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June 20, 1979

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Attention: Victor Stello, Jr., Director
Division of Operating Reactors
Washington, DC 20555

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334
Information on Feedwater Lines

Gentlemen:

The following information has been assembled in response to Mr. Stello's May 25, 1979 request for information concerning the design, fabrication history, preservice/inservice inspection, and operating history of the Beaver Valley No. 1 Unit feedwater lines.

A. DESIGN

1. As-built piping or isometric drawings of feedwater line to steam generator sparger within containment, including support type and locations, pipe schedule, dimensions, restraints, valves.

Per Attached drawings:

A. 11700-6.24-62 Sheets 1 thru 30

B. 11700-RP-2A & 2B

2. Stress or fatigue analysis results.

Per attached drawings:

11700-MSK-102 Sheets A1 thru A15

B. FABRICATION HISTORY

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1. Materials Information:

A. Steam Generator Sparger: ASTM 106 Grade B

B. Steam Generator Feedwater Nozzles: ASTM SA 508 Class 2

C. Feedwater Piping within Containment: ASTM A106 Grade B, Seamless Schedule 80

2. Details of Welding Processes Used, Including Preheat, Joint Configuration, Use of Backing Rings, Post Weld Treatments.

A. Nozzle-to-Pipe Joint

1. Nozzle End Weld Prep: per drawings

11700-4.13-10A
11700-4.13-11A Detail "C"
11700-4.13-13A Detail "AC"

2. Piping End Weld Prep: per drawing

920 9-B Sheet 65

3. Nozzle-to-Pipe Weld Data - Steam Generator 1A: per attached Microfilm frames 00650 thru 00658, 00913, 00921, 00923, and Heat Treatment Chart No. 511

4. Nozzle-to-Pipe Weld Data - Steam Generator 1B per attached Microfilm frames 00746 thru 00764, 00914, and Heat Treatment Chart No. 514

5. Nozzle-to-Pipe Weld Data - Steam Generator 1C: per attached Microfilm frames 00888 thru 00904, 00915, 00919, 00920, and Heat Treatment Chart No. 581

Attached Heat Treatment Chart Index Sheets (Microfilm frames 01590 & 01595) and Control Isometric Sheets 9209B, Sheets 1, 2, and 3 are applicable to Items 3, 4, and 5 above.

In addition, attached marked-up drawing 9209B Iso. 62 can be used as a guide to identify the field weld numbers of the various joints, which differ from the Stone & Webster design identification numbers.

B. Nozzle-to-Sparger Weld Data

No welding performed on this joint. Sparger has a close tolerance slip fit with nozzle via a thermal sleeve insert.

C. INFORMATION ON PRESERVICE/INSERVICE INSPECTION AND OPERATING HISTORY OF PWR FEEDWATER LINES

1. The Preservice Inspection was performed in accordance with the 1971 Edition of ASME B&PV Code, Section XI. This edition did not require inspection of the feedwater system welds for preservice.

2. Radiographic examinations of the pipe to steam generator to nozzle welds was performed on June 16, 1979. All three lines indicated the presence of circumferential cracking. Necessary repairs shall be performed prior to a return to service.

3. The schedule for the next inspection interval on the feedwater system calls for the following: (See DLW-2-2220, Attached)

   a. Loop #2, 16" Circumferential Butt Weld #4, Volumetric Exam, 100%.

   b. Loop #2, Welded Support #1, Surface Exam

   c. Loop #2, Support Components A, B, Visuals

   During the 1st inspection interval the following was performed: (See DLW-2-2210, Attached)

   a. Loop #1, 16" Feedwater Weld #5, 100% Volumetric

   b. Loop #1, 16" Feedwater Welded Support #1, Volumetric Exam

   c. Loop #1, 16" Feedwater Supports A and Welded Support #2. Visual Exam.

4. See Attachment H.

5. Beaver Valley maintains feedwater chemistry using morpholine and hydrazine. Ammonia is only added during layup conditions. Control parameters are as follows:

pH	9.2 - 9.6
O_2	< 5 ppb
Hydrazine	$[O_2]$ + .005 ppm

Other parameters monitored include conductivity, cation conductivity, mopholine and hydrazine concentration, and iron and copper content. Oxygen, pH, and cation conductivity values are continuously recorded.

During operation the past year, feedwater data has been in the following range:

pH	8.6	-	9.7
O_2	< 5 ppb	-	300 ppb
Cation Conductivity	0.2	-	> 10 µmho
Conductivity	2.0	-	> 10 µmho
Morpholine	0.8	-	10.9 ppm
Hydrazine	0.1	-	2.0 ppm
Iron	3	-	98 ppb
Copper		3 ppb	(Max)

If you have any further questions on this matter, please contact my office.

Very truly yours,

C. N. Dunn
Vice President, Operations

Attachments

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