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Office of Administration
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Attn: Rules and Directives Branch

Perry Nuclear Power Plant

Review Comments on Draft Regulatory Guides, DG-1091, Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1 and DG-1112, ASME Code Cases Not Approved For Use.

Ladies and Gentlemen:

The Draft Regulatory Guides were issued for public comment on January 01-02, 2002. Personnel from the Perry Nuclear Power Plant have reviewed the Draft Regulatory Guides and the comments resulting from their review are contained in Attachment 1.

If you have any questions, or require additional information, please contact myself at (440) 280-7662.

Sincerely,

Scott Seman

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COMMENTS ON DRAFT REGULATORY GUIDE DG-1091
INSERVICE INSPECTION CODE CASE ACCEPTABILITY,
ASME SECTION XI, DIVISION 1

Table 2, Conditionally Acceptable Section XI Code Cases:

N-522

Code Case N-522 allows the use of Appendix J pressure testing, in lieu of Section XI pressure testing and VT-2 exams for containment penetration piping that is classified as Class 2 only for the purposes of containment integrity. DG-1091 places a condition on Code Case N-522 that states that the Appendix J test must be conducted at the peak calculated containment pressure and the test procedure must permit the detection and location of through-wall leakage in containment isolation valves (CIVs) and pipe segments between the CIVs. The basis for N-522 was that the subject piping is classified as Class 2 piping only for the purposes of containment penetration and the piping on either side of the penetration boundary valves is non-safety. Thus, the piping's only safety-related function is that of containment integrity and only the rules of 10 CFR 50 Appendix J need be applicable.

N-546

Code Case N-546 provides alternative requirements for qualification of VT-2 Examination personnel. DG-1091 places conditions on Code Case N-546 that state (1) examination personnel must be qualified by test to demonstrate knowledge of Section XI and plant specific procedures for VT-2 examination and (2) the examination personnel must be requalified by examination every three years. These conditions almost entirely defeat the purpose of the alternative requirements. The alternative requirements were put in place because without them VT-2 examination personnel would have to be qualified and certified in accordance with ANSI/ASNT CP-189, which would require initial certification and recertification exams. However, unlike traditional NDE methods, VT-2 is not addressed by ANSI/ASNT CP-189 and to qualify and certify VT-2 personnel in a manner commensurate with the requirements of CP-189 is unnecessary. The Abstract of CP-189 states, "This standard applies to personnel whose specific tasks or jobs require appropriate knowledge of the technical principles underlying nondestructive testing (NDT) methods for which they have responsibilities within the scope of their employment." Unlike the nondestructive testing methods addressed within CP-189, or even VT-1 and VT-3 examination methods, VT-2 examination does not require any special knowledge of technical principals underlying its performance. It is only the straightforward examination for leakage. No special skills or technical training are required in order to observe water dripping from a component or bubbles forming on a joint wetted with leak detection solution. As such, VT-2 examinations should not be considered nondestructive examinations requiring the attending qualification and certification burdens. The Code Case allows those personnel most familiar with the walkdown of plant systems, such as licensed and non-licensed operators, local leak rate personnel, system engineers, and inspection and examination personnel to perform VT-2 examinations without formal qualification and certification. The experience, training, and vision test requirements of the Code Case ensure that the personnel performing VT-2 examinations are qualified while removing barriers that have previously prevented many experienced plant personnel from performing leakage examination walkdowns. Thus, the additional limitations specified in DG-1091 should be eliminated since they do not improve the opportunity for identification of leakage and place an unnecessary burden on examination personnel.

COMMENTS ON DRAFT REGULATORY GUIDE DG-1112
ASME CODE CASES NOT APPROVED FOR USE

The following comments are provided on Code Cases referenced in Table 2, Unacceptable Section XI Code Cases, in order that they be removed from said table and included in the population of Acceptable Section XI Code Cases referenced in DG-1091:

N-323-1

Code Case N-323-1 allows surface examination of welded attachments to Pressure Vessels from one side only rather than from both sides. The summary within DG-1112 states that surface examinations from only the accessible side would be of limited value. It also states that volumetric examination of the Class 1 integrally welded attachment from the accessible side (required in the original Code Case) is practical and must be performed to adequately determine the condition of the weld. Code Case N-323 was written because access to the outside surface of RPV skirt welds is typically not that difficult, but access to the inside surface involves entering a confined space under the RPV bottom head that is also a high radiation area. Additionally, the inside surface geometry is such that surface exam preparation is difficult. Initially, Code Case N-323 required a volumetric examination from the accessible surface. However, ultrasonic calibration blocks were typically not supplied for RPV skirt welds and the ultrasonic performance demonstration requirements of Appendix VIII do not address RPV support attachment welds. Thus, there is no established demonstration program like Performance Demonstration Initiative (PDI) in place and a licensee that would want to perform volumetric examination in lieu of dual-sided surface examinations would have to fabricate their own calibration blocks and sample specimens, develop their own procedures, and set up their own demonstration program. Since ultrasonic examination from the accessible side was onerous and considering the unblemished examination history for RPV attachment welds, Code Case N-323 was revised to eliminate the volumetric examination requirement. With regard to the summary statement that single-sided surface exams are of limited value, it implies that single-sided surface examinations are not sufficient because they would not identify flaws that would be identified by a single-sided volumetric examination or a surface examination from both sides of the weld. It is true that surface examination from only the outside surface would not detect flaws that originate from the inside surface, but the types of material involved are very flaw tolerant, with slow flaw propagation, and flaws originating on the inside surface would grow through-wall long before their length would threaten the structural integrity/function of the weld. RPV skirt welds are similar to BWR core shroud circumferential welds in that they are not pressure retaining and their load keeps them in compression. Safety analyses performed by the Boiling Water Reactor Vessel Internals Process (BWRVIP) found that core shroud circumferential welds could be cracked through-wall for 360° and still perform their function. Considering this comparison and the excellent service history of RPV skirt welds, the extra radiation exposure and burden necessary to examine the inside surface of the weld is not warranted.

N-498-2, N-498-3, N-498-4

Perry currently uses Code Case N-498-1, which allows the substitution of system leakage tests (conducted at nominal operating pressure) in lieu of the elevated pressure tests (i.e., hydrostatic testing) at the end of each inspection interval. In revision 1 of N-498, hold times of 10 minutes for non-insulated systems and 4 hours for insulated systems are specified for the system leakage test, whereas, in revisions 2, 3 and 4 no hold times are specified. N-498-1 is endorsed in Regulatory Guide 1.147 without any provisions, whereas DG-1112 lists revisions 2, 3 and 4 of N-498 as unacceptable for use. The summary within DG-1112 states that the capability of detecting a small leak is

directly proportional to the hold time while the system is pressurized, especially if it is insulated. It further states that hydrostatic tests or system leakage and pressure tests without hold times may be insensitive to smaller leaks, thereby defeating the purpose of the tests.

Under the 1989 Edition of Section XI, Perry's current Code of record, the routine pressure tests conducted during the inspection interval are system leakage tests for the Class 1 boundary, system functional tests for Class 2 or 3 systems that are not normally in operation, and system inservice tests for Class 2 or 3 systems that are normally in operation. The specified hold times for these tests are none for the system leakage tests, 10 minutes for the system functional tests, and basically 4 hours for the system inservice tests. In Perry's current pressure testing program, which is all based on Code Editions or Code Cases endorsed by the NRC, except for the end of inspection interval pressure tests, no hold times are required for Class 1 system pressure tests and only 10 minute hold times are required for Class 2 and 3 systems that are not normally in operation. Revisions 2, 3, and 4 to N-498 simply apply the same hold time requirements used for Class 1 systems during the performance of system leakage tests during the interval, to the system pressure tests performed at the end of the interval. In making the revisions to N-498, the ASME Subcommittee XI Pressure Testing Working Group considered the effect of hold times on the capability to detect leakage and did not find that there was any direct correlation. Industry experience has proven that even with insulated systems, by the time systems are brought up to their operating pressure, small leaks wet the insulation enough to provide for detection. A possible exception, and perhaps the source of the NRC's concern, is the recent leakage identified in PWR head penetrations and a PWR hot leg nozzle. However, the missed identification of through-wall leakage at the PWR's would not have been helped by increased pressure test hold times, as it was due more to inadequate access than to inadequate hold times.

N-547

Code Case N-547 provides alternative examination requirements for pressure retaining bolting of Control Rod Drive (CRD) Housings. Specifically, it deletes the Table IWB-2500-1, Examination Category B-G-2, Item B7.80 VT-1 examination of CRD bolting whenever a CRD housing is disassembled. The summary within DG-1112 states that examination of CRD bolting is required to verify service-related degradation has not occurred or that damage such as bending and galling of threads has not occurred when performing maintenance activities that require the removal and reinstallation of the bolting. The basis for Code Case N-547 justified elimination of the CRD bolting exams as there was no history of CRD bolting failures and skill of the craft and maintenance practices would preclude re-installation of damaged bolting. Also, since CRD mechanisms are typically contaminated and in high radiation areas, elimination of the bolting exams would reduce radiation exposure. Furthermore, Item B7.80 never required examination of the bolting prior to installation. Note 1 of Table IWB-2500-1, Examination Category B-G-2, states that bolting may be examined in place under tension, when the connection is disassembled, or when the bolting is removed. As used under the Extent and Frequency of Examination Column for Item B7.80, "when removed" simply establishes the scope of the CRD bolting exams. In order to avoid contamination and radiation exposure, VT-1 examination personnel typically examine the bolting when it is removed and remotely located from the CRD mechanism. It is still the skill of the craft and good maintenance practices that ensure that the bolting is not damaged upon installation.

N-574

Code Case N-574 provides for extending the re-certification frequency for Level I and II NDE personnel from 3 years to 5 years. The summary within DG-1112 states that based on data obtained by the NRC staff during its review of Appendix VIII to Section XI, the NRC noted that proficiency decreases over time and thus extending the re-certification frequency to 5 years is not supported. The Code Case brought the re-certification frequency for Level I and II personnel in line with that of Level III personnel. The NRC does not take exception to Level III personnel re-certifying every 5 years, so why should Level I and II personnel be held to a tougher standard than Level III personnel? The summary's statement that proficiency of examination personnel decreases over time is based entirely on observations of performance demonstrations for ultrasonic examination personnel in accordance with Appendix VIII. Thus, other than for the ultrasonic method, there appears to be no data to support the NRC's objection to this Code Case.

With regard to the proficiency of ultrasonic examination personnel, implementation of Appendix VIII did identify the need for ultrasonic personnel to maintain proficiency through annual practice on flawed specimens and the annual training requirements of VII-4240 were put in place to assure that proficiency is maintained. Therefore, the requirements of VII-4240 address the only area where NDE proficiency is known to decrease with time and extending the re-certification frequency for Level I and II NDE personnel should be allowed. NDE workforce shortfalls are a significant challenge to the industry and extending the frequency of recertification for Level I and II personnel to be the same as for Level III personnel can only help.

N-583

Code Case N-583 provides alternative requirements for annual training. The summary within DG-1112 states that training providing manual techniques is not provided for and the alternative is less complete than that provided by Appendix VII, VII-4240* (*there is a typo in the DG, incorrectly referencing VII-4220) of the 1989 Edition or earlier. It also states that the provisions do not meet the Appendix VIII qualification requirements as required by 10 CFR 50.55a(b)(2)(xiv). 10 CFR 50.55a(b)(2)(xiv) requires that personnel qualified for performing ultrasonic examinations in accordance with Appendix VIII shall receive 8 hours of annual hands-on training with specimens that contain cracks and that the training must be completed no earlier that 6 months prior to performing ultrasonic examinations at a licensee's facility. Many licensees, including PNPP, have requested and been granted relief from the VII-4240 requirements on the basis of substituting the (b)(2)(xiv) requirements. In fact, Code Case N-583 was written in response to the NRC's previous concerns and, with the exception of frequency, to bring VII-4240 in line with (b)(2)(xiv). With regard to the summary statement that N-583 does not provide for training using manual techniques, it should be noted that it does not preclude training using manual techniques. However, the real need, as previously expressed by the NRC and agreed upon by the Code Committee, is for ultrasonic examination personnel to get training/practice on examination of flawed specimens. It is not the ability to push a transducer that erodes with time, but rather it is the skill to be able to recognize and analyze flaw signals. Code Case N-583 simply provides the option of practicing with flaw signals through live examination of flawed specimens or through analyzing prerecorded data from flawed specimens.

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