

# BALTIMORE GAS AND ELECTRIC COMPANY

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ARTHUR E. LUNDVALL, JR.  
VICE PRESIDENT  
SUPPLY

July 3, 1980

Mr. Boyce H. Grier, Director  
U.S. Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, PA 19406

SUBJECT: IE Bulletin No. 80-08  
"Examination of Containment Liner Penetration Welds"  
Calvert Cliffs Nuclear Power Plant  
Unit Nos. 1 and 2  
Baltimore Gas and Electric Company  
Docket Nos. 50-317  
50-318

Dear Mr. Grier:

IE Bulletin No. 80-08 requested information concerning flued head design penetration connections, or other designs with containment boundary butt welds between the penetration sleeve and process piping. Calvert Cliffs Units 1 and 2 each contain five (5) such penetrations, all of them flued head design. These penetrations were "N" stamped to the requirements of paragraph N-153 of ASME Code Section III Summer 1969, as required by Code Case No. 1425. To meet volumetric examination requirements during construction, one of the ten penetration welds was radiographed. The remaining nine were examined using ultrasonics. No backing rings or consumable inserts were used on any of the welds in question. Results of nondestructive examinations performed during construction, material data, and weld sizes are tabulated below. Ultrasonic examinations were performed because of the difficulty in obtaining a meaningful radiograph of the flued head-to-penetration sleeve weld.

## FLUED HEAD-TO-PENETRATION SLEEVE WELDS

### CALVERT CLIFFS UNIT 1

Penetration 41: Shutdown Cooling 14" SCH. 140 A-376 TP 316

Pipe Dia: 24" Joint Thickness: 0.625"  
Type: Flued Head  
Material: ASTM A-516 GR.70 to SA-182 TP F316

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FLUED HEAD-TO-PENETRATION SLEEVE WELDS  
(CONTINUED)

CALVERT CLIFFS UNIT 1

Penetration 41: (Continued)

Weld: Coating E309-16 Bare ER 309  
Backing Bar or Insert Used: No  
NDE: VT, PT, and UT Accepted, Code Inspector Hold Point for UT

Penetration 33: Feedwater 16" SCH.80 A-106 GR.C

Pipe Dia: 28" Joint Thickness: 0.750"  
Type: Flued Head  
Material: ASTM A-516 GR.70 to SA-105 GR.II  
Weld: Coating E 7018 Bare E 70S-2  
Backing Bar or Insert Used: No  
NDE: VT, PT, and UT Accepted, Code Inspector Hold Point for VT

Penetration 34: Feedwater 16" SCH.80 A-106 GR.C

Pipe Dia: 28" Joint Thickness: 0.750"  
Type: Flued Head  
Material: ASTM A-516 GR.70 to SA-105 GR.II  
Weld: Coating E 7018 Bare E 70S-2  
Backing Bar or Insert Used: No  
NDE: VT, PT, and UT Accepted, Code Inspector Hold Point for VT

Penetration 35: Main Steam 34", 0.95" min. A-155 GR.KC-F 70

Pipe Dia: 50" Joint Thickness: 1.5"  
Type: Flued Head  
Material: ASTM A-516 GR.70 to SA 105 GR.II  
Weld: Coating E 7018 Bare E 70S-2  
Backing Bar or Insert Used: No  
NDE: VT, PT, and UT Accepted, Code Inspector Hold Point for VT

Penetration 36: Main Steam 34", 0.95" min A-155 GR.KC-F 70

Pipe Dia: 50" Joint Thickness: 1.5"  
Type: Flued Head  
Material: ASTM A-516 GR.70 to SA 105 GR.II  
Weld: Coating E 7018 Bare E 70S-2  
Backing Bar or Insert Used: No  
NDE: VT and RT Accepted, Code Inspector Hold Point for VT and RT

FLUED HEAD-TO-PENETRATION SLEEVE WELDS  
(CONTINUED)

CALVERT CLIFFS UNIT 2

Penetration 41: Shutdown Cooling 14" SCH.140 A-376 TP 316

Pipe Dia: 24" Joint Thickness: 0.625"  
Type: Flued Head  
Material: ASTM A-516 GR.70 to SA-182 TP-F 316  
Weld: Coating E 309-16 Bare ER 309  
Backing Bar or Insert Used: No  
NDE: VT, PT, and UT Accepted

Penetration 33: Feedwater 16" SCH.80 A-106 GR.C

Pipe Dia: 28" Joint Thickness: 0.750"  
Type: Flued Head  
Material: ASTM A-516 GR.70 to SA-105 GR.II  
Weld: Coating E 7018 Bare E 70S-2  
Backing Bar or Insert Used: No  
NDE: VT, MT, and UT  
UT Rejected  
Code Inspector Hold Point for VT and UT  
4 Indications Noted - 1 Rejected  
Area (1): 5¼" to 7½" CCW from 0°, 17½" from wall, 3/8" deep, rejected.  
Area (2): 21" to 23" CCW from 0°, 17½" from wall, 3/8" deep.  
Area (3): 25¼" to 27½" CCW from 0°, 17¼" from wall, 3/8" deep.  
Area (4): 10" to 11½" CW from 0°, 17" from wall, ¼" deep.

Weld Repair No. 1 NDE: VT, MT, and UT-Code Inspector Hold Point for UT  
UT Rejected Area (1)  
Area (1): Linear Indication 6½" to 7 ¾" CCW from 0°, 17½" from wall,  
½" deep.  
Previous Areas (2), (3), and (4) Accepted

Weld Repair No. 2 NDE: VT, MT, and UT Accepted, Code Inspector  
Hold Point for VT

Penetration 34: Feedwater 16" SCH.80 A-106 GR.C

Pipe Dia: 28" Joint Thickness: 0.75"  
Type: Flued Head  
Material: ASTM A-516 GR.70 to SA-105 GR.II  
Weld: Coating E 7018 Bare E 70S-2  
Backing Bar or Insert Used: No  
NDE: VT, MT, and UT  
UT Rejected 1 Area  
Area (1): Linear Indication 1½" above to ¾" below center of  
longitudinal weld on south side of penetration, 17 3/8"  
from wall, ½" deep.

Weld Repair No. 1 NDE: VT, MT, and UT Accepted, Code Inspector  
Hold Point for VT and UT

FLUED HEAD-TO-PENETRATION SLEEVE WELDS  
(CONTINUED)

CALVERT CLIFFS UNIT 2

Penetration 35: Main Steam 34", 0.95" min. A-155 GR.KC-F 70

Pipe Dia: 50" Joint Thickness: 1½"  
Type: Flued Head  
Material: ASTM A 516 GR.70 to SA-105 GR.II  
Weld: Coating E 7018 Bare E 70S-2  
Backing Bar or Insert Used: No  
NDE: VT, PT, MT, and UT  
U Rejected 2 Areas  
Area (1): Indication 6¼" to 8¼" CCW from 0°, 8" from  
cap, 1" deep  
Area (2): Indication 39½" to 41½" CW from 0°, 8½" from  
face, 7/8" deep.

Weld Repair No. 1 NDE: VT, PT, MT, and UT Accepted, Code  
Inspector Hold Point for VT

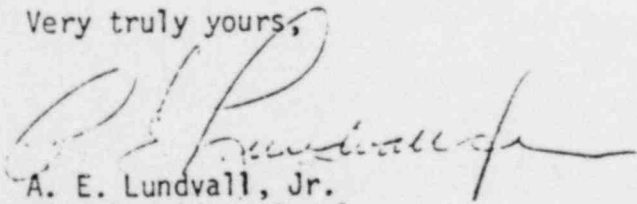
Penetration 36: Main Steam 34", 0.95" min. A-155 GR.KC-F 70

Pipe Dia: 50" Joint Thickness: 1½"  
Type: Flued Head  
Material: ASTM A 516 GR.70 to SA-105 GR.II  
Weld: Coating E 7018 Bare E 70S-2  
Backing Bar or Insert Used: No  
NDE: VT, MT, and UT Accepted, Code Inspector Hold Point for VT

Ultrasonic examination provided a highly reliable and meaningful examination technique. This technique was further enhanced by the fact that no backing bars were used during the fabrication of the welds. A radiographic examination of these welds would not be practical nor would it provide additional information on the integrity of the welds.

Should you have any questions on the contents of this report, please do not hesitate to contact us.

Very truly yours,

  
A. E. Lundvall, Jr.  
Vice President-Supply

AEL/BCR/gla

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