

June 22, 2007

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FROM: Elmo E. Collins, Director */RA/*
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

SUBJECT: INSPECTION MANUAL PART 9900 OPERABILITY GUIDANCE
INVOLVING STRUCTURAL INTEGRITY OF ASME CODE CLASS 2
AND 3 PIPING

Recently, questions have been raised by industry regarding inspection operability guidance involving ASME Code Class 2 and 3 piping. Specifically, in late 2005 the guidance in Inspection Manual Part 9900 was re-issued in Regulatory Issue Summary 2005-20, "Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, 'Information to Licensees regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability.'" This Part 9900 guidance indicates that ASME Code Class 2 and 3 piping that exhibits through wall leakage "must" be declared inoperable immediately. This was a change from previous guidance that used "should" rather than "must" wording. As a result, the Office of Nuclear Reactor Regulation (NRR) staff has revisited this issue and agrees with the past position on assessing operability of ASME Code Class 2 and 3 piping with through wall leakage. The attached document provides interim inspection guidance

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on this matter. The NRR staff is in the process of permanently revising the inspection guidance as follows: (1) NRR staff is currently reviewing the NEI White Paper, Rev 2, on the subject guidance; (2) NRR staff will prepare a draft of the revised Part 9900 inspection guidance regarding operability determinations (mid-summer 2007):

- a. Draft guidance will be discussed at a public meeting with stakeholders (late summer 2007)
- b. Draft guidance will be provided to Regions for comments (early fall 2007)
- c. Draft guidance will be updated based on stakeholder and regional comments
- d. Final guidance will be issued (by end of 2007).

The attached interim guidance on ASME Code Class 2 and 3 piping lists NRR technical contacts.

Enclosure:
As stated

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Enclosure:
As stated

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OPERABILITY DETERMINATIONS OF ASME CODE CLASS 2 AND 3 PIPING WITH THROUGH-WALL LEAKAGE

Background

Regulatory Information Summary 2005-20, "Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, 'Information to Licensees regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability' " (issue date 9/26/05) revised Inspection Manual Part 9900 operability guidance formerly contained in Generic Letter 91-18. In Section 4.0, Operability Determination Process, the guidance specifies performing an *Immediate Determination of Operability* upon discovery of a degraded or nonconforming condition, followed by a *Prompt Determination of Operability* to gather supporting evidence (if necessary) that a reasonable expectation of operability exists. In Appendices C.11, Flaw Evaluation, and C.12, Operational Leakage regarding ASME Code Class 1, 2 and 3 Components, the Office of Nuclear Reactor Regulation (NRR) staff stated their expectation that licensees must declare piping components and the part of the system containing the component inoperable upon identification of through-wall (TW) leakage. Identified TW leakage in a component is considered to be a degraded condition.

The NRR staff expectation set forth in the Part 9900 guidance is that for the inoperable system containing the component with TW leakage, licensees are to follow the Technical Specification action requirements while collecting information about the TW flaw and assessing the piping structural integrity. The NRR staff position for assessing operability of ASME Code Class 2 and 3 piping is conservative. The guidance considers that evidence of leakage from a pressure boundary indicates the presence of a TW flaw and the inner diameter flaw may be large and cannot be determined based on surface breaking dimensions.

The industry stated it takes exception to the default inoperability determination for ASME Code Class 2 and 3 piping because the NRR staff used internal processes (Inspection Technical Guidance) to define operability differently from the way it is defined in STS and the default decision establishes a potential shutdown scenario for any small leak in an ASME Code Class 2 or 3 pipe subject to TS.

NRR Staff Interim Guidance to Regions

This guidance applies to structural integrity of ASME Code Class 1, 2 and 3 piping. Allow licensees to make a determination of reasonable expectation of operability when applying the Part 9900 *Immediate Operability Determination* to ASME Code Class 2 and 3 moderate-energy piping with TW leakage:

- The NRR staff believe that the default inoperability guidance in Part 9900, Appendices C.11 and C.12 for TW leakage in ASME Code Class 2 and 3 moderate-energy piping, while conservative, may be overly restrictive and not substantiated by operating experience.
- TW leakage *Immediate Determinations of Operability* should be based on a

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reasonable expectation of operability in accordance with Part 9900 guidance.

- TW leakage *Prompt Determinations of Operability* should be based on actual non-destructive examination measurements to characterize the flaw dimensions and engineering analysis methods acceptable to NRR staff, i.e., ASME Code of record, Regulatory Guide 1.147 ASME Code Cases, and Generic Letter 90-05.
- Time frame for flaw characterization and engineering analysis should be no longer than a reasonable time frame for completing the actions. The NRR staff views that 72 hours is a reasonable maximum time frame for this assessment.
- The NRR staff plans to revise Appendices C.11 and C.12, obtain industry comments, then send the draft guidance to each Region for comment before reissuing the guidance. The target date for reissuing Part 9900 is the end of CY 2007.
- The NRR staff believes that ASME Code Class 1, 2 and 3 high-energy fluid system piping with through wall leakage should be declared inoperable immediately. Definitions for high-energy and moderate-energy fluid system piping are contained in Standard Review Plan Section 3.6.1 (Revision 2), Appendix A, Branch Technical Position SPLB 3-1, "Definitions:"

High-Energy Fluid Systems

Fluid systems that, during normal plant conditions, are either in operation or maintained pressurized under conditions where either or both of the following are met:

- a. maximum operating temperature exceeds 200°F, or
- b. maximum operating pressure exceeds 275 psig.

Moderate-Energy Fluid Systems

Fluid systems that, during normal plant conditions, are either in operation or maintained pressurized (above atmospheric pressure) under conditions where both of the following are met:

- a. maximum operating temperature is 200°F or less, and
- b. maximum operating pressure is 275 psig or less.

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