably different, but still within tech spec, then stations could elect to test all MSIVs during shutdown or adjust the stroke time requirements to encompass the results of the IWV-3415 testing.

**Basis for Comment #4:** Some plants response to the IN85-84 many licensees may not have taken advantage of ASME XI-1980 paragraph IWV-3415. Where in ASME (2020) ISTC-3560 states that AOV fail-safe test frequency shall meet the requirements of mandatory APPX IV IV-3430, which the wording has not changed since IN 85-84, with no mention of removal of air in either case. There is no basis written for NUREG-1482 and AMSE Code 2020 that air must be removed to pass your MSIV testing (although inferred).

**Comment #5:** The basis for the NRC recommendation only touches on IN 85-84 and SI 477 (circa 1989). The SIL describes tightening of gland flanges on MSIVs that can prevent the valve from closing. Also, stating that spring alone will not close the MSIVs. GE recommends a force balance calc, leak-tightness test of the MSIV actuator, accumulator and modify licensing basis document. If the MSIVs are tested by the IST program and most likely have TS associated with them the stations testing methodology would show more IST failures.

**Basis for Comment #5:** With the recent POV inspections if there were non-postulated events it should have been uncovered. All the GE recommendations should have been in place by the 90-91 timeframe or at least a closure letter stating why and possible relief. It is unsure how you would have justified not doing these items considering how turbulent the late 80s and early 90s in reference to 89-10 and 96-05 for MOVs.

**Comment #6:** The final paragraph of Section 4.2.7 references and discusses 10 CFR 50.55a(b)(3)(xi). It is recommended the discussion of 10 CFR 50.55a(b)(3)(xi) be updated to reflect recent rulemaking (10/27/22) and Code Case OMN-28.

**Basis for Comment #6:** The NUREG currently references the use of 10 CFR 50.55a(z) for satisfying the intent of 10 CFR 50.55a(b)(3)(xi) on a longer interval, OMN-28 is another avenue based on the 10/27/22 rulemaking.

**Section 4.2.7 – Verification of Remote Position Indication for Valves by Methods other than Direct Observation**

**Comment #7:** The final paragraph of Section 4.2.7 references and discusses 10 CFR 50.55a(b)(3)(xi). It is recommended the discussion of 10 CFR 50.55a(b)(3)(xi) be updated to reflect recent rulemaking (10/27/22) and Code Case OMN-28.

**Basis for Comment #7:** The NUREG currently references the use of 10 CFR 50.55a(z) for satisfying the intent of 10 CFR 50.55a(b)(3)(xi) on a longer interval, OMN-28 is another avenue based on the 10/27/22 rulemaking.

**Section 4.2.8 – Requirements for Verifying Position Indication of Passive Valves**

**No comments.**

# NUREG Section 4 – Supplemental Guidance on Inservice Testing of Valves

**Section 4.2.9 – Control Valves with a Safety Function**

**No comments.**

**Section 4.2.10 – Pressurizer Power-Operated Relief Valve Inservice Testing**

**Comment #8:** This is confusing to Vogtle 3&4 because they do not have "Pressurizer" Power Operated Relief Valves but do have valves on our Main Steam header that have a noun name of "Power Operated Relief Valves". Because of the noun name, these were categorized as relief valves and scheduled to be tested each refueling outage. They are not true relief valves. They do relieve steam pressure, not because the steam pressure rises and causes the plug to lift off of the seat, but because and instrument senses steam pressure rising and sends a signal to these AOV's to open as mech as needed to relieve steam pressure and then reseat once the pressure drops. This is similar to an atmospheric dump valve (or atmospheric vent valve as it is called at some plants), which is not addressed in NUREG-1482. Maybe it would be a good idea to have a section added to the NUREG to discuss Atmospheric Dump Valves and the philosophy of testing them.

**Basis for Comment #8:** Section 4.2.10 is not all inclusive for all plant designs and an additional section on Atmospheric Dump Valves would be beneficial.

**Comment #9:** Section 4.2.10, Bullet #4 under NRC Recommendations states that PORV block vales should be tested quarterly to ensure protection against a small-break LOCA in the event that a PORV fails open. Recommend that this testing frequency be changed to once/cycle.

**Basis for Comment #9:** Several sites in the industry have written cold shutdown justifications for the testing of their PORV block valves due to the risk posed to the station of testing the valves online. Under this guidance, if a station is operating with a block valve closed due to an existing PORV leak, the station would be required to open the valve each quarter, potentially introducing damage to block valve seat and increasing the existing damage to the PORV caused by the initial leak. There is also risk of a small-break LOCA if the block valve failed to re-close during the test.

**Section 4.2.11 – Online Check Valve Sample Disassembly and Inspection**

**No comments.**

**Section 4.2.12 – POVs in New Reactors**

**No comments.**

**Section 4.2.13 – Relationship between GL 89-10, GL 96-05, EPRI MOV Performance Prediction Methodology (PPM), Joint Owners Group (JOG), and Mandatory Appendix III for Motor-Operated Valves**

**No comments.**

**<u>Section 4.3 – Safety and Relief Valves</u>**

# NUREG Section 4 – Supplemental Guidance on Inservice Testing of Valves

**Comment #1:** Section 4.3.1 ends with "The testing of these devices is to be included in 120-month updated IST programs." The "120-month updated" should be removed.

**Basis for Comment #1:** With OMN-31 and the movement planned for the CFR to allow the use of the same edition for multiple IST Intervals, this statement should be clarified by the removal of the wording "120-month updated"

**Comment #2:** Section 4.3.2.1 references the 2017 edition. This should be updated with 2020, 2022, or latest approved edition.

**Basis for Comment #2:** Requirement is unchanged from 2017 - 2022 Codes and is not planned to be changed in the near term.

**Comment #3:** Section 4.3.6 addresses testing of Class 1 SRVs per OMN-17 and describes the requirements through the 2017 OM Code. An additional statement is needed that this Code Case has been incorporated into Appendix I of the ASME OM Code in the 2020 and newer editions of the Code.

**Basis for Comment #3:** Update to reflect Code Incorporation for plants utilizing 2020 or newer ASME OM Codes.

**Comment #4:** Recommend adding sections to address OMN-24 and OMN-25.

**Basis for Comment #4:** Code case OMN-24 and OMN-25, which discuss alternative requirements for testing of pressure relief valves, were recently approve for use in revision 4 of RG 1.192. As such, they should be discussed in NUREG 1482

# NUREG Section 4 – Supplemental Guidance on Inservice Testing of Valves

## Section 4.4 – Miscellaneous Valves

**Comment #1:** The discussion of section 4.4.3.2 focuses on the need to manually reposition a power operated valve caused by a motor failure. The other case is a Non-1E power supplied valve that is credited with manual positioning. As manual positioning is "credited", it would be subject to a manual exercise, and remote position exercising if equipped with remote indication.

**Basis for Comment #1:** Provide another example of a power operated valve subject to a manual exercise, this case is probably more prevalent.

**Comment #2:** Recommend section 4.4.4 be updated to updated to reference Code Case OMN-23, and interaction required with TS.

**Basis for Comment #2:** OMN-23 establishes a performance-based approach for PIV leak testing, which is relatively new.

**Comment #3:** Section 4.4.4.1, PIV Discussion in Generic Letter 87-06. This paragraph states that "PIVs need to be included in and tested by the IST programs if they are not included as part of a licensee's TS.". While it is true that all PIVs will typically fall within the scope of IST, some older plants licensing basis does not require that the PIVs be considered as Category A valves. The categorization of whether PIVs are Category A, or something else, is driving by the plant's licensing basis and whether they have deviations from certain GDC requirements on the Reactor Coolant Pressure Boundary (RCPB) and commitments they may, or may not have, in the GL 87-06 responses.

**Basis for comment #3**: Some plants responses to GL 87-06 did not include any leak testing provisions on certain PIVs and only those PIVs that are within TS are classified as "A". Some older plants were built prior to the GDC requirements and are not required to meet all of the GDC requirements as discussed in their UFSAR. In these cases, RCS leakage is classified as a system leakage and constantly monitored. The individual PIVs do not have a specific leakage requirement as defined in the ASME OM Category A definition.

**Comment #4:** Recommend deleting section 4.4.5.

**Basis for Comment #4:** NUREG 1482 and ASME OMN code basically repeat themselves. Valves that function as containment isolation valves (CIVs) may have additional safety functions (i.e., other than isolation), such as pressure isolation, train separation, or preventing diversion of flow. The leakage testing for 10 CFR Part 50, Appendix J, might not adequately test these additional functions based on the pressure or fluid medium. For such valves, the requirements of both Appendix J and OM Code, Subsection ISTC, paragraph ISTC-3600 apply.

**ISTC-3620 Containment Isolation Valves.** Containment isolation valves with a leakage rate requirement based on Appendix J program commitment shall be tested in accordance with the Owner's 10 CFR 50, Appendix} program. Containment isolation valves with a leakage requirement based on other functions shall be tested in accordance with ISTC-3630. Examples of these other functions are reactor coolant system pressure isolation valves and certain Owner-

defined system functions such as inventory preservation, system protection, or flooding protection.

**Comment #5:** Add or update section 4.4.7: That when combining Appendix II with Option B of APP J that the Appendix II grouping testing frequency as specified in the Appendix II and the CFR could depending on the grouping size be the limiting factor in establishing the testing sequencing / frequency.

**Basis for Comment #5:** 10 CFR 50.55a and ASME Appendix II table specifics maximum interval between activities of member valves in the group and each valve. So caution may need to be used to sequence correctly especially of groups 3 or more.

**Comment #6:** The last sentence of the first paragraph of 4.4.8 states "The NRC has incorporated by reference those editions of the OM Code in 10 CFR 50.55a without conditions for squib valve testing". In the next sentence, it states "To supplement OM Code provisions for squib valves prior to the 2012 Edition, the NRC specified license conditions for PST and IST surveillance of squib valves when issuing the COLs for VEGP Units 3 and 4". Since VEGP is using the 2012 Edition, it appears that everything beginning with the sentence that begins with "To supplement OM Code" all the way through and including the paragraph that begins with "This license condition supplements" should be deleted. Also, in the last paragraph, the reference to VEGP Units 3 and 4 should be deleted.

**Basis for Comment # 6:** Update to for consistency.

**Comment #7:** Most of section 4.4.8 is not needed and brings up the following comment.

Paragraph ISTC-5260(e)(2) of the 2012 (and possibly later) edition of the OM Code states "At least once every 2 yr, one valve of each size shall be disassembled for internal examination of the valve and actuator". ISTC-5260(e)(2)(b) goes on to say that "Each valve shall be disassembled for internal examination at least once every 10 yr". However, in the discussion of pyrotechnic-actuated valves in paragraph 4.4.8(b)(2), NUREG-1482 states "The examination schedule shall provide for each valve design used for explosively actuated valves at the facility to be included among the explosively actuated valves to be disassemble and examined every 3 years". It is not clear why the NRC is focusing on valve design for determining how many valves must be disassembled when the Code states that size is the determining factor.

**Basis for Comment #7:** The ASME OM Code states size is a determining factor for explosively actuated valves and the focus on design seems to be outside the scope of the Code.

# NUREG Section 5 – Supplemental Guidance on Inservice Testing of Pumps

## Section 5.1 – General Pump Inservice Testing Issues

**Comment #1:** The last paragraph of section 5.1 Appendix V, the section should be updated to reflect the 2020 ASME OM Code and PPV.

**Basis for comment #1**: 2020 ASME OM Code incorporated Appendix V.

**Comment #2:** Section 5.1.2 should be updated to reflect the "Pump Periodic Verification Test Program" frequency and requirements of App. V and the 2020 OM ASME Code.

**Basis for Comment #2:** This section lists Preservice, Group A, group B, and Comprehensive test only, omitting mention of PPVTP.

**Comment #3:** Section 5.1.1 implies that the 2017 edition requires categorization of pumps. The edition should be removed; any edition or addenda currently known to be in use contains this requirement.

**Basis for Comment #3:** The edition should be removed; any edition or addenda currently known to be in use contains this requirement.

**Comment #4:** Section 5.1.2 describes the preservice test. 2020 Edition now includes wording for the 'baseline test'. This should be addressed in the NUREG.

**Basis for Comment #4:** The differences/application differences between the old pre-service requirement and 'baseline' test should be addressed. Additionally, discussion on post-maintenance testing (Group A until conditions are available to perform a CPT/Preservice) would be a beneficial addition.)

**Comment #5:** Section 5.1.2 describes the change in definition in the comprehensive test. This should be expanded.

**Basis for Comment #5:** For some pumps, the test point within 20% of design flow for the plant may not have been at an ideal point for 'detecting degradation'. When updating to the 2012 or newer Codes, licensees should verify that the existing comprehensive test point meets the new definition.

## Section 5.2 – Use of Variable Reference Values for Flow Rate and Differential Pressure During Pump Testing

**Comment #1:** "When a reference value or set of values may have been affected by repair, replacement, or routine servicing of a pump, ISTB-3100, requires the station to establish a new reference value or set of reference values. Deviations between the previous and new set of reference values shall be evaluated, and verification that the new values represent acceptable pump operation shall be placed in the record of tests (see ISTB-9000)."

For plants utilizing ASME OM Codes prior to the 2020 Edition, compliance with this requirement may result in a change in operating modes or a plant shutdown to perform the required testing. To avoid a plant shutdown, an exigent relief request would be required.

# NUREG Section 5 – Supplemental Guidance on Inservice Testing of Pumps

ASME OM Code, 2020 Edition is the latest approved OM Code year in accordance with 10CFR50.55a Codes and Standards. Subsections ISTB-3310 and ISTB-3313 Effect of Pump Replacement, Repair and Maintenance on Reference Values is now followed by ISTB-3311 Replacement and Major Maintenance and provides guidance for testing after replacement or major maintenance that cannot be performed in the current plant operating mode.

"When the testing required by ISTB-3311 is impractical due to plant operating mode /conditions, ISTB-3313 provides direction for Baseline Test Deferral. The required test and other actions are performed in accordance with ISTB-3311, the next time the plant enters a condition where the test can be performed and no later than the resumption of electric generation by nuclear energy at the conclusion of the next refueling outage.

**Basis for comment #1:** In order to avoid an un-necessary plant shut down or to simplify the submittal of an Exigent Relief Request, a simplify and systematic approach could be provided.

## Section 5.3 – Allowable Variance from Reference Points and Fixed-Resistance Systems

**Comment #1:** Update to reflect the incorporation of variance around reference values into the later Editions of the Code.

**Basis for Comment #1:** Code was updated in the newer Editions.

## Section 5.4 – Monitoring Pump Vibration in Accordance with ISTB

**Comment #1:** Incorporate the vibration accuracy changes made in the 2022 Code for ISTB and ISTF for slow speed pumps.

**Basis for comment #1**: Code was updated in the newer Editions.

## Section 5.5 – Pump Flow Rate and Differential Pressure Instruments

**Comment #1:** Consider updating this discussion to note the ± 2% does not include the primary element (orifice plate), or non-calibrated part of flow loop, or clarify section 5.5.4 contains clarifying guidance on what the ± 2percent includes.

**Basis for Comment #1:** Guidance for new IST engineers, consistency with section 5.5.4.

**Comment #2:** Provide position/recommendations for OMN-32. This establishes alternate controls on instrument accuracy.

**Basis for Comment #2:** Guidance for new IST engineers, and updates to incorporate new allowances.

# NUREG Section 5 – Supplemental Guidance on Inservice Testing of Pumps

## Section 5.6 – Operational Readiness of Pumps

**Comment #1:** ISTB-6200 (a) Corrective Action/ Alert Range – requires the frequency of testing to be doubled until the cause of the deviation is determined and the condition is corrected, or an analysis of the pump is performed in accordance with subpara. (c) Analysis.

Group B pumps require a comprehensive test biannually / at least once every 2 years. The required fluid inventory is needed to perform this. If a Group B Comprehensive Pump Test results are in the Alert Range, Doubling the test frequency from Biennially to Annually would result in the test potentially being scheduled during a mode of operation that testing cannot be performed due to Lack of fluid inventory. In this case, is it acceptable to defer the increased frequency comprehensive testing until the plant is in a mode of operation that supports performance of a Comprehensive test or is it implied that the plant would be required to change modes of operation or submit a relief request.

**Basis for comment #1**: Enhanced guidance for following the code in the area of alert frequency testing.

## Section 5.7 – Duration of Tests

**Comment # 1: Update with recommendations for PPVT**

**Basis for comment #1**: Section 5.7 does not address Pump Periodic Verification Tests. There is no explicit time required for operation of the pump during the PPVT. However, the time required for the test should be at least long enough to document stable hydraulic conditions. 5.7 Recommends 2 minutes for a Group B test if practicable, similar guidance is recommended for the PPVT.

## Section 5.8 – Adjustments for Instrument Inaccuracies

**Comment # 1: Update with recommendations for PPVT**

**Basis for comment #1**: Section 5.8 does not address Pump Periodic Verification Tests. The instrumentation utilized and the acceptance criteria for the PPVT needs to have a documented basis for use as required by ISTB-9100(e). The requirements of Table ISTB-3510-1 allow the owner to select any accuracy instrument as long as the impact to the test criteria is accepted and documented.

## Section 5.9 – Pump Testing Using Minimum Flow Return Lines With or Without Flow Measuring Devices

**No comments.**

# NUREG Section 5 – Supplemental Guidance on Inservice Testing of Pumps

## Section 5.10 – Alternative to ASME OM Code Comprehensive Pump Testing Requirements

**Comment #1:** This section contains guidance on meeting required test flows for a Comprehensive Pump Testing. Similar guidance should be provided for the Appendix V PPVTP as defined by V-2000, at the highest design basis accident flow rate.

**Basis for Comment #1:** This section provides guidance on addressing the Impracticality of performing a CPT at ± 20 of pump design flow, identifying information required to support Relief. Licensees in such a condition will probably have the same difficulty in meeting V-2000 requirements, are the seven listed required information also sufficient?

## Section 5.11 – Waterleg Pumps

**No comments.**

## Section 5.12 – Smooth-Running Pumps

**Comment #1:** The following sentence should be removed: "The NRC has authorized alternative vibration acceptance criteria for smooth-running pumps on a case-by-case basis in accordance with 10 CFR 50.55a(z)."

**Basis for comment #1**: RG 1.192 endorsed Code Case OMN-22, therefore, Licensees no longer need to submit a relief request in accordance with 10 CFR 50.55a(z).

**Comment #2:** The following sentence should be updated: "Until Code Case OMN-22 is published by ASME and endorsed in RG 1.192, an alternative request is required to implement this Code Case for smooth running pumps."

**Basis for comment #2**: RG 1.192 endorsed Code Case OMN-22, therefore, Licensees no longer need to submit a relief request in accordance with 10 CFR 50.55a(z).

## Section 5.13 – Vibration-Measuring Transducers

**No comments.**

## Section 5.14 – Motor Drivers for Pumps

**No comments.**

## Section 5.15 – Pumps in New Reactors

**No comments.**

# NUREG Section 6 - STANDARD TECHNICAL SPECIFICATIONS

**Comment #1:** Section 6.1 should be deleted in its entirety.

**Basis for comment #1**: Section 6 of NUREG 1482 states:

"The Administrative Controls Technical Specification 5.5 includes a requirement to establish, implement, and maintain a program entitled "Inservice Testing Program." This program provides controls for properly applying test frequencies associated with inservice testing of components activities under 10 CFR 50.55a(f) to Surveillance Requirements under 10 CFR 50.36."

However, TSTF Traveler 545 (attached) removed the description of the IST program from the Administrative Controls Technical Specification 5.5 in the Standard Tech Specs (STS) for all reactor containment designs and instead added a definition for the IST program in the Definitions Section of the STS which states "The INSERVICE TESTING PROGRAM is the licensee program that fulfills the requirements of 10 CFR 50.55a(f)."

Also, TSTF 596 (attached), which is currently undergoing NRC review, deletes the definition of the IST program that was added in TSTF 545 and replaces references to the IST program in the plant TS with references to the Surveillance Frequency Control Program.

Therefore, Section 6 of NUREG 1482 should be deleted. Plants are obligated under 10 CFR 50.36 to comply with their TS so deleting Section 6 of NUREG 1482 would have no impact on plant operations.

# NUREG Section 7 -IDENTIFICATION OF CODE NONCOMPLIANCE

No changes are recommended to this section

# NUREG Section 8 – Risk Informed Testing

**No comments.**

# NUREG Appendix A – Snubbers

**Comment #1:** The title of Appendix A should include “Water Cooled” in reference to nuclear power plants.

**Basis for comment #1**: This change would be consistent to the title of ISTD.

**Comment #2:** There is a typo in the second paragraph of A.2.5. 10 CFR50.55a(f)(5)(iii)-(iv) is referenced as 10 CFR5.55a(f)(5)(iii)-(iv)

**Basis for comment #2**: The “0” is missing in 50.55a.

**Comment #3:** There is a typo in the second paragraph of A.3.5. “an nuclear plant” should be “a nuclear plant”.

**Basis for comment #3**: Correction for grammar.

# NUREG Appendix B – Implementation of 10 CFR 50.69

**Comment #1:** Remove Appendix B from NUREG-1482 “Guidelines for Inservice Testing at Nuclear Power Plants”

**Basis for comment #1**: Appendix B should be removed from NUREG-1482 “Guidelines for Inservice Testing at Nuclear Power Plants” since it is a guideline and mainly used for Inservice Testing components driven by ASME OM code, not 10 CFR 50.69 components. In addition, this guideline should not provide suggestions to alternative treatment as it is driven by the licensee per 10 CFR 50.69 if authorized at the utility.