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RULES AND DIRECTIVES
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NRCREP Resource

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Sent: Wednesday, November 23, 2011 1:14 PM
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Subject: Response from "Comment on NRC Documents"

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Below is the result of your feedback form. It was submitted by

Ronald Lippy (rcl@tnorthconsulting.com) on Wednesday, November 23, 2011 at 13:14:16

Document_Title: Guidelines for Inservice Testing at Nuclear Power Plants: Inservice Testing of Pumps and Valves and Inservice Examination and Testing of Dynamic Restraints (Snubbers) at Nuclear Power Plants — Draft Report for Comments (NUREG-1482, Revision 2)

Comments: ITEM No. NUREG 1482 R2 DRAFT Section/Page COMMENT

1. 2.2 Code Cases, Page 2-1

The regulation at 10 CFR 50.55a(b)(6) incorporates by reference Regulatory Guide (RG) 1.192, Operation and Maintenance Code Case Acceptability, ASME OM Code." Licensees may implement the code cases listed in RG 1.192 without obtaining further NRC review or approval if the code cases are used in their entirety with any supplemental conditions specified in the RG. RG 1.193, "ASME Code Cases Not Approved for Use," lists code cases not approved for use. The statement made here regarding Code Case use is NOT complete. The Code also has to be applicable to the Station regarding the Code Edition/Addenda in use at the station.

2. 5.2, Page 5.1

The regulation at 10 CFR 50.55a(f)(4) requires 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 at 10 CFR 5.55a(f)(5)(iii)–(iv) and 10 CFR 50.55a(f)(6)(i) use the term "impractical" instead of "extent practical." The terms "extent practical" and "impractical" apply to test requirements in the OM Code that licensees cannot perform due to the design, geometry, and materials of construction of the pump or valve. For example, ASME OM Code, Subsection ISTC-5131, "Valve Stoke Testing," requires that the limiting stroke time for power operated valves be specified by the licensee and measured within limits based on the full-stroke time of the valves. Typo. Stoke should be Stroke.

3. 5.4, Page 5-3

The most common examples of an ASME non-compliance that can result in a TS violation are either a missed IST test required by TS Surveillance Requirement (SR) or when components fail or are declared inoperable by the OM Code tests. This is a confusing issue because IST is required by Tech Specs however, it may be just a general statement such as "pump A is required to be tested in the IST Program." This is a TS requirement but not necessarily a specific SR. The SR as stated above may just refer to testing per the IST Program. The IST Program is an administrative TS in many cases and the issue of whether or not the component's SR is specific enough is always a question. Could you clarify this further? If an operability determination is made and the component is determined to be operable but, cannot be tested for several months and therefore the station is in "noncompliance" with the administrative requirement of the TS, is a verbal or exigent relief required to address the non-conforming condition?

4. Appendix A, Section 1.1, Page A1-1

The NRC regulations in 10 CFR 50.55a(b)(3) incorporate by reference the 1998 Edition through the 2004 Edition with 2005 and 2006 addendas of the Code for Operation and Maintenance of Nuclear Power Plants (OM Code) promulgated by the American Society of Mechanical Engineers (ASME), in which Subsection ISTA provides general IST requirements and Subsections ISTB, ISTC, and ISTD provide specify the IST requirements for pumps, valves, and dynamic restraints, respectively. Need to add a clarification to the 2nd paragraph to state that as of July 21, 2011, the 1998....thru the 2006 addenda...

5. Appendix A, Section 2.1, Page A2-1.

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In addition, Paragraph 50.55a(f)(4)(ii) requires that IST conducted during each 120-month interval following the initial interval must be conducted in compliance with the requirements of the latest edition and addenda of the Code incorporated by reference in the version of 10 CFR 50.55a(b) that is in effect 12 months before the start of the interval. The NRC regulations in 10 CFR 50.55a(b) incorporate by reference the 1995 Edition through the 2004 Edition including 2005 and 2006 addendas of the ASME OM Code subject to limitations and modifications conditions. Need to add a clarification to the 2nd paragraph to state that as of July 21, 2011, the 1998....thru the 2006 addenda...

6. Appendix A, Section 2.1, Page A2-4.

If RG 1.193 identifies a Code case as being unacceptable, licensees may not implement the specified Code case without first obtaining NRC approval. Licensees may request the NRC's approval to implement a Code case listed in the RG under the provisions of 10 CFR 50.55a(a)(3), which permits the use of alternatives to the Code requirements referenced in 10 CFR 50.55a, provided that the proposed alternative results in an acceptable level of quality and safety, by addressing the NRC s concern and submitting a plant-specific relief request. This appears to state that you can ask for an "alternative to the code" the code case which was not approved to an alternative, " the alternative to the code case which was not approved". I do not think that this is acceptable to have an alternative to an alternative?

7. Appendix A, Sections 2.2 & 2.2.1, Page A2-4 & A2-5

The intent of General Design Criterion (GDC) 1 (defined in Appendix A to 10 CFR Part 50) and Criterion XI (defined in Appendix B to 10 CFR Part 50) is that all components (such as pumps and valves) that are necessary for safe operation must be tested to demonstrate that they will perform satisfactorily in service. Among other things, GDC 1 requires that components that are important to safety must be tested to quality standards that are commensurate with the importance of the safety function(s) to be performed. Appendix B to 10 CFR Part 50 describes the requisite quality assurance program, which includes testing, for safety-related components. In addition, 10 CFR 50.55a(f) requires that licensees must use the ASME OM Code for inservice testing of components that are covered by the Code. Each licensee has the responsibility to demonstrate the continued operability or functionality of all components within the scope of their IST program. The regulatory guides augment those requirements by providing additional NRC guidance regarding scope and classification. In short, the ASME Code defines the scope, 10 CFR 50.55a endorses the Code with clarifications, and regulatory guides provide additional guidance.

2.2.1 Basis for Scope Requirements

The requirements for the scope of components to be included in an IST program are addressed in 10 CFR 50.55a(f). Specifically, 10 CFR 50.55a(f)(4) states, "Throughout the service life of a boiling- or pressurized-water-cooled nuclear power facility, pumps and valves which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the inservice test requirements set forth in the ASME OM Code."

ASME Code Class 1 components include all components within the reactor coolant pressure boundary. RG 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants," Revision 4, dated March 2007, provides guidelines for establishing the quality group classification (and ASME Code classification) for water-, steam-, and radioactive-waste-containing components of nuclear power plants, other than those in the reactor coolant pressure boundary (i.e., ASME Code Class 2 and 3 components).

The ASME OM Code is incorporated by reference in 10 CFR 50.55a(b)(3). The OM Code defines the scope by stating that IST programs shall include pumps and valves that are required to perform a specific function in (1) shutting down the reactor to a safe shutdown condition, (2) maintaining the safe shutdown condition, or (3) mitigating the consequences of an accident. The scope of the OM Code also covers pressure relief devices that are used to protect systems (or portions of systems) that perform a required safety-related function. Therefore, the scope of components to be included in an IST program must encompass ASME Code Class 1, 2, and 3 components that are covered in Subsection ISTA of the ASME OM Code. Why do the federal regulations Limit the IST scope to ASME Class 1, 2 and 3 components and why is the limit to safe shutdown instead of cold shutdown. The Code (other than RVs and Snubbers), no longer refers to class of components. As evidenced by recent industry issues throughout the world shouldn't all IST components be pumps, valves, snubbers, dampers, etc., that perform the safety related functions and NOT be limited to ASME Class 1, 2 and 3. Also, shouldn't the safe shutdown for ALL facilities be Cold Shutdown?

8. Appendix A, Section 2.2.1, Page A2-6 Need to provide a more solid clarification that IST components are NOT limited to just those in Chapter 14 or 15 accidents but, are required for essentially any "transients" that could cause a decrease to the health and safety of the public. In my opinion, the NRC causes confusion with the "safe shutdown" statement and the "vagueness" in NOT stating that accidents are

NOT just Chapter 14 or 15 but any transients. To me the term should be licensing bases and not just design bases accidents as has been described in the past. Especially in lieu of the Japan issue.

9. Appendix A, Section 2.2.2, Page A2-6

Licensees should review their IST programs to ensure adequate scope. Components that are frequently erroneously omitted from IST programs include the following examples: What about Excess Flow CVs? These have always been an issue and there needs to be some clarification as to the NRC requirements, NEDO document, BWROG paperwork/....etc.

10. Appendix A, Section 2.2.3, Page A2-7

An IST program is also a reasonable vehicle to periodically demonstrate the operability of pumps and valves that are not covered by the Code.

Nonetheless, the licensee should maintain documentation that provides assurance of the continued operability or, as required the continued functionality of the non-Code components through the performed tests, and such documentation should be available for staff inspection at the plant site. May want to change "operability" to "operational readiness">

11. Appendix A, Section 2.2.4, Page A2-7

If a licensee includes a component in the IST program, the component is considered to be within the scope of the program and may only be removed if the licensee meets the applicable criteria of 10 CFR 50.55a and 50.59. Similarly, if the TSs require a licensee to test a component in accordance with the 10 CFR 50.55a IST program, it is considered to be within the scope. The component is within the IST scope even if it is NOT ASME Class 1, 2 or 3?

12. Appendix A, Section 2.4.5, Page A2-12

Check valves that can be stroked quarterly, but must be monitored by a nonintrusive technique to verify full stroke, may be full-stroke tested during cold shutdown or refueling outages if another method of verifying full-stroke exists during such plant conditions. The NRC would not require a licensee to invest in nonintrusive equipment for the purpose of testing check valves quarterly (instead of testing them during cold shutdown or refueling outages), even though the use of nonintrusive techniques is recommended where practical. However, the NRC would continue to require the quarterly partial-stroke testing as applicable. (See also Section 3.1.1

The Code no longer requires that the CV be partial stroke exercised except upon reassembly where practicable.

13. Appendix A, Section 2.4.5, Page A2-12

A licensee may request relief from quarterly testing where such testing would impose a hardship (e.g., entering a limiting condition for operation of 3 to 4 hours in duration, repositioning a breaker from "off" to "on," and necessitating for manual operator actions to restore the system if an accident were to occur while the test was in progress). Why would a relief request be required here? Wouldn't this be satisfied by a CSJ or ROJ?

14. Appendix A, Section 2.4.5, Page A2-12

A licensee may request relief from quarterly testing where such testing would impose a hardship (e.g., entering a limiting condition for operation of 3 to 4 hours in duration, repositioning a breaker from "off" to "on," and necessitating for manual operator actions to restore the system if an accident were to occur while the test was in progress). Could you use dedicated operators for these types of tests? Would Relief be required to use dedicated operators?

15. Appendix A, Section 2.5.3, Page A2-17

Basis for relief: Clearly state the legal basis under which relief is requested, and then explain the reasons why complying with the Code requirements is impractical, poses a hardship, or otherwise should not be enforced. Include justification for each test frequency deferral (e.g., quarterly to cold shutdown), and state and justify the proposed frequency. 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.

Again, it appears that the NRC is requiring relief for a test frequency deferral of Quarterly to CSD or Refueling.

16. Appendix A, Section 2.7, Page A2-19
For a COL issued per 10 CFR Part 52, the NRC regulations in 10 CFR 50.55a(f)(4)(i) and (g)(4)(i) state that inservice tests and inspections conducted during the initial 120-month interval to verify operational readiness of applicable plant components, whose function is required for safety, must comply with the requirements in the latest edition and addenda of the ASME Code, incorporated by reference in 10 CFR 50.55a(b) on the date 12 months before the date scheduled for initial fuel loading (or the optional ASME Code cases listed in RG 1.192) subject to the limitations and modifications listed in 10 CFR 50.55a. Licensees may submit a request under 10 CFR 50.55a to apply the edition and addenda of the ASME OM Code specified in the COL application for the initial 120-month IST interval as an alternative to the latest edition and addenda of the ASME OM Code, where the differences between the IST provisions in these Code editions and addenda are addressed. Would this be an "alternative" under (10 CFR 55a(a)(3)(i)) or just an approval per RIS 2004-12? Is it permitted to use an earlier edition of the Code?

17. Figure 2.1, Appendix A, Page A2-30

Isn't this a different word then defined previously? "impracticable" vs. "impractical".

18. Figure 2.1, Appendix A, Page A2-30

missing words after "up to"

19. Figure 2.1, Appendix A, Page A2-30

What about ISTD?
20. Appendix A, Section 3.1.1, Page A3-2 This is all going to be made "null and void" based on TIA information. May want to refer to ASME OM Code Case.
21. Appendix A, Section 3.1.1, Page A3-3
Check valves that can be stroked quarterly, but must be monitored by a nonintrusive technique to verify full stroke, may be full-stroke tested during cold shutdown or refueling outages if another method of verifying full-stroke exists during such plant conditions. The NRC would not require a licensee to invest in nonintrusive equipment for the purpose of testing check valves quarterly (instead of testing them during cold shutdown or refueling outages), even though the use of nonintrusive techniques is recommended where practical. However, the NRC would continue to require the quarterly partial-stroke testing as applicable. (See also Section 2.4.5)
Quarterly part stroke exercising of check valves is no longer required. Part stroke exercising of check valves is only required for when CVs have been reassembled if practical.

22. Appendix A, Section 3.1.1, Page A3-3
A licensee may request relief from quarterly testing where such testing would impose a hardship (e.g., entering a limiting condition for operation of 3 to 4 hours in duration, repositioning a breaker from "off" to "on," and necessitating for manual operator actions to restore the system if an accident were to occur while the test was in progress). A relief request would not be required for "quarterly testing". A CSJ or ROJ could be used which does not require relief.

23. Appendix A, Section 3.3, Page A3-8
After the initial 120-month interval, in accordance with 10 CFR 50.55a(f)(4)(ii), licensees must conduct inservice tests during successive 120-month intervals to verify the operational readiness of pumps and valves within the scope of the ASME Code. In conducting these inservice tests, licensees must comply with the provisions of the latest edition and addenda of the Code incorporated by reference in 10 CFR 50.55a(b) 12 months before the start of the 120-month interval, subject to the limitations and modifications listed in paragraph (b). In addition, 10 CFR 50.55a(f)(5)(iv) specifies that where a pump or valve test requirement by the Code or addenda is determined to be impractical by the licensees and is not included in the new inservice test program interval, such that "the basis for this determination must be demonstrated to the satisfaction of the Commission not later than 12 months" from the start of the interval. This has recently been changed in July 2011 to submit the relief to the commission not to have it approved.

24. Appendix A, Section 3.3.3, Page A3-12
In accordance with the regulations, when updating a program to a later edition of the ASME Code, licensees must implement the updated program at the beginning of a 120-month interval. The regulations state that, where a pump or valve test specified by the Code is determined to be impractical and is not included in the revised IST program, the licensee must demonstrate the basis for the determination to the satisfaction of the Commission not later than 12 months after each 120-month interval. This statement appears to require Commission approval, but the revised CFR states that the impracticality relief must be submitted NOT approved not later than 12 months after the interval starts.

25. Appendix A, Section 3.3.3, Page A3-12
Because the 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 from the time of identification) until the NRC staff completes its evaluation (e.g., if a licensee identifies a solenoid valve that is within the scope of the IST program and is stroke-time tested but has no position indication, the licensee cannot meet the Code requirements because of design limitations and an alternative method may not comply with the Code requirements).

Per ISTC-3700, the SOV would NOT require RPI to be performed and no relief would be required. RPI is ONLY reburied if the valve has position indication.

26. Appendix A, Section 3.4, Page A3-14 Since ASME no longer references Class except for RVs and snubbers, may want to remove the limitation to bring CFRs up to industry standards.

27. Appendix A, Section 4.1, Page A4-1
The categorization of a check valve is not solely dependent on the function performed by the valve, such as whether it is a containment isolation valve.

Not sure that I agree with this. Subsection ISTC-1300 (a), (b), (c)...refer to "...fulfillment of their required function(s), as specified in para. ISTA-1100. In my opinion, based on this statement, the categorization of a check valve (or any other valve) in the IST Program is solely dependent on the function, the specific function performed by the valve. In particular, the function of the obturator.

28. Appendix A, Section 4.1.1, Page A4-3
If it is not practical to flow test the pair of valves in accordance with the Code, the licensee may demonstrate the closure safety function of each valve by other positive means, such as nonintrusive testing, or disassembly and inspection. However, licensees must not use these methods to verify leak tightness, which requires Category A valve testing. Relief is not required to perform testing of each valve in the valve pair.

Not sure what you mean here by Relief not being required to perform testing of each valve in the valve pair?

29. Appendix A, Section 4.1.5.3, Page A4-9
Subsection ISTC-3630(e) requires that the licensee must specify a permissible leak rate for a specific valve.

The Code does not require that the leakage be measured for a specific valve but you can use a "grouping" of valves with a "system" or "group" leakage limit for some valves rather than leakage criteria for each valve.

30. Appendix A, Section 4.1.5.4, Page A4-10
If closure testing using flow can only be done at an extended interval, the licensee should close the valve using a hand wheel or hand switch on a quarterly frequency, in conjunction with the flow test on the extended interval, if practical. The code does not require this.

31. Appendix A, Section 4.1.6, Page A4-11
When it is impracticable for the licensee to verify check valve closure during plant operation or cold shutdown, it is acceptable for the licensee to extend the check valve quarterly exercise test (both open and close) to the refueling outage when the closure verification may be performed in conjunction with the Type C leak rate test conducted in accordance with Option A of Appendix J to 10 CFR Part 50. Licensees may also perform the open exercise test during the refueling outage or anytime during the fuel cycle interval. or opening

32. Appendix A, Section 4.1.6, Page A4-11

When it is impracticable for the licensee to verify check valve closure during plant operation or cold shutdown, it is acceptable for the licensee to extend the check valve quarterly exercise test (both open and close) to the refueling outage when the closure verification may be performed in conjunction with the Type C leak rate test conducted in accordance with Option A of Appendix J to 10 CFR Part 50. Licensees may also perform the open exercise test during the refueling outage or anytime during the fuel cycle interval.
or option B.

33. Appendix A, Section 4.1.6, Page A4-11

NRC Recommendation

If no other practical means are available, it is acceptable for licensees to extend the quarterly closure exercise test to a refueling frequency. or open

34. Appendix A, Section 4.1.6, Page A4-11

NRC Recommendation

The OM Code states that open and close tests need only be performed at an interval "when it is practicable to perform both tests." The OM Code also states that licensees are not required to perform open and close tests at the same time if they are both performed during the same interval. Therefore, since the closure test is extended to the refueling outage by the refueling justification, the quarterly open exercise test may also be extended to the refueling outage or may be performed anytime during the fuel cycle interval. The same situation exists with a close test as well. NO ATJ is required?

35. Appendix A, Section 4.2, Page A4-16

Power-operated valves (POVs) are equipped with actuators that use motive force to change the position of the valve obturator. The types of actuators may include, for example, motor actuators, pneumatic actuators, hydraulic actuators, solenoid actuators, and pyrotechnic actuators. In addition, in the ASME OM Code, Subsection ISTC defines a power-operated relief valve (PORV) as a POV that can perform a pressure-relieving function and is remotely actuated by either a signal from a pressure-sensing device or a control switch. The code also states that the PORV is not capacity certified under ASME Section III Overpressure Protection requirements

36. Appendix A, Section 4.2.1, Page A4-16

NRC Recommendation

The limiting value of full-stroke time should be based on the reference (or average) stroke time of a POV when it is known to be in good condition and operating properly. I am not sure that average and reference stroke time are equivalent.

37. Appendix A, Section 4.2.2, Page A4-18

The traditional method of stroke timing POVs was to use stopwatches to measure the stroke time from initiation of the signal at the handswitch to the change in position-indicating lights (switch to light). The traditional method includes signal processing time from the switch to the valve actuator. Monitoring stroke times for valves that stroke in milliseconds using diagnostic equipment that measures only actual valve travel is acceptable to indicate degrading trends; however, the method does not indicate increases that could occur in the signal to the valve, which may be important in meeting safety analysis limits for certain valves. Typically, the valves that would benefit from this monitoring are rapid-acting valves. The traditional method would have a set limit of 2 seconds, which masks any signal processing time unless a gross change occurs. If measuring the stroke times locally needs to be supplemented by a periodic test to include the signal processing times, a periodic 2-second limit test could be performed to augment the IST. The Code does not specify a particular method, so there would be no conflict in using more than one method. I do not believe that this is a Code requirement although it may be a good idea.

38. Appendix A, Section 4.2.9, Page A4-27

4.2.9 Control Valves with a Safety Function

In general, control valves that respond to system conditions would be exempt from IST as discussed in Subsection ISTC-1200. ONLY

39. Appendix A, Section 4.2.10, Page A4-27

NRC Recommendation

The staff recommends that licensees should consider previous NRC guidance that the PORVs should be included in the IST program as Category B valves and should be tested to the OM Code. Recognizing that the

PORVs have shown a high likelihood of sticking open and are not needed for overpressure protection during power operation, the provisions in Subsections ISTC-3500 and ISTC-5100 for exercising quarterly during power operation are not practical and, therefore, exercising may be performed during cold shutdown conditions. Subsection ISTC-3310 requires licensees to perform testing after maintenance or repair. Test methods must confirm that the PORV has been reassembled correctly and is capable of performing its design

Need to also perform the tests required by ISTC-5110; ISTC-5111, ISTC-5112, ISTC-5113...etc.)

40. Appendix A, Section 4.4.2, Page A4-32

Backseating a valve may also affect its performance (e.g., vause damage to the valve or bind it into its back seat) This typo should be "cause" not "vause".

41. Appendix A, Section 4.4.2, Page A4-33

NRC Recommendation

The staff has determined that it is acceptable for licensees to perform an engineering evaluation of the impact of adjusting valve stem packing or backseating a valve to demonstrate that the performance parameters are within acceptable limits if a stroke test cannot be performed under current plant conditions. If it is necessary to adjust the stem packing or backseat a valve to stop packing leakage and if a required stroke test or leak rate test is not practical in the current plant mode, the licensee must, at a minimum, justify by analysis that (1) the packing adjustment is within manufacturer-specified torque limits for the existing packing configuration, (2) the backseating does not deform the valve stem, and (3) the performance parameters of the valve are not adversely affected. In addition, the licensee must perform a confirmatory test at the first available opportunity when plant conditions allow testing. Packing adjustments beyond the manufacturer's limits may not be performed without (1) an engineering analysis showing that the performance parameters of the valve are not adversely affected, and (2) input from the manufacturer, unless tests can be performed after adjustments.

How does this satisfy the Code requirement for PMT? This to me would require relief for the alternative to not performing a PMT which could affect reference values.

42. Appendix A, Section 4.4.2, Page A4-33

Examples of such valves are MSIVs and main feedwater isolation valves, which must remain open to continue power operations. The licensee must evaluate any data available from previous testing with the packing torqued to the specified limit, and must verify that the valve was leak tight and previously stroked within acceptable limits with the packing adjusted to the higher value, or from previous instances of backseating a valve.

Relief is not appropriate because this action is in accordance with the Code requirements if the licensee can demonstrate that the performance parameters will not be adversely affected.

In implementing this guidance, licensees must perform a partial-stroke test, if practical, to obtain further assurance that the valve stem is free to move. At the first opportunity when the plant enters an operating mode in which testing is practical, the licensee must test all valves that have had packing adjustments or been backseated without post-maintenance testing. The maintenance procedure used to adjust the packing must include the limits, and any changes to the torque limits are subject to a 10 CFR 50.59 review. Licensees should avoid adjusting redundant valves without performing post-maintenance testing. Backseating procedures should include precautions to prevent stem deformation. I do not think that these are code words. The code requires that a PMT be performed if the reference value may be affected by the maintenance. To me, adjusting packing and such MAY affect maintenance therefore, a PMT ST would be required unless alternative is approved.

43. Appendix A, Section 4.4.2, Page A4-34

Basis for Recommendation

The NRC would not require a licensee to shut down a plant to perform IST unless the licensee has no alternative to ensure that the operational readiness of components is maintained or unless a safety issue exists. The IST requirements do not prohibit or discourage a licensee from making limited adjustments to packing to stop a leak that may be adversely affecting the valve or surrounding components. Therefore, the licensee can perform an analysis of the packing adjustment and, upon demonstrating that the adjustment does not adversely affect the stroke time (or leakage rate) such that it would not exceed its limiting value, can make the adjustment without a post-maintenance stroke time measurement (or leakage test). Confirmatory testing must be performed at the first available opportunity when plant conditions allow testing. This guidance applies

only to valves that need adjustment during power operation and cannot be fully stroked in the plant operating mode. The guidance does not apply merely as a convenience to the licensee and does not supersede any related guidance associated with GL 89-10.

Again, *although a good idea I do not believe that this is per Code. How can we throw out some code* requirements but not others? This seems inconsistent to me.

44. Appendix A, Section 4.4.2, Page A4-34
NRC IN 87-40, "Back Seating Valves Routinely to Prevent Packing Leakage," gives information related to backseating valves. Both Westinghouse and General Electric had issued guidance on performing backseating to minimize deformation to valve stems. Backseating is not listed as an example of a maintenance activity in ASME OM Subsection ISTC-3310. The licensee would have to assess the effect of backseating on valve operation and determine whether post-maintenance testing is required. The code provides examples of maintenance activities that may affect stroke time and in particular reference values. Just because backseating is not listed does not mean it is excluded.

45. Appendix A, Section 4.4.3, Page A4-35
Manual Valves
The staff has received questions about the requirements for including manual valves in the IST program. The Code includes manual valves that meet the scope requirements of 10 CFR 50.55a. To comply with the OM Code, manual valves must be exercised in accordance with applicable requirements of Subsection ISTC if the licensee's safety analysis credits the manual valve to perform a specific function in shutting down the reactor to a safe shutdown condition, maintaining the safe shutdown condition, or mitigating the consequences of an accident. Manual valves that perform only a pressure boundary safety function are omitted from the scope of the IST program. Disagree. The manual valve is still within scope of IST but, no testing is required.

46. Appendix A, Section 4.4.3, Page A4-35
Manual Valves
If the manual valve is included in actions in emergency operating procedures, but is not credited in the safety analysis, it does not fall within the scope of the IST program; however, such a valve may be periodically tested at an appropriate frequency to ensure that it can function satisfactorily. How does this relate to the statement that accidents are NOT just safety accidents? To me if the manual valve has a safety function to go to safe shutdown, maintain safe shutdown or mitigate the consequences of an accident, and is ASME Class 1, 2 or 3 or equivalent per NUREG 0800 section 3.3.2, it is IST.

47. Appendix A, Section 4.4.3, Page A4-35
Manual Valves
Applicable tests could include exercising, leak testing, and position indication verification, at the frequency specified in the Code. Passive manual valves that have position indication could be subject to position indication verification. Per the code ALL valves in the IST Program that have RPI are required to have a PIT performed.

48. Appendix A, Section 4.4.3, Page A4-35
Manual Valves
Manual valves that perform only a pressure boundary safety function are omitted from the scope of the IST program. Again, the manual valves are scoped in IST per ISTA-1100 but, may not have testing required.

49. Appendix A, Section 4.4.3, Page A4-35
Manual Valves
If the manual valve is included in actions in emergency operating procedures, but is not credited in the safety analysis, it does not fall within the scope of the IST program; however, such a valve may be periodically tested at an appropriate frequency to ensure that it can function satisfactorily. How does this relate to the statement that accidents are NOT just safety accidents? To me if the manual valve has a safety function to go to safe shutdown, maintain safe shutdown or mitigate the consequences of an accident, and is ASME Class 1, 2 or 3 or equivalent per NUREG 0800 section 3.3.2, it is IST.

50. Appendix A, Section 4.4.4.2, Page A4-36
Leak Rate Testing of PIVs

The leak rate testing specified in a plant's TSs must meet the intent of Subsection ISTC-3600. A licensee should ensure that each PIV is individually leak tested (or that the measured leakage is adjusted) in accordance with the differential pressure requirements of the OM Code. If the TSs are not sufficiently detailed to ensure individual valve leak testing, the licensee is responsible to ensure that the test procedures are themselves adequate for individual valve leak testing.

The code per ISTC-3630 does not require valves to be individually leak tested.

51. Appendix A, Section 4.4.4.2, Page A4-37
NRC Recommendation
A licensee may consider the leakage testing performed to meet TS requirements to also meet IST requirements if the intent of the OM Code is met (e.g., leakage limits are established, corrective actions are taken as required, and valves are individually leak tested). Again, individually leak testing valves is NOT required by the Code see ISTC-3630.

52. Appendix A, Section 4.4.6, Page A4-38
The control rod drive system valves that perform an active safety function in scramming the reactor are the scram discharge volume vent and drain valves, scram inlet and outlet valves, scram discharge header check valves, charging water header check valves, and cooling water header check valves. With the exception of the scram discharge volume vent and drain valves, exercising the other valves quarterly during power operations could result in rapid insertion of one or more control rods. If practical, licensees should test control rod drive system valves at the Code-specified frequency. However, for those control rod drive system valves for which testing could result in rapid insertion of one or more control rods, the rod scram test frequency identified in the facility s TSs may be used as the valve testing frequency to minimize rapid reactivity transients and wear of the control rod drive mechanisms. This alternative test frequency should be clearly stated and documented in the IST program document. and require relief approval.

53. Appendix A, Section 4.4.6, Page A4-38
Closure verification of the charging water header check valves requires that the control rod drive pumps must be stopped to depressurize the charging water header. This test should not be performed during power operation because stopping the pumps results in a loss of cooling water to all control rod drive mechanisms, and seal damage could result. Additionally, this test cannot be performed during each cold shutdown because the control rod drive pumps supply seal water to the reactor recirculation pumps, and one of the recirculation pumps is usually kept running. Therefore, the HCU accumulator pressure decay test, as identified in the facility's TSs may be used as the charging water header check valve alternative testing frequency for the reasons stated above. If this test is not addressed in the licensee's TSs, this closure verification should be performed at least during each refueling outage, and this alternative test frequency should be specifically addressed in the IST program document. again, this is a deviation from the code and would require relief.

54. Appendix A, Section 4.4.6, Page A4-39 Relief would be required.
55. Appendix A, Section 4.4.8, Page A4-40
4.4.8 Pyrotechnic-Actuated Valves in New Reactors Some designs for new nuclear power plants include pyrotechnic-actuated (squib) valves that have more safety significance than squib valves in currently operating nuclear power plants. In addition, squib valves for new reactors might have different designs and be much larger than squib valves used in current plants. Paragraph ISTC-5260 in the ASME OM Code specifies that at least 20% of the charges in explosively activated valves shall be fired and replaced at least once every 2 years. If a charge fails to fire, the ASME OM Code specifies that all charges with the same batch number shall be removed, discarded, and replaced with charges from a different batch. The NRC staff considers the provisions for IST surveillance of squib valves in the ASME OM Code to be insufficient for the design and application of squib valves in some new reactors. At this time, reactor vendors for new nuclear power plants have not completed the design and qualification of squib valves to be used in their new reactors. The NRC staff is monitoring the design and qualification process for squib valves to be used in new reactors by the applicable reactor vendors. The staff is also participating in international efforts to provide improved design, qualification, and testing for squib valves to be used in new reactors. ASME is developing improved OM Code provisions to address new reactors, including the consideration of surveillance activities for squib valves. Nuclear power plant licensees for new reactors will need to incorporate the lessons learned from the design and qualification process in the development of IST surveillance activities for squib valves. For example, in

addition to the test firing sample of squib valve charges specified in the ASME OM Code, licensees of new nuclear power plants should address the following aspects in providing reasonable assurance of the operational readiness of squib valves: (1) verification of the structural integrity of external and internal parts of the actuator and valve; (2) identification an!
d removal of foreign material, fluid and corrosion within the actuator and valve that might interfere with the operation of the actuator or valve; and (3) confirmation of the capability of the pyrotechnic charge in the actuator to provide the necessary motive force to operate the valve under design-basis conditions without damage to the valve body or connected piping. Subsection ISTC-1300 would also require that the Squib Valves be determined to be Category A or B which would require exercising, stroke timing and PIT.

56. Appendix A, Section 5.3, Page A5-6

The allowed tolerance for setting the fixed parameter must be established for each case individually, including evaluation of throttling capability. Licensees should consider improvements in throttling methods where system control is especially poor. A total throttling tolerance of + 2 / -1 percent of the flow rate reference value is considered as meeting the requirements of the code sections.

For a tolerance greater than + 2 / -1 percent of the flow rate reference value, a corresponding adjustment to acceptance criteria shall be made to compensate for the uncertainty, or an evaluation would be performed and documented justifying a greater tolerance. The variance and the method for establishing the variance must be documented in the IST program documents or implementing procedures.

The basis for the Code change is as follows:

The ASME OM Code does not address the possibility that a flow rate or differential pressure may not be controllable to an exact value. When the Code specifies that the system resistance be varied until either the flow or differential pressure equals the corresponding reference value, it does not literally intend that the "set value" be precisely attained without any fluctuations. Licensees recognize that the reference value for certain pumps can only be achieved within a specified tolerance. Licensees shall attempt to set the repeatable parameter as close as possible to the reference value during each test.

The basis for allowing a variance of + 2 / -1 percent from the flow rate reference value deals with instrument fluctuations and system stability issues. The Code allows symmetrical damping devices or averaging techniques to be used to reduce instrument fluctuations to within 2 percent of the observed reading for values specified in the implementing procedures. Greater variances must be justified and acceptance criteria adjustments made as necessary. The limitation of 1% in the negative direction reduces the non-conservative impact on the variable parameter. The total 3% allowable variance provides for a reasonable throttling control range while minimizing the impact on trendability of the variable parameter.

Licensees should ensure that performance trending of pumps is capable of detecting degradation as early as possible. Larger variances in the reference parameter will induce scatter in the variable parameter data. Techniques such as data normalization, where recorded test data is corrected by the known pressure to flow relationship, should be used when necessary to provide for accurate short term trending. The code (later codes) does not state that the fluctuation must be within 2% this has been removed. The later code only specifies that fluctuations may be reduced by certain methods NOT a limit.

57. Appendix A, Section 5.5.2, Page A5-11

Pump discharge pressure will match system pressure up to the shutoff head of the positive displacement pump. Because of the characteristics of a positive displacement pump, there should be virtually no change in pump discharge flow rate as a result of the rising tank level. Therefore, rising tank level will not have an impact on test results. By having approximately the same level in the tank at the beginning of each test, licensees can achieve repeatable results. In addition, the suction would be from a large source at a constant pressure, which will allow pump performance parameters to stabilize quickly. This method would provide reasonable assurance of operational readiness, provided that the licensee measures the test tank level in accordance with the accuracy requirements of OM Table ISTB-3500-1. The implementing procedures should document the calculational method and test conditions required to achieve this accuracy. Therefore, the proposed alternative of using the tank level to calculate the flow rate provides reasonable assurance of operational readiness.

Licensees must submit a relief request to implement this proposed alternative. Why is relief request required when the alternative appears to be allowed by ISTB?

58. Appendix A, Section 5.5.3, Page A5-11
NRC Recommendation
When inlet pressure gauges are not installed in the inlet of a vertical line shaft pump, it is impractical to directly measure inlet pressure for use in determining differential pressure for the pump. The staff has determined that, if the licensee uses the bay level to calculate the suction (inlet) pressure as described in Subsection ISTB-3520(b), the implementing procedure must include the calculation. The licensee must also verify that the reading scale for measuring the level and the calculational method yield an accuracy within +/-2 percent for Group A and B tests, and +/-1/2 percent for Preservice and Comprehensive tests. Can't the method be described in the IST Program Plan and not be in the ST?

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