



E-34447  
January 18, 2013

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852

Subject: ASME Code Alternative Request  
Docket No. 72-1027

In accordance with CoC 1027 Amendment 1, Technical Specification 4.1.3, Transnuclear requests authorization to use an alternative to the requirements of the ASME Boiler and Pressure Vessel Code, Section III (1995 Edition through 1996), Subsection NB, Paragraph NB-5120. This request applies to only one TN-68 cask, Serial Number TN-68-63A, fabricated for Peach Bottom Atomic Power Station. The requested alternative is described in Attachment 1.

Attachment 2 contains security-related information and, therefore, should be withheld from public disclosure. Accordingly, Attachment 4 provides a public version of the Attachment 2 drawing.

Should the NRC staff require additional information to support review of this application, please do not hesitate to contact Mr. Don Shaw at 410-910-6878 or me at 410-910-6933.

Sincerely,

Clark Vanderniet  
Director, Regulatory Affairs

cc: B. Jennifer Davis (NRC SFST)  
10814 file

Attachments:

1. Request for Alternative to ASME Code Rule for TN-68
2. SAR Drawing 972-70-1, Rev 8 – TN-68 Dry Storage Cask General Arrangement (Security-Related)
3. Inner Shell Excavation XTN9
4. SAR Drawing 972-70-1, Rev 8 – TN-68 Dry Storage Cask General Arrangement (Public Version)

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## **Request for Alternative to ASME Code Rule for TN-68**

### **1. Scope**

Transnuclear proposes an alternative to the requirement for radiographic examination of Category B welded joints in vessels, in the 1995 Edition with Addenda through 1996 ASME B&PV Code Section III, Paragraph NB 5120(a). Paragraph NB-5120(a) requires that Category B welded joints in vessels be examined by radiography after PWHT.

The proposed alternative applies only to a small weld segment of the inner shell circumferential weld seam, approximately 8mm (0.32 in.) long x 7mm (0.28 in.) deep, on a TN-68 cask, Serial Number TN-68-63A. The circumferential weld seam is depicted in Attachment 2, Item Number 3, in Zone E-7. The proposed alternative to NB-5120(a) consists of:

- a) Allowing radiography (RT) examination of this small weld segment before post weld heat treatment in lieu of RT examination after post weld heat treatment.

### **2. Statement of Need**

The need for this alternative arose during Transnuclear's review of the final document package (FDP) for unit TN-68-63A metal cask fabricated at ENSA for Peach Bottom Atomic Power Station. The review found that a small weld segment of one of the weld repairs in the inner shell circumferential weld seam was radiographed prior to PWHT but not radiographed after PWHT, as required by Paragraph 5120(a). At the time this condition was discovered, fabrication of the cask was complete and the unit had already been delivered to Peach Bottom Atomic Power Station.

For this cask, already on site, the RT or an alternate volumetric examination after PWHT cannot be reasonably performed. This is because it would require disassembly of the cask, removal of the basket, and reassembly of the cask following completion of the required examination. These activities would constitute hardship and unusual difficulty without a compensating increase in the level of quality and safety.

### **3. Background Information**

For the purposes of radiography, the inner shell circumferential weld seam was laid out into 24 equally spaced zones. As described in the radiographic certificate, unacceptable indications were found in 10 of the 24 zones. Note that one of the zones with unacceptable defects was Zone 14-15.

A 220 mm (8.66 in.) diameter grinding disc was used to remove the defects in the weld seams. To reach the depth of the defects in Zone 14-15, it was also necessary to remove material from Zone 15-16. Thus, the grinding in Zone 14-15 extended by 50 mm (1.97 in.) into Zone 15-16. Note that Zone 15-16 was defect-free. Refer to Attachment 3 for description of excavation.

RT is required by ASME Code Section III, Paragraph NB-4453.4 because the depth of the area of concern in Zone 15-16 was 7 mm (0.28), which exceeds 10% of the nominal shell of 38.10

mm (1.5 in.). Therefore, the exemption from RT of the repair per paragraph NB-4453.4 and thus NB-5120(a) is not applicable in this case.

The pre-PWHT RT film for Zone 14-15 was found to cover 75 mm (2.95 in.) into Zone 15-16. However, the post-PWHT RT film in Zone 14-15 was found to cover only 42 mm (1.65 in.) into Zone 15-16. Therefore, entire weld repair was radiographed before and after PWHT except for the outer 8 mm (50mm – 42mm = 8mm) (0.32 in.), which was not radiographed after PWHT.

Note that all excavated areas were examined by liquid penetrant (PT) with acceptable results. Furthermore, all inside weld repair surfaces were subjected to visual (VT) and magnetic particle (MT) examination before and after PWHT with acceptable results. Following the hydrostatic test, PT was also performed on the inside weld repair with acceptable results.

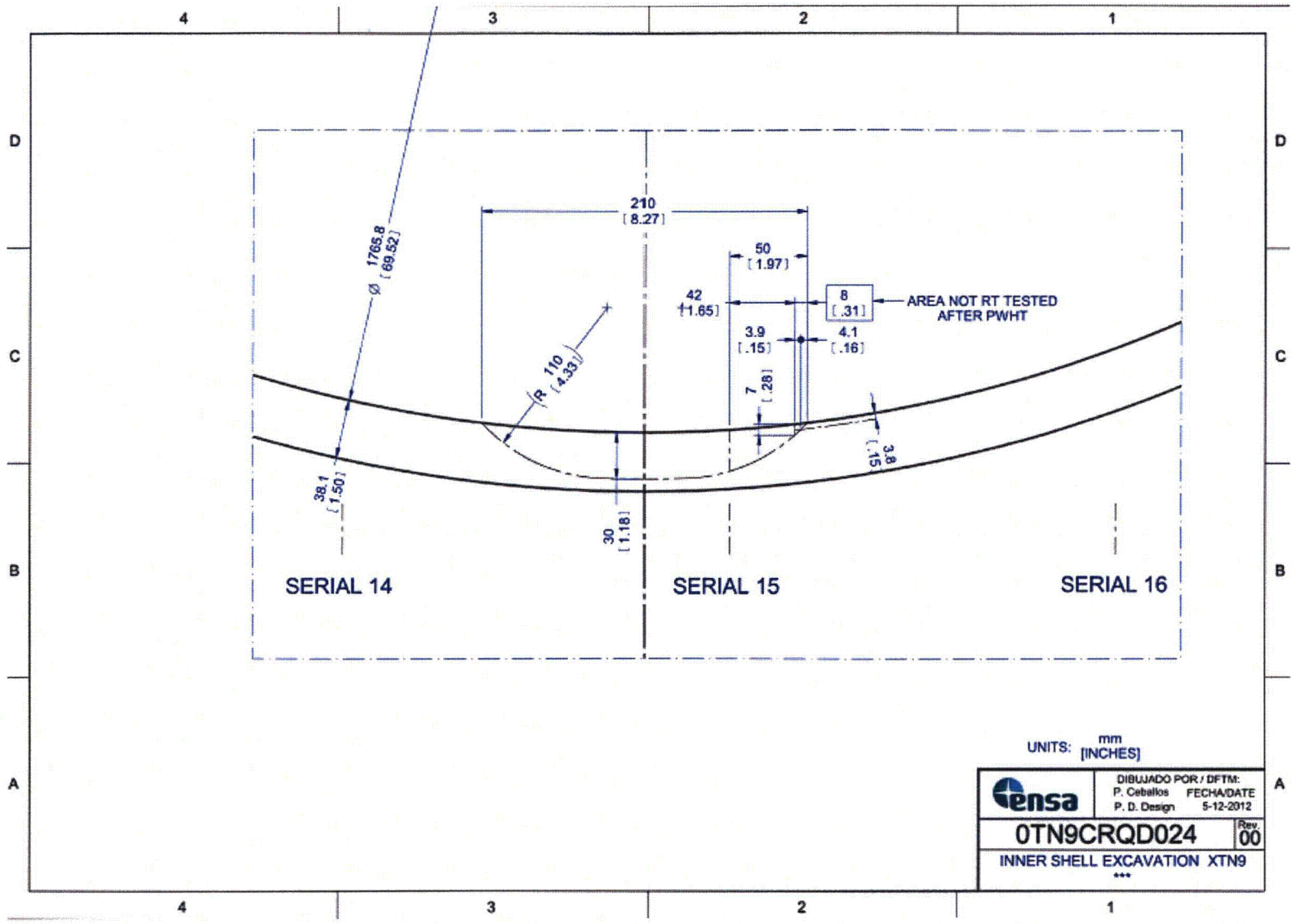
#### **4. Conclusions**

Although the segment of the weld repair described does not comply with the requirement for being radiographed following PWHT, it is reasonable to accept that there is no adverse impact to any analyzed design functions as specified in the UFSAR, based on the following:

- 1) There were no unacceptable radiographic indications in Zone 15-16 prior to PWHT.
- 2) The excavation area was examined by PT with acceptable results.
- 3) The entire inside surface of the weld seam was subsequently found acceptable by surface examination.
  - a. The full weld seam, including the small segment depicted in Attachment 3, was examined by VT and MT methods before and after PWHT with acceptable results.
  - b. A PT examination was also performed following hydrostatic test with acceptable results.

It can be concluded, with a high level confidence, that the weld repair in Zone 15-16 is free of unacceptable weld defects (e.g., inclusions, voids, lack of fusion, etc.). Any cracks that might have developed during PWHT would have been discovered during VT/MT/PT examinations performed after PWHT, as the portion of the repair weld in question is quite shallow.


The proposed alternative provides an acceptable level of quality and safety.



**ATTACHMENT 4 to E-34447**

**SAR Drawing 972-70-1, Rev 8 – TN-68 Dry Storage Cask General Arrangement  
(Public Version)**

# SECURITY - RELATED INFORMATION WITHHELD PURSUANT TO 10 CFR 2.390

B	REVISED PER FCN 721027-020, UPDATED THE TITLE BLOCK	4/08/08
7	SEE FCN 721027-019	5/12/06
REVISION	DESCRIPTION	DATE
<p>ALL DIMENSIONS ARE NOMINAL UNLESS A SPECIFIC TOLERANCE IS INDICATED WITH THE DRAWING DIMENSION</p> <p>DIMENSIONS ARE IN INCHES AND DEGREES UNLESS OTHERWISE SPECIFIED. DIMENSIONING IN ACCORDANCE WITH ASME Y14.5M</p> <p>INTERPRETATION OF WELD SYMBOLS PER AWS / AWS 2.4</p>		
 <p><b>TRANSNUCLEAR</b> AN AREVA COMPANY</p>		<p>SAFETY ANALYSIS REPORT TN-68 DRY STORAGE CASK GENERAL ARRANGEMENT</p>
DRAWING NO. 972-70-1		SCALE NONE
		SHEET 1 OF 1
		REVISION B