



NUCLEAR ENERGY INSTITUTE

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Chief, Materials & Chemical Engineering Branch
U. S. Nuclear Regulatory Commission
Mail Stop O9-H6
Washington, DC 20555-0001

SUBJECT: ASME Section XI, Appendix VIII, Supplement 10, Dissimilar Metal Welds

PROJECT: 689

Dear Mr. Bateman:

As a follow up to the October 31, 2002, public meeting we have enclosed industry responses to NRC questions related to implementation of a performance demonstration program for dissimilar metal welds. The enclosed responses along with the presentation materials used at the public meeting provide you background, status of current efforts and near term milestones associated with this program.

During the public meeting we discussed several options for addressing the November 22, 2002, implementation date currently required in 10 CFR 50.55a(g)(6)(ii)(c), *Implementation of Appendix VIII to Section XI*. The options were: exemption request, direct final rulemaking, and enforcement discretion. Our fundamental objective was to identify a timely and efficient process, acceptable to NRC, for addressing the industry's inability to comply with the implementation date. During the ensuing discussion representatives from the Office of General Counsel suggested 50.55a (a) (3) be considered for a proposed alternative to the implementation date requirement.

We carefully considered each of the options and continue to believe that the preferred approach is for NRC to issue an Enforcement Guidance Memorandum (EGM). Precedence exists in EGM 99-004 for NRC action to provide interim guidance for enforcement of 10 CFR 34.43, *Training*.

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In that action, NRC established an effective date by which radiographers and radiation safety officers had to be certified. Two supporting industry organizations requested extension of the implementation date because of hardships to the certification organizations and licensees, and difficulties with examination availability. We believe this is directly analogous to the implementation date associated with Supplement 10, which also does not involve any safety issues. The industry will continue good faith efforts to successfully develop the performance demonstration program and continue periodic interactions with NRC staff.

We believe issuance of an EGM provides a timely and efficient process that minimizes unnecessary resource burden on licensees and NRC staff reviewers in developing, reviewing and approving exemptions and relief requests. We agreed at the meeting that the direct final rulemaking would involve an unwarranted expenditure of NRC resources. Similarly, exemption requests are not directly applicable because there is no alternative that is different than current inspection programs. In other words, licensee programs of record have not changed and will not until the qualification and demonstration program is successful.

We will continue to keep you and your staff apprised of progress with the demonstration efforts. Please contact me at (202)739-8080, am@nei.org should you have any questions or wish to discuss this further.

Sincerely,



Alexander Marion

AM/maa
Enclosure

c: Mr. Richard J. Barrett, U. S. Nuclear Regulatory Commission
Mr. John A. Zwolinski, U. S. Nuclear Regulatory Commission

Enclosure 1 – Responses to NRC Questions

a) The Nov. 22, 2002 implementation date has been in the CFR since September 22, 1999 and was selected based on industry agreement. Why did the industry wait until August to inform us of potential implementation issues?

Industry personnel involved in the Performance Demonstration Initiative (PDI) have been communicating program plans and status with the NRC technical staff since 1998. These meetings included discussions of the status of industry efforts related to implementation of the ASME Code Section XI, Appendix VIII, Supplement 10.

The discovery of primary water stress corrosion cracking (PWSCC) at Ringhals and VC Summer impacted the design and manufacture of test specimens. Efforts were refocused on ensuring that the test specimens contained flaw configurations and geometry found in the field.

In early 2002, EPRI conducted an assessment of program efforts to-date and informed the EPRI advisory structure of current program limitations in meeting the implementation date. NEI formed a task group to assess current status and address regulatory compliance. NEI advised NRC senior management in August and requested a public meeting to discuss options for addressing compliance with the November 22, 2002 implementation date.

b) If the issue is of such significance, why didn't industry comment on the implementation date during the 10 CFR 50.55a rulemaking comment period?

The program limitations were not confirmed prior to the closing of the public comment period. On April 3, 1998, NEI submitted comments to the NRC on a proposed revision to 10 CFR 50.55a that was published for public comment December 3, 1997 (62 *Fed. Reg.* 63892). The proposed rule offered a six-month expedited implementation schedule. Comment 8 of the industry submittal suggested schedules for implementing the various supplements associated with Appendix VIII. The submitted comment stated, “It is not currently possible to define a specific time frame for implementation of Supplement 10.” However, we also commented that “Mandatory implementation of Supplement 10 should be extended to a minimum of three years after publication of the final rule, depending on the actions and agreements outlined above.” The “...actions and agreements...” refers to specific actions related to development of a program to address Supplement 10, Dissimilar Metal Welds. The 3-year implementation date for Supplement 10 was incorporated into the final rule issued September 22, 1999. The discovery of PWSCC at Ringhals Units 3 & 4 occurred in the summer of 1999

and 2000, respectively; and at VC Summer in October 2000. Findings at these plants resulted in changes in the design and fabrication of the test specimens.

PDI continued efforts to develop the qualification and demonstration program for examination of dissimilar metal welds.

c) Difficulties in accurately examining dissimilar metal welds have been recognized by industry for many years. Why did the industry wait so long in authorizing funding for practice blocks that would allow examiners to practice prior to taking the qualification test? Why did industry wait so long to fabricate test specimens?

Practice samples for inside surface examinations were produced and are being used in the program.

The test specimens that were designed and in the fabrication stage incorporated flaws related to thermal fatigue and were intended to be used for practice for outside surface examinations. These flaws were later found to not be representative of the field experience found at Ringhals and VC Summer. Modifications to the test specimens were made to account for this. When the initial demonstration efforts identified challenges, industry provided funding for additional specimens. The use of practice blocks was considered to be a reasonable alternative to expedite personnel qualification for outside surface demonstrations. We believed this would support utility-specific needs for qualification and demonstration of inspection personnel and NDE technology.

d) What new industry activities are underway and fully funded to try to meet the November 22, 2002 implementation date?

Funding for the procurement of practice blocks was expedited and a guided practice program was developed to prepare examiners for the demonstration. The program has been accelerated for technology development and vendor support with equipment upgrades that includes tooling, data acquisition and analysis.

e) A qualified procedure has been developed by PDI for examining dissimilar metal welds. Personnel performing the examinations using automated systems can pass the qualification test. Apparently, personnel have not been able to pass the qualification test while performing the examinations manually. Since many of the examinations performed in the past were done manually, what does that say about the quality of the exams done in the past,

which were performed to the "older" ASME requirements? Why should the NRC have confidence in the effectiveness of those examinations?

PDI has not qualified procedures or personnel associated with Supplement 10. Demonstrations are currently underway. The status and schedule for automatic and manual inside surface and outside service demonstration are as follows:

Automated Inside Surface Examinations

Phase 1 – Open demonstration/development on open samples

WESDYNE completed 10/18/02 (Results were sufficiently acceptable to allow progression to Phase II)

Framatome scheduled 12/2/02

IHISWT (formerly SWRI) scheduled 1/03

Phase II – Blind demonstration/qualification phase

WESDYNE scheduled 11/02 – 12/02

Framatome scheduled 1/03

IHISWT scheduled 2/03

Automated Outside Surface Examinations

Procedure Qualifications

General Electric 10/02 – 12/02

Framatome 11/02 – 12/02

WESDYNE 1/03 – 2/03

Personnel Qualification

General Electric 12/02

Framatome 12/02

WESDYNE 2/03

Manual Outside Surface Examinations

Procedure qualification initiated 10/28/02 and a second session is scheduled 12/02

Candidate qualifications will begin after the procedure is successfully qualified.

The PWR Materials Reliability Project (MRP) interim safety assessment was submitted the summer 2001 should provide sufficient confidence in current NDE examination techniques.

Examinations of BWR plants have been conducted using techniques that have been demonstrated in accordance with programs agreed to by NRC, PDI and EPRI. BWRVIP-75 was submitted to NRC and approved. This document includes inspection criteria and inspection frequencies to address piping considered susceptible to intergranular stress corrosion cracking (IGSCC). Multiple plant-specific evaluations have shown the inherent flaw

tolerance of materials exposed to environmental conditions typically found in BWRs.

f) If NEI proposes a delay in the implementation of Supplement 10, what is the basis, and for how long do they propose the delay to be? What alternate examination requirements do they propose to be implemented during the interim period? If the "older" ASME examination requirements are proposed, what is the basis for those exams if the effectiveness of those previous examinations are called into question?

We cannot provide an estimate for successful completion at this time. The 3-year implementation date proposed in our comments in 1998 was based upon current state of knowledge and a reasonable level of confidence in successfully achieving that milestone. The present demonstrations by vendors will not be completed until 1st quarter 2003. We will be prepared to brief the NRC of the results and provide an estimated completion date at that time.

g) Which plants will be coming down for outages in Spring 2003, what are the dates involved, how many plan on examining dissimilar metal welds and how many welds are involved, and why do these plants believe they can not implement Sup. 10 at that time, given the fact that it is only October now?

The PDI conducted an informal survey of its membership and identified five plants that are scheduled to perform examinations of dissimilar metal welds in various systems. They are Hope Creek, LaSalle Unit 2, Palisades, Duane Arnold and Monticello. At this point in time, the qualification and demonstration phase has not been completed. As stated during the October 31 public meeting, successful automated and manual demonstrations may not be sufficiently completed to support these outages.