



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-15-119

July 10, 2015

10 CFR 50.90

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-001

Watts Bar Nuclear Plant, Unit 2
Construction Permit No. CPPR-92
NRC Docket No. 50-391

Subject: **WATTS BAR NUCLEAR PLANT (WBN) UNIT 2 - REQUEST FOR RELIEF
WBN-2/PSI-3 FOR INACCESSIBLE STEAM GENERATOR LOWER
SHELL-TO-CONE WELD SG-4B-5-2**

- References:
1. TVA Letter to NRC, "Watts Bar Nuclear Plant (WBN) - Preservice Inspection Program," dated November 4, 1991 [ML073550342]
 2. NUREG-0847, Supplement No. 10, "Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Plant, Units 1 and 2," dated October 1992 [ML073450549]
 3. TVA Letter to NRC, "Watts Bar Nuclear Plant (WBN) - Unit 2 - Exemptions, Reliefs, Deviations and Exceptions," dated October 11, 2007 [ML072910331]
 4. TVA Letter to NRC, "Watts Bar Nuclear Plant (WBN) Unit 2 - Preservice Inspection Program Plan and Additional Information," dated June 17, 2010 [ML101680561]

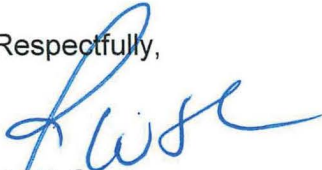
The purpose of this letter is to provide a request for relief regarding inaccessible welds for the Watts Bar Nuclear Plant (WBN) Unit 2 Steam Generator Number 2 lower shell-to-cone weld SG-4B-5-2. The enclosure to this letter provides a Request for Relief, WBN-2/PSI-3, for WBN Unit 2 Preservice Inspection. A similar request was submitted for WBN Unit 1 as part of the WBN Unit 1 Preservice Inspection Program contained in Reference 1. The Nuclear Regulatory Commission (NRC) staff subsequently approved the WBN Unit 1 request in Reference 2.

This request for relief is consistent with Reference 3 in which Tennessee Valley Authority (TVA) stated that upon discovery that a request for exemption or code relief is appropriate, TVA would submit the request to the NRC for review. This submittal also follows one of the key assumptions of using the WBN Unit 1 licensing basis to complete the construction of WBN Unit 2. Reference 4 provided the Unit 2 Preservice Inspection Program plan.

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There are no new regulatory commitments in this letter. Should you have questions regarding this submittal, please contact Gordon Arent at (423) 365-2004.

Respectfully,



J. W. Shea
Vice President, Nuclear Licensing

Enclosure:

Watts Bar Nuclear Plant, Unit 2, Request for Relief WBN-2/PSI-3

cc (Enclosure):

U.S. Nuclear Regulatory Commission, Region II
NRC Project Manager - Watts Bar Nuclear Plant, Unit 2
NRC Senior Resident Inspector - Watts Bar Nuclear Plant, Unit 2

Enclosure
Watts Bar Nuclear Plant, Unit 2
Request for Relief WBN-2/PSI-3

Executive Summary

The purpose of this enclosure is to provide a request for relief regarding one circumferential shell weld on Watts Bar Nuclear Plant (WBN) Unit 2 steam generator number 2 which is inaccessible because of the upper steam generator support bracket. A similar request was submitted for WBN Unit 1 as part of the WBN Unit 1 Preservice Inspection Program in Reference 1. The Nuclear Regulatory Commission (NRC) staff subsequently approved the WBN Unit 1 request for relief in Reference 2.

This request for relief is consistent with Reference 3 in which Tennessee Valley Authority (TVA) stated that upon discovery that a request for exemption or code relief is appropriate, TVA would submit the request to the NRC for review. This submittal also follows one of the key assumptions of using the WBN Unit 1 licensing basis to complete the construction of WBN Unit 2. Reference 4 provided the Unit 2 Preservice Inspection Program plan.

I. ASME Code Components Affected

One circumferential shell weld on WBN Unit 2 steam generator number 2 (Weld SG-4B-5-2) located as shown on Figure 1. The support structure for the steam generator is shown in Figure 2.

II. Applicable ASME Code Edition and Addenda

ASME Code Section XI 2001 Edition through 2003 Addenda adopted by the WBN Unit 2 Preservice Inspection Program.

III. Code Requirement

The requirement for steam generator circumferential shell weld inspection is listed as Item No. C1.10 of Table IWC-2500-1 of the ASME Code Section XI 2001 Edition through 2003 Addenda which is the code of record for the WBN Unit 2 Preservice Inspection Program. Note 1 of Table IWC-2500-1 requires the inspection to be essentially 100 percent of the weld length. Note 3 of the same table allows one weld to be inspected for multiple vessels of similar design, size, and service, such as steam generators.

IV. Reason for Request

Relief is requested from performing the required volumetric examination for the subject circumferential shell weld on steam generator number 2 as required by ASME Code Section XI 2001 Edition through 2003 Addenda under the WBN Unit 2 Preservice Inspection Program. One circumferential shell weld on steam generator number 2 (Weld SG-4B-5-2 - lower shell-to-cone weld) is partially inaccessible for examination because of the upper steam generator support bracket.

V. Burden Caused by Compliance

Circumferential shell weld on steam generator number 2 (Weld SG-4B-5-2 - lower shell-to-cone weld) is partially inaccessible for examination because of the upper steam generator support bracket. Thus, volumetric examination per the code requirement is not possible.

VI. Proposed Alternative and Basis for Use

Both the original WBN U1 steam generators and the existing WBN U2 steam generators were fabricated at approximately the same time in 1975 and contain the same weld configurations. These welds were examined volumetrically by radiography during fabrication in accordance with ASME Code Section III requirements.

With regard to the ASME Code Section XI volumetric examination for WBN Unit 2, TVA examined weld SG-4B-5-2 only (Steam Generator No. 2). Due to the upper lateral restraint support interference, 76 percent of the exam coverage was not obtained. Examination coverage achieved was approximately 24 percent. The other three welds were not examined since they are of similar design and configuration.

VII. Duration of Use of the Proposed Alternative

The duration of the use for the proposed alternative is a one time use to address the requirements of the WBN Unit 2 Preservice Inspection Program.

VIII. Industry Precedents

TVA previously submitted Relief Request ISI-5 for WBN Unit 1 by letter dated November 4, 1991, "Watts Bar Nuclear Plant (WBN) - Preservice Inspection Program," (Reference 1) which was subsequently approved by NRC. Since that time, code requirements have changed and the information provided below is historical in nature and is provided to aid the NRC staff review:

Field observation of the same welds on WBN Unit 1 was conducted by a NRC Region II inspector and documented in NRC Inspection Report Nos. 50-390/89-15 and 50-391/89-15, dated September 27, 1989, which states in part for Request for Relief ISI-5:

"This request involved 1 circumferential shell weld on each of the 4 steam generators. The circumferential weld is considered inaccessible due to the upper steam generator support brackets for 3 of the steam generators. The commitment for these welds states that one weld on one generator will be examined on a "best effort" basis. In-field visual observations of two of these welds indicated that the welds were inaccessible. A review of historical examination records for one weld indicated that the examination commitments stated in the request for relief had been fulfilled."

NRC staff evaluation of this request for relief was documented in NUREG-0847, Supplement No. 10, Appendix Z which reads as follows:

"Staff Evaluation: An NRC Region II inspector performed a routine inspection at the Watts Bar, Unit 1 site on September 11 through 15, 1989 (see Inspection Report 50-390, 391/89-15, of September 27, 1989). This NRC inspection included, in part, a

review of the Unit 1 PSI plan, reviews of the active requests for relief from required PSI examinations, and random in-field visual verifications to confirm that the relief requests were justified. For Relief Request ISI-5, the inspector confirmed that, as the applicant has stated, these welds are inaccessible for volumetric examination to the extent required by the code, and that the applicant's commitments as stated in the request for relief had been fulfilled.

The staff has determined that the subject welds cannot be examined to the extent specified by the code because of interference by the upper support brackets. These welds have been examined volumetrically by radiography in accordance with ASME Code Section III during fabrication. Therefore, the staff has concluded that the limited best-effort preservice volumetric examination, the fabrication examinations performed during construction, and the hydrostatic pressure test offer reasonable assurance of the preservice structural integrity of the welds. This particular joint, in the existing steam generators throughout industry, has not had any inservice failures. The staff has also determined that compliance with the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), relief is authorized as requested."

IX. References

1. TVA Letter to NRC, "Watts Bar Nuclear Plant (WBN) - Preservice Inspection Program ," dated November 4, 1991 [ML073550342]
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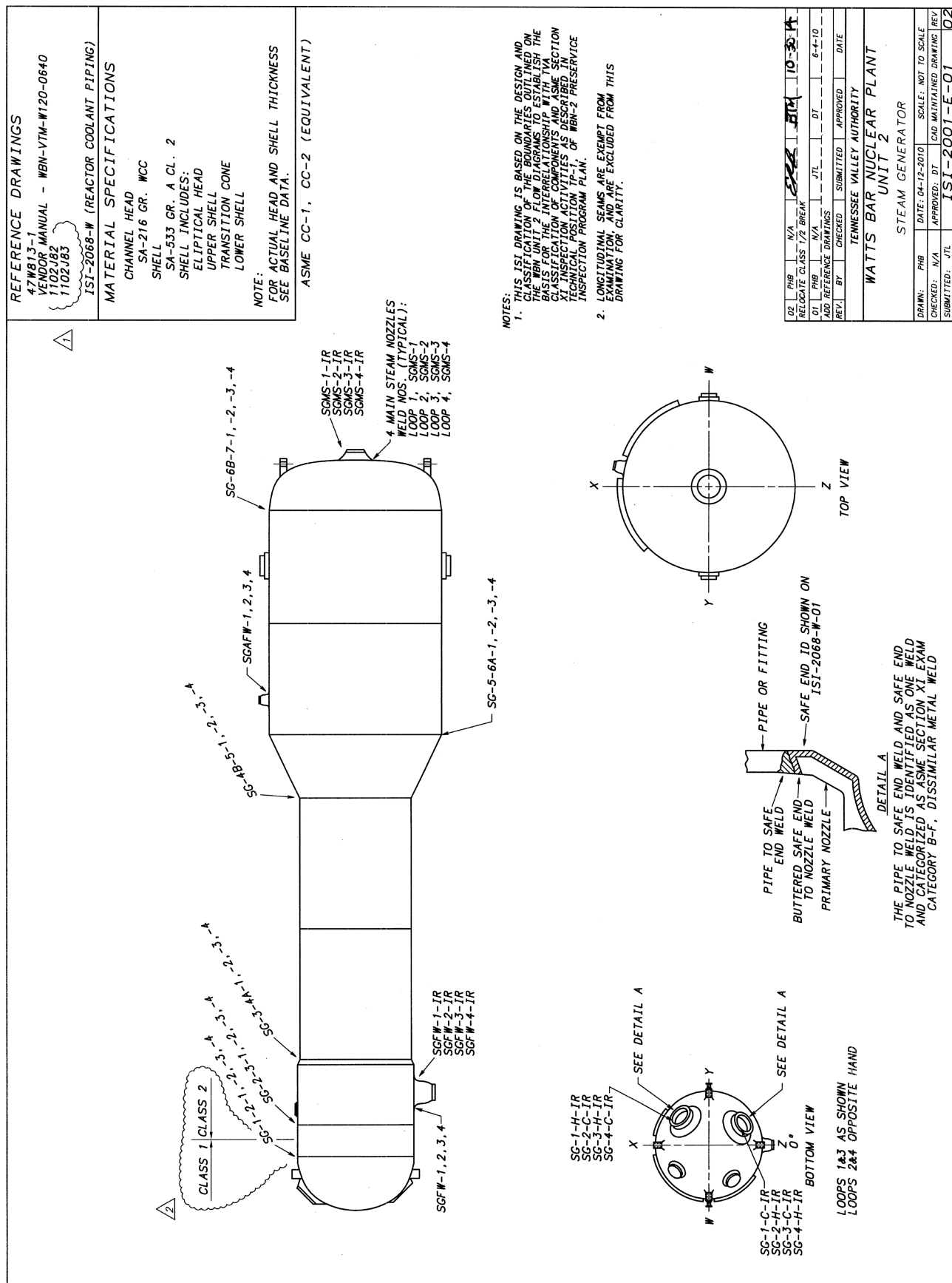


Figure 1

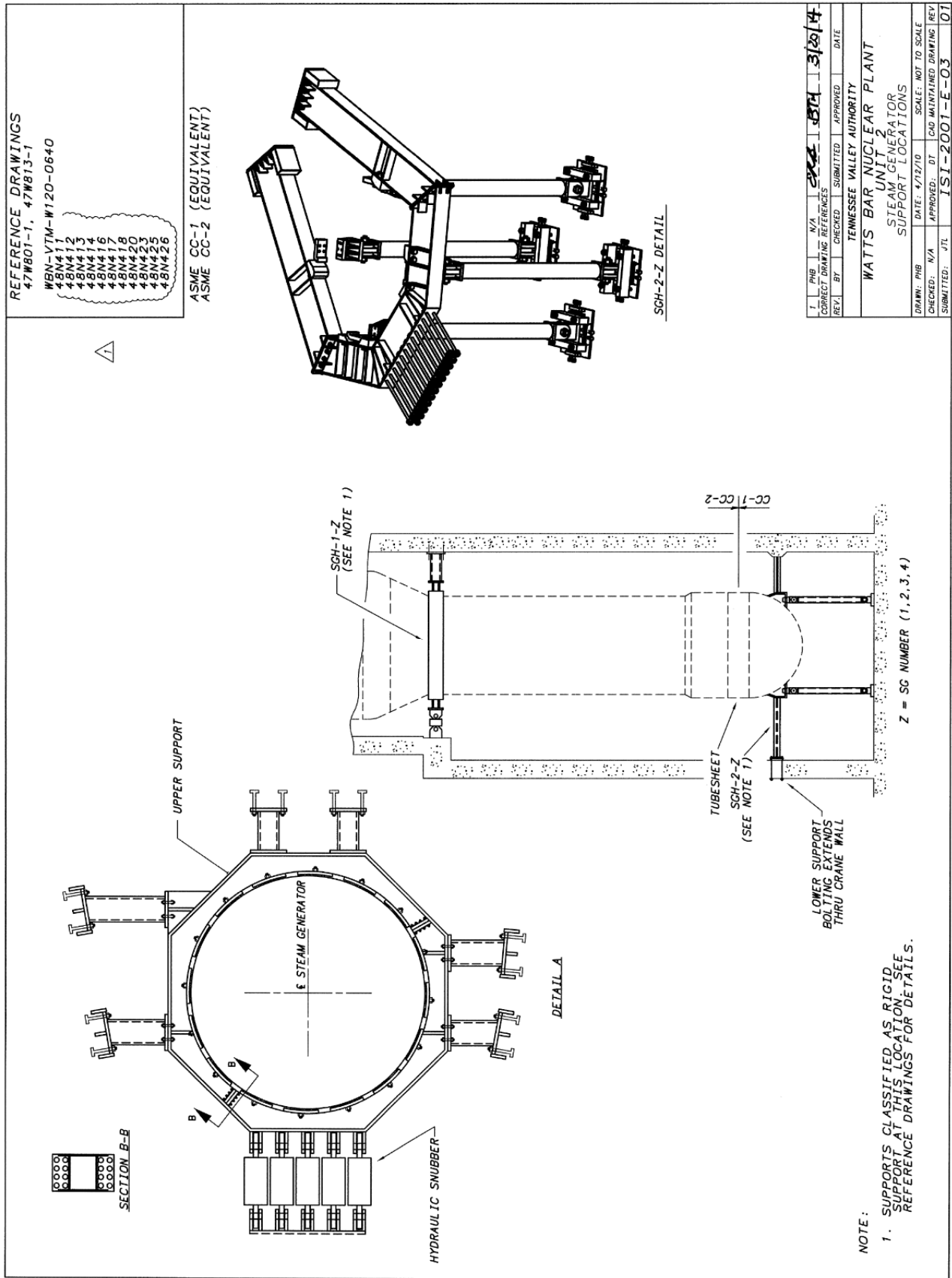


Figure 2