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Westinghouse

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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Westinghouse Electric Company
Nuclear Services
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355
USA

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Secretary
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Direct tel: (412) 374-4643
Direct fax: (412) 374-4011
e-mail: greshaja@westinghouse.com

Attn: Rulemakings and Adjudications Staff

Our ref: LTR-NRC-07-31

June 19, 2007

Subject: RIN 3150-AH76 – "Industry Codes and Standards; Amended Requirements" 10 CFR 50.55a; Federal Register Vol. 72, No. 65 / Thursday, April 5, 2007; Westinghouse Comments on Draft Rule Change

Reference: 1) ASME Letter from K. R. Balkey, V.P. Nuclear Codes and Standards, to Secretary, U.S. Nuclear Regulatory Commission, "Comments on Industry Codes and Standards, 10 CFR Part 50, RIN 3150-AH76," June 13, 2007

Westinghouse appreciates the opportunity to provide comments regarding changes to 10 CFR 50.55a, Codes and Standards, specifically those changes dealing with the ASME Boiler and Pressure Vessel (BPV) Code.

As noted in the Federal Register notice, it is appropriate for the NRC to endorse the ASME BPV Code and OM Code, which are national voluntary consensus standards and are required by the National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, to be used by government agencies unless the use of such a standard is inconsistent with applicable law or is otherwise impractical. It has been the NRC's practice to review new editions and addenda of the ASME BPV and OM Codes and periodically update 10 CFR 50.55a to incorporate newer editions and addenda by reference.

Please consider the following comments on the proposed 10 CFR 50.55a, Codes and Standards:

- Westinghouse does not agree with changing the current inspection requirements for reactor vessel head penetrations because the requirements from the First Revised Order EA-03-009 have been proven to provide a high level of confidence.
  - Our field experience demonstrates that the inspections, performed to date on the original reactor heads supplied to CE and Westinghouse NSSS plants, demonstrate plant safety.
  - Our experience demonstrates that leakage from the interface between the reactor head and the head adapter has not occurred at these plants. Westinghouse has inspected approximately 5,000 head penetration nozzles and found no leaks outside the pressure boundary.

Template = SECY-067

SECY-02

- The NRC has proposed conditions on the use of Code Case N-729-1 that we believe are not technically justified. Our detailed comments included in the attachment to this letter ask for the technical basis, where appropriate.
- In summary, the proposed rule adds inspections which will require significant resources, but the increased burden is not justified for safety reasons and is not justified by field experience.

- Westinghouse agrees with the ASME comments submitted by ASME letter dated June 13 (Reference 1).
  - We are also disappointed that the NRC is not using the work put into N-729-1 by the Industry and the NRC.
  - Regarding system leakage tests, there is no safety reason to impose a limitation on the use of NDE methodology and acceptance criteria of IWA-4550(a)(2).

- We request the NRC clarify the current limitation in 10 CFR 50.55a on the rules for Seismic design per ASME III, as discussed below:

  (1) As used in this section, references to Section III of the ASME Boiler and Pressure Vessel Code refer to Section III, and include the 1963 Edition through 1973 Winter Addenda, and the 1974 Edition (Division 1) through the 2003 Addenda (Division 1), subject to the following limitations and modifications:

  (iii) *Seismic design.* Licensees may use Articles NB-3200, NB-3600, NC-3600, and ND-3600 up to and including the 1993 Addenda, subject to the limitation specified in paragraph (b)(1)(ii) of this section. Licensees may not use these Articles in the 1994 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(1) of this section.

  Question Concerning 10CFR 50.55a – Seismic design:

  Question: It is not clear what is meant by "seismic design." Seismic design which could relate to a service Level A, B, C or D condition could be impacted by nearly all stress criteria in the subject Articles. For NB-3200, examples of the seismic design specific paragraphs are listed below. They all relate to the treatment of piping. Is the limitation, for NB-3200, applicable only to these requirements which deal specifically with these Code paragraphs?

  NB 3213.35 Reversing Dynamic Loads
  NB-3223 (b) Special Level B limits for piping
  NB-3224.7 Special Level C limits for piping

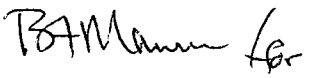
  If this interpretation of the current limitation is correct, a revision to this 10 CFR 50.55a paragraph is recommended to clarify the applicability of the limitation, as follows:

  (iii) *Seismic design **of piping**.* Licensees may use Articles NB-3200, NB-3600, NC-3600, and ND-3600 **for seismic design of piping** up to and including the 1993 Addenda, subject to the limitation specified in paragraph (b)(1)(ii) of this section. Licensees may

not use these Articles **for seismic design of piping** in the 1994 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(1) of this section.

If you have any questions or require additional information on the content of this letter, please contact me at (412) 374-4643.

Very truly yours,



J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

cc: Jon H. Thompson, NRC

Westinghouse Questions Pertaining to NRC Conditions on the Use of Code Case N-729-1

Paragraph (D) Reactor Vessel Head Inspections

(2) Item B4.40 of Table 1: Replacement reactor pressure vessel heads (RPVH) with Alloy 690/52/152 materials provide considerably more resistance to the onset of primary water stress corrosion cracking (PWSCC). Several years of operating experience with replacement steam generator tubing, various weld repairs, and multiple laboratory studies have demonstrated a high degree of resistance to PWSCC. There appears to be no technical basis for making an arbitrary change from an inspection frequency of every ten years to a reduced period of every seven years. Without any corresponding improvement in public safety, both the cost and dose associated with these additional inspections are not warranted.

(3) This paragraph imposes an additional inspection requirement of surface examinations of all j-groove weld wetted surfaces. The existing Order EA-03-009 does not require this surface inspection other than for purposes of coverage. The Order does require assessment of the condition of the annulus, which has been performed using volumetric ultrasonic testing and/or low frequency eddy current testing for wastage. Although these methods were not included in the demonstrations conducted by the MRP, the automated inspection vendors each conducted internal research programs on this subject and submitted technical justification reports in support of various RAIs associated with relief requests. These relief requests were subsequently approved by the NRC and the techniques have been in widespread use for a number of years. Both inspection vendors have 10 CFR Part 50 Appendix B Quality Assurance programs that cover the qualification of "Special Processes," of which nondestructive testing is one.

The imposition of this inspection requirement would add considerable dose and up to 7-14 days to an inspection. Recently, PNNL released information on the destructive examination of a removed nozzle from North Anna 2 which showed that the actual leaking PWSCC site was not detectable by dye penetrant testing; however, both the bare metal visual and the leak path ultrasonic test identified this condition. The bare metal visual inspection provides the best defense against wastage in the annulus, and the technique is augmented by the leak path and wastage inspections where other restrictions exist.

(4) (i) This paragraph imposes limits on the range of diameters and wall thicknesses that can be used for a given demonstration. The existing demonstrations have been performed using the nominal dimensions of a CRDM (typically, having a diameter of 4.0 in and wall thickness of 0.625 in). The reactor vessel head may also include in-core instrumentation (ICI) nozzles and a vent line which would fall outside the stated dimensional limits in this paragraph. ASME Code Section V, Article 14 is cited in the Code Case as the basis for technique qualification. This article allows the use of field experience and analytical modeling to augment a qualification. In the case of RPVH inspections, extending the application of ultrasonic time of flight diffraction (TOFD) from one right cylinder to another right cylinder is trivial. As for field experience, during 13 campaigns over 100 ICI nozzles have been inspected and there have been no leaks. Similarly, the vent line inspection is done with a surface eddy current exam, which is independent of diameter or wall thickness. This technique is virtually identical to the standard inspections performed on hundreds of thousands of steam generator tubes. It would be very costly to manufacture mockups to cover all these sizes. The field experience and analytical approaches allowed in Article 14 do not warrant the additional costs associated with manufacturing mockups and conducting additional demonstrations.

(4) (ii) This paragraph imposes restrictions on qualification flaw sizes and distributions. The existing MRP mockups do not strictly satisfy this distribution. If this was the start of the inspection program, these requirements would be reasonable. However, the industry already has an experience base of 62 in-service inspections and, using the demonstration process described in MRP-089, Westinghouse has

already completed approximately 5,000 nozzle inspections. This paragraph, therefore, imposes an undue retroactive demonstration requirement after years of satisfactory field performance of the existing demonstration methodology. Since the issuance of the Order EA-03-009, there have been zero leaking nozzles that went undetected and no nozzles that were returned to service based on the current inspection practices that subsequently developed into a leak. These statistics speak for themselves. Retrofitting an arbitrary assortment of flaws creates an unnecessary burden with no improvement over the existing track record for examinations.

(4) (iii) This paragraph requires requalification be performed when an essential variable of the inspection process is changed. ASME Code Section V, Article 14 also requires requalification, however, it does not mandate a full scale demonstration and allows for analytical technical justifications or equivalency demonstrations.

(4) (iv) This paragraph establishes length and depth accuracy requirements on the ultrasonic inspection method. The stated limits are both impractical and unnecessary for the purposes of these examinations. Variations in actual size exceeding the stated limits would have no impact on the decision to repair a nozzle. The stated sizing accuracy tolerance of $^{1}/_{32}$ in is appropriate for a precision requirement for determining if an indication has grown from one inspection to the next, and, this tolerance is being used for that purpose. ASME Code Section XI, Supplement 10 of Appendix VIII, covering dissimilar metal welds, has a depth sizing tolerance of $\pm\ ^{1}/_{8}$ in and a length sizing tolerance of $\pm\ ^{3}/_{4}$ in. These values are more practical and are already accepted as sufficient for the evaluation of the same types of materials in use in the RPVH.

(5) This paragraph imposes an increased inspection frequency if PWSCC is detected. This is a reasonable position, assuming one minor modification is made. A condition of craze cracking has been detected predominantly on the inner diameter of the nozzle that propagates only a few mils and then arrests when the local stresses are relieved. Several years of experience has shown that these cracks do not grow any deeper. Thus, it is requested that an exemption be added to exclude this type of flaw so that it does not mandate inspections at every outage.

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From: "Markle, Sharon L." <marklesl@westinghouse.com>

Created By: marklesl@westinghouse.com

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