

January 16, 2015

EGM 14-003

MEMORANDUM TO: David C. Lew, Acting Regional Administrator, Region I  
Victor M. McCree, Regional Administrator, Region II  
Cindy Pederson, Regional Administrator, Region III  
Mark Dapas, Regional Administrator, Region IV  
William M. Dean, Director, Office of Nuclear Reactor Regulation  
Glenn M. Tracy, Director, Office of New Reactors  
Catherine Haney, Director, Office of Nuclear Material Safety  
and Safeguards  
James T. Wiggins, Director, Office of Nuclear Security  
and Incident Response

FROM: Patricia K. Holahan, Director */RA/*  
Office of Enforcement

SUBJECT: ENFORCEMENT GUIDANCE MEMORANDUM 14-003,  
ENFORCEMENT DISCRETION NOT TO CITE VIOLATIONS  
INVOLVING BOLT AND STUD NON-DESTRUCTIVE EXAMINATION  
QUALIFICATION PROGRAMS, WHILE RULEMAKING CHANGES  
ARE BEING DEVELOPED

**PURPOSE:**

This enforcement guidance memorandum (EGM) grants enforcement discretion for the use of bolt and stud non-destructive examination (NDE) procedures, personnel and equipment qualified through the Performance Demonstration Initiative (PDI) to meet the requirements of Supplement 8 to Appendix VIII to Section XI of the American Society of Mechanical Engineers (hereinafter the "ASME") *Boiler and Pressure Vessel Code* (hereinafter "the ASME Code" or "the Code").

**BACKGROUND:**

The requirements for examination and acceptance of ASME Class 1 and 2 pressure-retaining bolting greater than 2.0 inches in diameter (50 millimeters) are listed in Articles IWB-2500 and IWC-2500 in Section XI of the ASME Code, which is incorporated by reference in Title 10 of the *Code of Federal Regulations* (10 CFR) section 50.55a(b).

The ASME Code requires volumetric examination of 100 percent of the specified bolts and studs at each inspection interval. Volumetric examinations of these bolts and studs are

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performed with ultrasonic examination techniques (UT). Article I-2000 in Section XI of the ASME Code requires that UT procedures, equipment, and personnel used to detect flaws in bolts and studs be qualified by performance demonstration in accordance with Supplement 8 to Appendix VIII. Supplement 8 requires blind testing on full-scale section bolts or studs with similar chemical compositions, tensile properties, and metallurgical structure as the bolts or studs that are to be examined in the field.

The PDI program, administered by the Electric Power Research Institute (EPRI), is used by U.S. licensees to satisfy portions of the qualification requirements defined in Appendix VIII. The U.S. Nuclear Regulatory Commission (NRC) staff performed an assessment of the PDI program, documented in a letter dated August 11, 1995 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML070790372), and found that, with a few exceptions that have since been resolved, the PDI program meets Appendix VIII requirements. The assessment also found that personnel and procedures that pass PDI testing meet the requirements of Appendix VIII. The program was reviewed again by the NRC in 1998, and the results of that review were documented in a revision to 10 CFR 50.55a, "Codes and Standards," titled "Industry Codes and Standards; Amended Requirements" and published in the *Federal Register* on September 22, 1999 (64 FR 51370). The NRC's assessment at that time was that the PDI program provides reasonable assurance of detecting flaws of concern.

As a result of an internal program audit by the PDI staff in 2013, inconsistencies were discovered between the bolt and stud NDE qualification methods used at PDI and those required by the ASME Code. Specifically, the PDI bolting qualification specimen sets may not meet the detailed specimen, notch location, and scanning surface requirements outlined in paragraph 1.1(b) and 1.1(c) of Supplement 8, for all bolts and studs at all sites. Additionally, the PDI qualified procedures do not specifically require the on-site expansion of procedures be "blind tests" as required by paragraph 2.0 of Supplement 8, and the PDI program specifies acceptance criteria for personnel qualification that differs from those specified in paragraph 3.1 of Supplement 8.

The issue was initially described to the NRC staff on December 16, 2013, following the audit. This disclosure prompted more detailed discussions between NRC staff and industry's NDE leaders. Public meetings were held on January 8 and 9, 2014, that addressed this issue (ADAMS Accession No. ML14014A343). The chairman of the industry's NDE Action Plan Committee further articulated the issue, provided detailed background information, and asked for NRC assistance in a letter dated February 5, 2014 (ADAMS Accession No. ML14049A237).

The discrepancies between the PDI program and the ASME Code mean that most, if not all, holders of an operating license for a light-water nuclear power reactor under 10 CFR Part 50, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel, are currently not in compliance with the requirements of the ASME Code for bolting examinations, and thus they are out of compliance with 10 CFR 50.55a(g).

To formally address the concerns brought about by the renewed interest in bolt and stud NDE qualification, the ASME Code Committee recently approved Code Case N-845, "Qualification Requirements for Bolts and Studs", as well as a change for the 2015 Edition to expand the requirements for bolt and stud NDE qualification in Supplement 8. In conjunction with these changes, industry NDE leaders developed PDI guidance for consistent implementation of the site demonstrations in compliance with the PDI bolting program, including Nuclear Energy Institute (NEI) 03-08 implementation requirements.

### Basis for Granting Enforcement Discretion

The NRC staff reviewed the information provided by industry and the current PDI bolt and stud NDE qualification program, and finds that the PDI qualification program applies a similar (or superior) level of rigor when compared to the Appendix VIII requirements. The NRC staff also finds that the discrepancies between Supplement 8 and the PDI qualification program do not present a reduction in safety, but that the noncompliance issue would normally result in the issuance of a large number of violations across the industry. Therefore, the NRC staff will use enforcement discretion not to cite violations involving the use of bolt and stud NDE procedures, personnel and equipment qualified through the PDI to meet the requirements of Supplement 8 to Appendix VIII to Section XI of the ASME Code. This enforcement discretion will remain in place until rulemaking (to incorporate by reference the 2015 Edition of the ASME Code or NRC approval for use of an applicable Code Case) is complete, which will provide final resolution of this issue. Enforcement discretion for the use of the PDI bolt and stud NDE qualification program to meet the requirements of Supplement 8 is appropriate given that this issue does not constitute a change in NRC policy and does not affect public health and safety.

### **ACTIONS:**

#### Immediate Actions

In accordance with Section 3.5, "Violations Involving Special Circumstances," of the NRC Enforcement Policy, the Agency will exercise enforcement discretion, and will not cite licensees for violations of 10 CFR 50.55a or other quality-assurance program requirements related to the use of bolt and stud NDE procedures, personnel and equipment qualified through the PDI to meet the requirements of Supplement 8 to Appendix VIII to Section XI of the ASME Code. Enforcement discretion is appropriate given that this issue does not constitute a change in NRC policy and does not affect public health and safety.

Violations for which such enforcement discretion is exercised do not require the assignment of an enforcement-action tracking number, documentation in an inspection report, or coordination with the Office of Enforcement.

### Long-Term Actions

This EGM will remain in effect until the NRC completes its rulemaking to incorporate by reference the 2015 Edition of Section XI of the ASME Code or NRC approval for use of an applicable Code Case. The status of the rulemaking can be tracked at <http://www.nrc.gov/about-nrc/regulatory/rulemaking.html>.

cc: M. Satorius, EDO  
M. Weber, DEDMRT  
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M. Evans, NRR  
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SECY

Long-Term Actions

This EGM will remain in effect until the NRC completes its rulemaking to incorporate by reference the 2015 Edition of the ASME Code, Section XI or NRC approval for use of an applicable Code Case. The status of the rulemaking can be tracked at: <http://www.nrc.gov/about-nrc/regulatory/rulemaking.html>.

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**ADAMS Accession No: ML14169A582 \*Concurred Via Email**

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