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NUMARC

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March 10, 1994

R. Kiessel
58FR95738
12/10/93
(6)

Mr. David L. Meyer, Chief
Rules, Directives and Review Branch
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Proposed Supplement 1 to Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," 58 Fed. Reg. 95738 (December 16, 1993), Opportunity for Public Comments

Dear Mr. Meyer:

These comments are submitted on behalf of the Nuclear Management and Resources Council (NUMARC)[1] in response to the subject Federal Register notice soliciting comments on the NRC draft NUREG-1482, "Guidelines for Inservice Testing Programs at Nuclear Power Plants." It is our understanding that the draft NUREG was developed to provide clarification of NRC positions regarding inservice testing (IST) described in GL 89-04 and issues described in other NRC documents (i.e., Information Notices, letters, etc.). As such, our comments are directed toward the draft NUREG and other interfacing documents and regulations effecting inservice testing and how those interfaces can be improved to assure the appropriate implementation of inservice testing programs. In addition to the general comments provided below, the review of draft NUREG-1482 has produced some specific comments related to details in the various sections of the document. Those comments are provided in the enclosure and are noted with the specific section of the draft NUREG that is affected.

[1] NUMARC is the organization of the nuclear power industry that is responsible for coordinating the combined efforts of all utilities licensed by the NRC to construct or operate nuclear power plants, and of other nuclear industry organizations, in all matters involving generic regulatory policy issues and on the regulatory aspects of generic operational and technical issues affecting the nuclear power industry. Every utility responsible for constructing or operating a commercial nuclear power plant in the United States is a member of NUMARC. In addition, NUMARC's members include major architect/engineering firms and all of the major nuclear steam supply system vendors.

As stated in the Federal Register notice, the purpose of the draft NUREG is to focus on how a utility can handle non-conforming situations and preparation of relief requests. Our review has found that the document is generally sound in these areas and provides suitable guidance. Licensees can use the document based on how they have implemented their IST program and the cost benefits they will receive from the staff guidance. Additionally, the draft NUREG contains appropriate information regarding staff determinations that they find acceptable in providing relief from the ASME code. It is encouraging to note also that the reason most often cited in providing relief is to not impose an undue burden on the licensee.

Regarding the issue of not imposing undue burden on licensees, there are several areas that warrant discussion where the draft NUREG could be improved or other regulations could be addressed in an effort to further reduce the unnecessary burden on licensees and improve the IST programs without impacting safety.

Most, if not all, of the components covered by IST programs are safety-related. This means that they will be included within the scope of the Maintenance Rule (10CFR50.65) when it becomes effective on July 10, 1996. The Maintenance Rule and its accompanying and implementing Regulatory Guide (RG 1.160) are performance based. This means that the requirements of the prescriptive IST program and the performance bases of the Maintenance Rule will create additional need for relief or exemption from regulations. The draft NUREG as presently written makes no mention of the Maintenance Rule. Generic Letter 89-04 and the proposed draft NUREG of Supplement 1 along with the ASME IST code are very prescriptive and in many cases are contradictive between technical specifications, other ASME code requirements, and the Maintenance Rule. Additionally, the NRC program to revise Appendix J to make it more performance based will serve to further compound problems related to IST of valves in the containment isolation systems. We recommend that the NRC, ASME, and the industry strive to make the regulations, implementing guidance and applicable standards compatible to avoid future problems.

While the purpose of the draft NUREG in providing guidance for relief has been achieved, we would propose that serious consideration be given to providing guidance on the transition between the various regulations involved. For example, on page 2-3 of the draft NUREG, the last paragraph before Section 2.2 states, "The technical specifications for most plants include IST requirements which are more restrictive than the regulations." An effort to reduce the conflicting requirements between the regulations, codes and standards, technical specifications, etc., will reduce the burden on licensees by removing

the multiple layers of regulations and requirements that constantly require interpretation, relief, or exemption requests.

With the many activities underway both within the NRC and the industry to consider performance-based concepts utilizing PRA, for Maintenance, Appendix J, QA, MOVs, etc., to prioritize the effected structures, systems, and components, we recommend that the NRC also consider these concepts when developing IST guidance.

IST activities are an important element in operating our plants in a safe and efficient manner, however, we believe that this is a prime area where changes can be made to reduce the unnecessary burden on licensees without impacting safety. We would be happy to meet with you and discuss the potential activities that could lead to improvement in the industry IST programs through the application of performance-based IST.

Should there be any questions regarding this letter or our comments, please call Warren Hall, Clive Callaway or me.

Sincerely,

Thomas E. Tipton

TET/WJH:plg
Enclosure

Draft NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants"

The following are specific comments concerning staff positions in various sections of draft NUREG–1482.

General

Guidance on the appropriate action to be followed while a relief request is being processed is found in three locations, and it is confusing and possibly conflicting.

The guidance is contained in Sections 2.5, "Relief Requests and Proposed Alternatives," Section 6.3, "Revised Standard Technical Specifications," and Section 7, "Identification of Code Noncompliance." Section 2.5 states "For those requirements, which have been determined to be clearly impractical, the licensee may implement the proposed alternative testing while the NRC is reviewing the relief request (See Section 6),: and Section 6.3 discusses using 10CFR50.59 as a mechanism for continued operation when a Code requirement is impractical, and a Code relief request is being processed, providing T/S 4.0.5 has been revised as recommended in the draft NUREG-1482. Section 7, on the other hand, discusses the need to obtain a Temporary Waiver of Compliance when a Code noncompliance exists and NRC approval of a relief request cannot be obtained within the allowable T/S action time period.

The NRC position should be clearly delineated and placed in a single, separately identified section of the draft NUREG-1482.

§ 2.2 - Criteria for Selecting Pumps and Valves for the IST Program

Draft NUREG-1482 acknowledges that the scope of the OM Standards and Code has been expanded to include all safety-related pumps and valves in the IST Program. Until 10CFR50.55a is changed, the scope of the IST Program will continue to include those components within the Code Classes. However, the NRC stated that they would consider expanding the scope of the IST Program to include all safety-related pumps and valves.

The current scope of Code Classes is adequate. Safety-related valves and pumps outside the Code Class boundaries are addressed by other measures such as the plant specific technical specifications, Maintenance Rule and the industry post-maintenance testing programs. Including all safety-related components in the IST increases the regulatory burden without a corresponding increase in overall safety.

Draft NUREG-1482 indicates the NRC is considering future rulemaking to expand the scope of 10CFR50.55(a) to include all safety-related pumps and valves, irrespective of whether the components are Code classed or not.

Mandatory imposition of ASME inservice test requirements on non-code classed components constitutes a backfit. Many of the components were not designed with the necessary provisions to perform testing (flow instruments, gages, etc.), modification would be necessary to perform tests in compliance with Code requirements.

The industry could on a plant-by-plant basis identify the components important-to-safety which are not Code classed. Secondly, history, current testing and preventative/predictive maintenance schedules could be reviewed for adequacy and revised as appropriate. Again, this approach is in line with implementing the Maintenance Rule. The intent would be to provide documented justification of these practices providing assurance of availability. The other extreme could require a similar review, generate reliefs and probably ultimately result in unnecessary plant modifications

§ 3.1.1, Deferring Valve Testing to Each Cold Shutdown or Refueling Outage

The staff has made four recommendations concerning various issues when deferring valve testing to cold shutdown or refueling conditions based upon easing the burden on the licensee and the equipment without adversely impacting safety. These recommendations are good examples of many of the recommendations contained in draft NUREG–1482.

§ 3.1.1.1, IST Cold Shutdown Testing and § 3.1.1.2 Testing at a Refueling Outage Frequency for Valves Tested During Power Ascension

The draft NUREG-1482 states that although the requirement is as stated in the ASME Operations and Maintenance (O&M) Standards Manual and the licensee is complying with the Code, "if a licensee chooses to implement this guidance, this section (of the draft NUREG-1482) must be explicitly referenced in the IST program".

The licensee should not have to state in the IST program the methods of ensuring Code compliance, if the licensee is complying with the Code.

§ 3.1.2, Entry into a Limiting Condition for Operation to Perform Testing

Draft NUREG-1482 takes the position that licensees should perform required quarterly testing, even if entry into a Limiting Condition for Operation (LCO) is required. Relief requests to defer testing must contain additional justification in addition to the entry into the LCO. This is a rather inflexible position, and may unduly restrict prudent or cost–effective scheduling.

§ 4 Supplemental Guidance on Inservice Testing of Valves.

Draft NUREG-1482 should provide guidance on whether IWV-1100 is intended to apply to small sentinel valves installed for thermal relief of service water heat exchangers in the uncommon event they are isolated from service.

Draft NUREG-1482 indicates that the 1986 Edition of ASME, Section XI, expands the scope of pressure relief under IWV-1100. This interpretation is debatable and clearly does not provide an increase in safety.

§ 4.1.2, Exercising Check Valves with Flow "NRC Recommendation"

Draft NUREG-1482 states "the NRC determined that use of non-intrusive techniques is acceptable to verify the full stroke of a check valve, although the flow rate must be sufficient to stroke the valve to the backstop."

This statement could be interpreted to mean that non-intrusive examination results are unacceptable unless an acoustic impact is obtained (from the disc against the backstop). Some check valves were sized to accommodate large flows, which may be expected with various accident conditions. In addition, many valves were sized such that pressure drop across the valve is minimal, i.e., the valves are larger than needed to pass the design flow. As a result, in many valves, the disc will not impact the backstop even though full design flow is passed.

Some check valve non-intrusive examination (NIE) equipment employs two technologies: acoustics plus either external magnetics or ultrasonics (UT). The draft NUREG seems to be based on acoustics only. This limits the usefulness of the plant's NIE system since credit for UT or magnetic data cannot be taken. For example, if full design flow is verified through a valve but no impact is detected by the acoustic sensor, then credit cannot be taken for the NIE test. This appears to be true even if UT data shows the valve disc to be 90% open.

§ 4.2.1 Increased Frequency of testing for Valves That Can Be Tested Only During Cold Shutdown

Draft NUREG-1482 states "...OM-10 requires corrective action if a limiting stroke time is exceeded and does not allow for an increased test frequency." While OM-10 does not specifically state that frequency shall be increased, neither does OM-10 prohibit an increase in test frequency as stated in Section 4.2.1.9, OM-10, Part 10. The increase in test frequency may be done as an additional corrective action or as a temporary corrective action. This section seems to be applicable to those times when testing frequency is not able to be increased due to plant conditions (i.e., plant is operating). Clarification is needed to address this issue.

§ 4.2.7 Stroke Time Measurements Using Reference Valves

Refers to Figure 4.2 being a sample relief request for the use of stroke time reference. The location of Figure 4.2 is not apparent.

§ 4.3.1 Safety and Relief Valves

Draft NUREG-1482 requires that pressure relief valves which are installed in the applicable system to protect against overpressure be tested, even though they may not typically perform a "safety-related" function.

The classification methodology for active components is taken from Regulatory Guide 1.48 and includes those pumps, valves and pressure relief devices "that must perform a mechanical motion during the course of accomplishing a system safety function." System safety functions are defined to include any function that is necessary to assure (1) the integrity of the reactor coolant pressure boundary, (2) the capability to shutdown the reactor and maintain it in a safe shutdown condition, or (3) the capability to prevent or mitigate the consequences of accidents which could result in offsite exposures comparable to the guideline exposures of 10CFR100. This active component classification methodology and the wording of the scope statements of ASME OM (Parts 1, 6 and 10) are considered to mean the same thing (i.e. pumps, valves and pressure relief devices performing nuclear safety functions).

The passive valves in the IST program are identified through individual system reviews. The passive valves include those valves which are required to perform a nuclear safety function (as defined above) by maintaining their position and for which ASME OM Part 10 specifies leakage testing or position indicator testing requirements.

ASME OM Part 1 provides requirements for pressure relief devices which are required to perform a specific function in shutting down a reactor or in mitigating the consequences of an accident. Consistent with ASME OM-1987 Interpretation No. 1-2 and the active component classification methodology described above, the IST program scope should include those pressure relief devices which themselves perform an active nuclear safety function.

§ 4.4.6 Manual Valves

Draft NUREG-1482 clarifies that exercise requirements for manual valves be "...in accord with applicable IST requirements of IWV or OM-10 if the manual valve is credited in the safety analysis for being capable of being repositioned to shut down the plant, to maintain the plant in a safe shutdown condition, or to mitigate the consequences of an accident."

However, no direction or relief action is given.

Additional guidance should be provided on relief actions/frequency justifications (e.g., stroke time not required on manual valves and valve position verification for manual valves).

§ 5 Supplemental Guidance on Inservice Testing of Pumps

OM-6 separates all positive displacement pumps hydraulically from centrifugal pumps, however, the mechanical vibration surveillance criteria therein recognizes only the difference between reciprocating pumps and centrifugal pumps. No section within the draft NUREG addresses the vibration performance characteristics of other types of positive displacement pumps (i.e., gear, screw, etc.). Must licensees cap the alert and action ranges for these types of pumps at 0.325 and 0.70 inches/seconds, respectively, or can 2.5 and 6 times the reference values be unlimited? Do utilities have the latitude for interpretation via relief requests?

OM 6, Table 6100-1 has a tighter acceptance band for "vertical line shaft pumps" (.93 vs. 90). The basis for this tighter band should be explained. No apparent increase in safety margin is obtained when such pumps are analyzed for 10% or greater degradation.

In appears that the ASME OM Code-1990, Part 6 (OM-6) eliminates the option to perform an operability analysis to determine if a pump exceeding the action limit can

still perform its safety function, reference ASME Section XI, 1983 edition, paragraph IWP-3230, "Corrective Action" (c). This option allowed the continued operation of pumps that have a large margin between minimum system flow/DP requirements, and the 10% degraded limit. That is, once these pumps hit the low action limit, a significant margin existed between that limit and the minimum operability limit required of that pump. This offers considerable economic and scheduling advantages without impacting the safety-related function of the pump. OM-6 should retain that alternative, or the NUREG should allow for such analysis. Otherwise to capitalize on such margin, code relief requests for extended allowable ranges will be required.

§ 5.4 Monitoring Pump Vibration in Accord with OM-6

The NRC discusses pump vibration monitoring and the various changes from IWP to OM-6. However, the vibration acceptance criteria in OM-6 are not clearly stated, (i.e., $2V_R$ to $6V_R$ <.325>.7), nor is it clear if these values are for full flow testing or minimum flow testing, where vibration levels typically increase due to flow noise.

§ 5.5 Pump Flow Rate and Differential Pressure Instrumentation

Instrumentation range and accuracy is discussed using both analog and digital instrumentation. It is unclear whether computer points or printouts can be used to meet the necessary instrumentation requirements and if additional requirements are associated with the use of the computer

§ 5.5.1 - Range and Accuracy of Analog Instruments

In safety evaluation reports at some utilities the NRC has stated that analog instruments which are ±2% of full-scale are in effect ±6% at 1/3 of range. Page 5-7 of the draft NUREG is implying that analog instruments are required to be ±2% at the reference values (2% at 1/3 of range). This requirement needs to be clarified; the draft NUREG seems to be in conflict with past positions

§6.3 Discussion

Revised standard technical specifications (page 6-3) discusses test frequencies and surveillance requirements for IST. Tolerances/grace periods such as ±25% of due date should be specified. Any tolerance that is applicable during "increased frequencies" should be stated.

§ 7 Identification of Code Noncompliance

It is suggested to add guidance in this section to address certain other additions of components to a plant IST Program, e.g., when the components formerly did not clearly fall within the scope of Code requirements, but the licensee has elected to add the component to the IST Program because of a modification, revised interpretation, or philosophy change. For program additions in this category, engineering analysis or other types of testing could be used in lieu of Section XI testing to justify operability of the components before addition to the IST Program; subsequently, operability would be determined through normally scheduled testing. In other words, the licensee should be able to assume operability for certain categories of components newly added to the IST without invoking the guidance in GL 91-18 for a grace period until the next scheduled IST program testing is completed.

The staff discussion on noncompliance situations discusses what the staff believes should be done when a licensee identifies components that should be in the IST program but are not. In most cases, if testing is required, the component would be in violation of TS. 4.0.5 or equivalent, and should be declared inoperable. The staff goes halfway, and states that simply failing to perform an IST test should not cause a forced shutdown, but believes that a Temporary Waiver of Compliance or other exigent relief from ASME code requirements is necessary. Exigent relief from ASME code requirements would be required, but a Temporary Waiver of Compliance should not be necessary if, consistent with the discussion in the NUREG, other tests or operational performance data reviews show that the system is operable. This would also be consistent with the comments on GL–91–18.

Appendix A

In Appendix A of draft NUREG-1482, Question 61, the NRC requests that IST programs be re-submitted each time they are revised. The reason given for this request is that ..."it is needed to prepare for IST inspectors and to assist in the review of relief requests." It has been the experience of some utilities that the inspectors and/or revievers do not use the docketed copy of the program for these purposes. Submittal preparation and review becomes a needless administrative exercised with no apparent benefit. In addition, there is substantial review costs involved as was the case for program submitted under the original Generic Letter 89-04.