



July 21, 2004

10 CFR 50.55a(a)(3)(i)  
L-HU-04-029

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

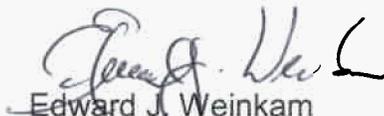
Duane Arnold Energy Center  
Docket 50-331  
License No. DPR-49

Monticello Nuclear Generating Plant  
Docket 50-263  
License No. DPR-22

**Request for Additional Information Regarding Authorization to Use Code Case N-613-1**

By letter dated February 27, 2004, Nuclear Management Company, LLC (NMC) requested authorization for the Duane Arnold Energy Center (DAEC) and Monticello Nuclear Generating Plant (MNGP) to use the alternative examination volume requirements of Code Case N-613-1 in lieu of certain ASME Section XI, IWB-2500 requirements. Additional information was requested via electronic mail and was clarified during a conference call between the Staff and NMC. By letter dated June 15, 2004, the Staff issued a Request for Additional Information (RAI). NMC's responses to the clarified questions are provided in the enclosure.

As discussed during the conference call with the Staff, NMC understands that ASME requirements regarding minimum examination coverage must be met, or relief requested and approved by the NRC, regardless of authorization to use Code Case N-613-1. NMC will request relief if minimum coverage is not obtained.

  
Edward J. Weinkam  
Director of Regulatory Services  
Nuclear Management Company, LLC

Enclosures (2)

cc: Administrator, Region III, USNRC  
Project Managers, DAEC, MNGP, USNRC  
**Resident Inspectors, DAEC, MNGP, USNRC**

## ENCLOSURE 1

### REQUEST FOR ADDITIONAL INFORMATION DUANE ARNOLD ENERGY CENTER - TAC MC2374 MONTICELLO NUCLEAR GENERATING PLANT - TAC MC2375

As discussed during the conference call on June 7, 2004, the following information is expected to suffice to answer the Staffs questions.

#### **NRC Request:**

1. In Item 5, "Proposed Alternatives and Basis for Use," of NMC's letter of February 27, 2004, states that the "required examination volume for the RPV [reactor pressure vessel] nozzle-to-vesselwelds extends far beyond the weld into the base metal, and is unnecessarily large." This proposed alternative would redefine the examination volume boundary to one-half inch of base metal on each side of the widest portion of the weld.
  - a. Please provide a supplemental sketch showing the specific configuration nozzle-to-vesselweld and revised examination volume (including dimensions).

#### **NMC Response:**

All of the welds for which use of the Code Case is requested are of the configuration shown in Figure 2 of the Code Case. (See Enclosure 2.)

#### **NRC Request:**

- b. Identify the type of ultrasonic technique (manual or automated), nominal pipe diameters, and weldment material (ferritic, austenitic, Inconel) that NMC is proposing to inspect.

#### **NMC Response:**

Manual ultrasonic examinations will be performed from the outside diameter (OD) using performance demonstration initiative (PDI) qualified techniques and personnel. The vessels and nozzles are composed of carbon steel; the weld material is ferritic. Nozzle bore sizes range from approximately 2 inches to 28 inches in diameter.

**NRC Request:**

- c. It is not clear how NMC personnel will be able to locate the widest portion of the nozzle-to-vessel weld precisely. It is unclear how repaired areas extending beyond the ideal weld cross-sectional area are identified and how these areas will be examined. If personnel are to identify the widest sections of the nozzle-to-vessel welds, please specify what positive means of examination will be used to identify the weld extremities. Will the extremities be identified on both the inside and outside diameters of the nozzle to ensure complete coverage of the welds?

**NMC Response:**

Use of the proposed examination boundaries will be conducted in conjunction with NMC's programmatic implementation of the mandated use of ASME Section XI, Appendix VIII, Performance Demonstration for Ultrasonic Examination Systems. NMC will implement these requirements in accordance with ASME Section XI Appendix VIII of the 1995 Edition with the 1996 Addenda, as amended by the Final Rule and approved reliefs/alternatives, as applicable. NMC will comply with these requirements through the use of the EPRI PDI Program. Use of the PDI Program will ensure that the techniques and UT methodologies will be qualified and examination personnel certified by a performance demonstration. The experienced PDI-qualified examiners who will perform the inspections are capable of visually identifying the extremities (widest sections) of the nozzle-to-vessel weld.

As stated previously, the nozzle-to-shell weld exams are conducted from the outside of the vessel. Note that residual stresses in the weld and heat affected zones of the nozzle-to-vessel welds are minimal as these welds, including in-process weld repairs if any, were subjected to post-weld heat treatment during vessel fabrication.

**NRC Request:**

2. In Item 5 of NMC's letter of February 27, 2004, it also states that the "creation of flaws during plant service in the volume excluded from the proposed reduced examination is unlikely because of the low stress in the base metal away from the weld." Please provide your technical basis and analyses in order to support this statement.

**NMC Response:**

A technical basis is provided in EPRI Technical Report 1003557, BWRVIP-108: BWR Vessel and Internals Project - Technical Basis for the Reduction of Inspection Requirements for Boiling Water Reactor Nozzle-to-Vessel Shell Welds and Nozzle Blend Radii (letter dated November 25, 2002, C. Terry, BWRVIP, to NRC).

**ENCLOSURE 2**  
**CODE CASE N-613-1**

**4 pages follows**

CASE  
**N-613-1**

**CASES OF ASME BOILER AND PRESSURE VESSEL CODE**

Approval Date: August 20, 2002

*See Numeric Index for expiration  
and any reaffirmation dates.*

**Case N-613-1**

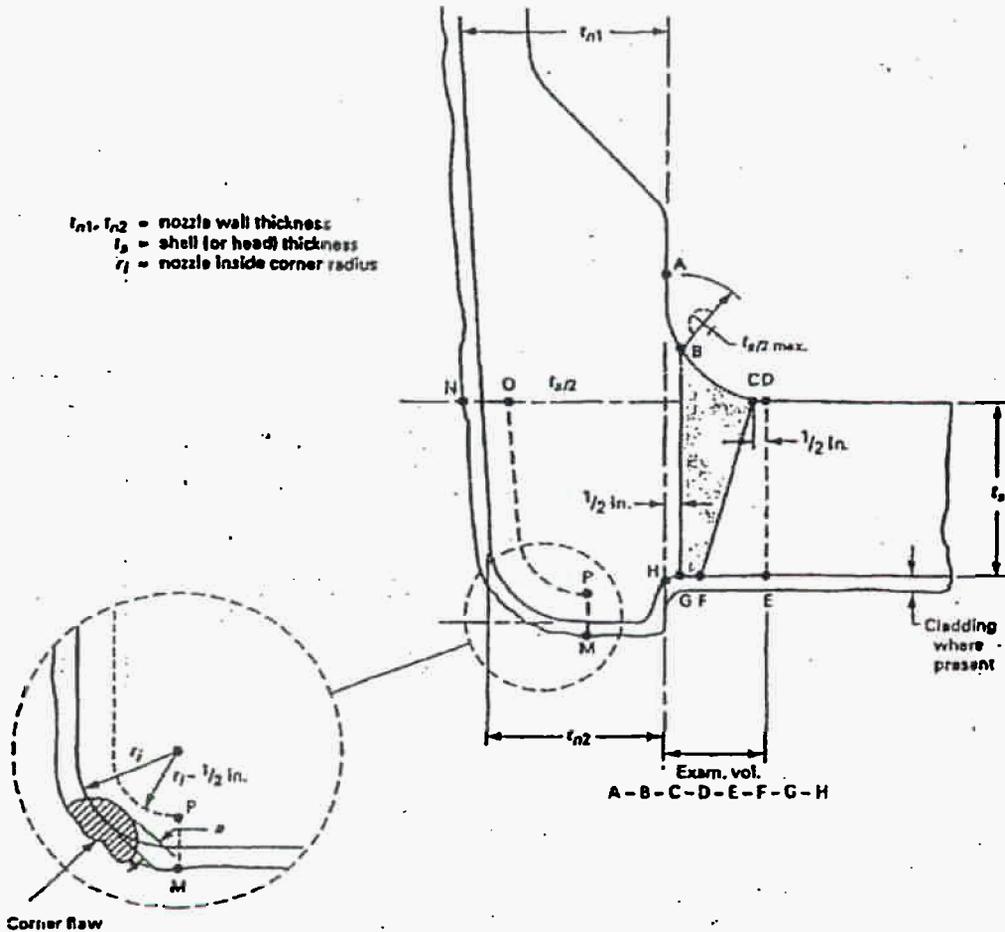
**Ultrasonic Examination of Full Penetration  
Nozzles in Vessels, Examination Category B-D,  
Item No's. B3.10 and B3.90, Reactor Nozzle-To-  
Vessel Welds, Figs. IWB-2500-7(a), (b), and (c)  
Section XI, Division 1**

*Inquiry:* What alternatives to the examination volume requirements of Figs. IWB-2500-7(a), (b), and (c) are permissible for ultrasonic examination of reactor-nozzle-to-vessel welds?

*Reply:* It is the opinion of the Committee that Category B-D nozzle-to-vessel welds previously ultrasonically examined using the examination volumes of Figs. IWB-2500-7(a), (b), and (c) may be examined using the reduced examination volume (A-B-C-D-E-F-G-H) of Figs. 1, 2, and 3.

CASE (continued)  
**N-613-1**

CASES OF ASME BOILER AND PRESSURE VESSEL CODE



**EXAMINATION REGION [Note (1)]**

- Shell (or head) adjoining region
- Attachment weld region
- Nozzle cylinder region
- Nozzle inside corner region

**EXAMINATION VOLUME [Note (2)]**

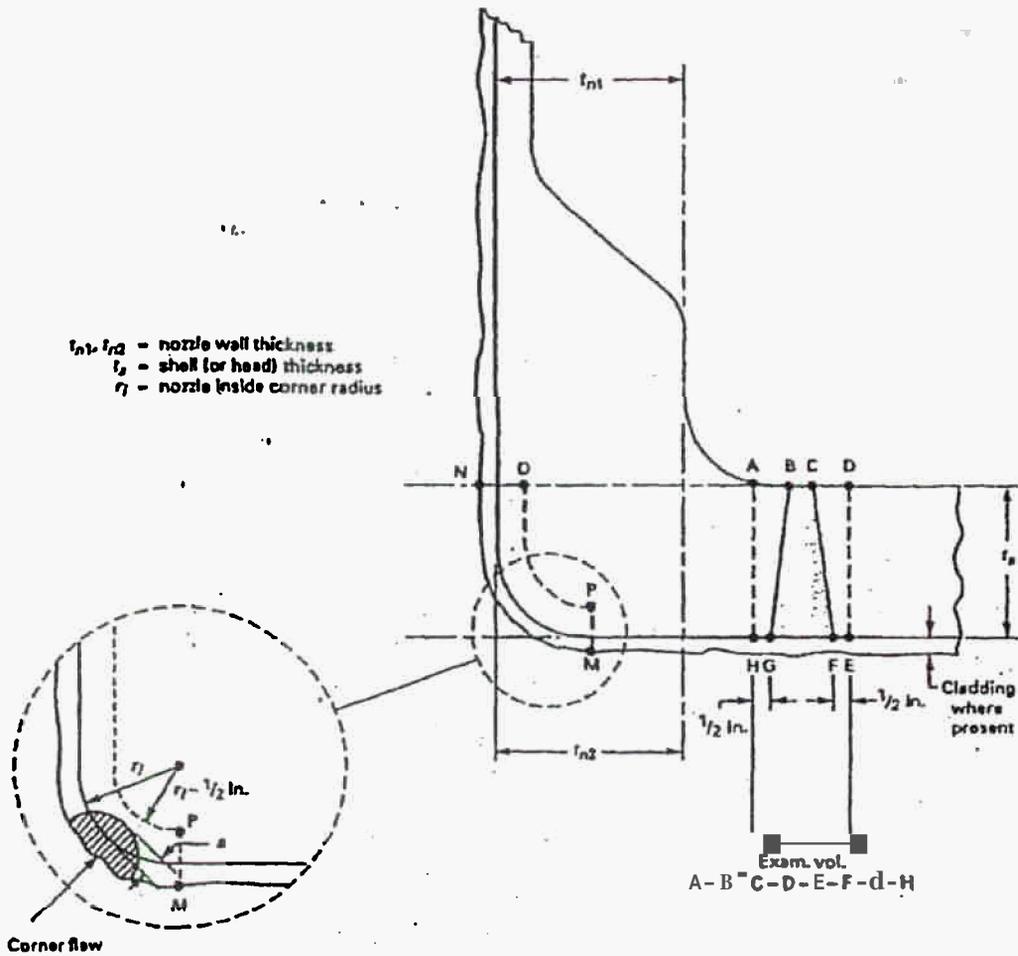
- C-D-E-F
- B-C-F-G
- A-B-G-H
- M-N-O-P

**NOTES:**

- (1) Examination regions are identified for the purpose of differentiating the acceptance standards in AWS-3612
- (2) Examination volumes may be determined either by direct measurements on the component or by measurements based on design drawings.

FIG. 1. NOZZLE IN SHELL OR HEAD  
 (Examination Zones In Barrel Type Nozzles Joined by Full Penetration Corner Welds)

CASES OF ASME BOILER AND PRESSURE VESSEL CODE



**EXAMINATION REGION [Note (1)]**

- Shell (or head) adjoining region
- Attachment weld region
- Nozzle cylinder region
- Nozzle inside corner region

**EXAMINATION VOLUME [Note (2)]**

- C-D-C-F
- 8-C-F-G
- A-8-G-H
- M-N-O-P

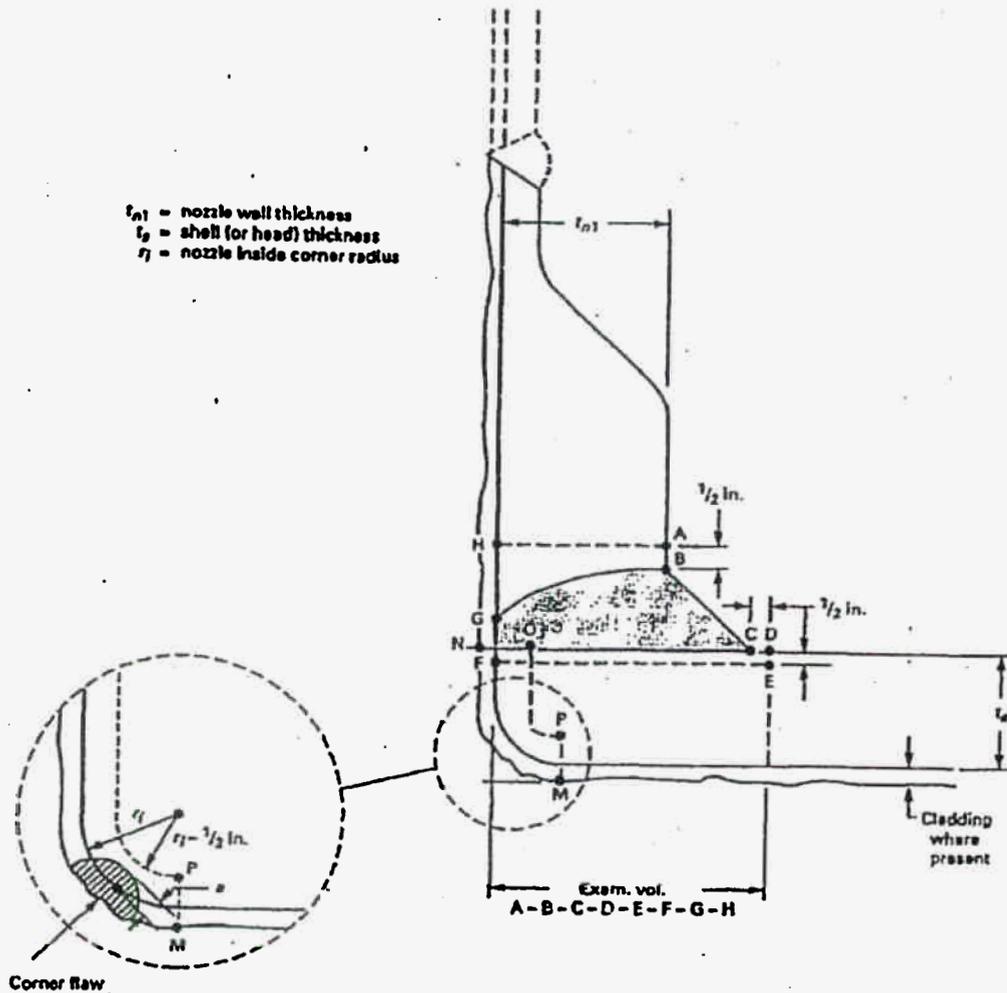
**NOTES:**

- (1) Examination regions are identified for the purpose of differentiating the acceptance standards in MW-3512
- (2) Examination volumes may be determined either by direct measurements on the component or by measurements based on design drawings.

FIG. 2 NOZZLE IN SHELL OR HEAD  
 (Examination Zones In Flange Type Nozzles Joined by Full Penetration Butt Welds)

CASE (continued)  
**N-613-1**

CASES OF ASME BOILER AND PRESSURE VESSEL CODE



**EXAMINATION REGION [Note (1)]**

- Shell (or head) adjoining region
- Attachment weld region
- Nozzle cylinder region
- Nozzle inside corner region

**EXAMINATION VOLUME [Note (2)]**

- C-D-E-F-G
- B-C-B
- A-B-G-H
- M-N-O-P

**NOTES:**

- (1) Examination regions are identified for the purpose of differentiating the acceptance standards in MWB-3612.
- (2) Examination volumes may be determined either by direct measurements on the component or by measurements based on design drawings.

**FIG. 3 NOZZLE IN SHELL OR HEAD**  
 (Examination Zones in Set-On Type Nozzles Joined by Full Penetration Corner Welds)