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KEISER, H. W. Pennsylvania Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION
ADENSAM, E. BWR Project Directorate 3

SUBJECT: Forwards inservice insp program relief request from AVME Code, Section XI for fulfilling preservice insp requirements for certain longitudinal seam weld during inservice insp pr.

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Harold W. Keiser
Vice President-Nuclear Operations
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MAR 13 1986

Director of Nuclear Reactor Regulation
Attention: Ms. E. Adensam, Project Director
BWR Project Directorate No. 3
Division of BWR Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
INSERVICE INSPECTION PROGRAM RELIEF REQUEST
ER 100450 FILE 841-1 Docket No. 50-387
PLA-2612

Dear Ms. Adensam:

Attached is a Inservice Inspection Program Relief Request from fulfilling the Preservice Inspection requirements for certain longitudinal seam weld during the Inservice Inspection Program.

If you have any questions, please call us.

Very truly yours,

H. W. Keiser
Vice President - Nuclear Operations

cc: M. J. Campagnone USNRC
R. H. Jacobs USNRC
J. R. Wiggins USNRC

A047
1/1

RELIEF REQUEST

I. IDENTIFICATION OF COMPONENTS AND IMPRACTICAL CODE REQUIREMENTS

The Preservice Inspection Program for Susquehanna SES Unit #1 was prepared/implemented/completed in accordance with ASME Section XI 1974 Summer 1975 Addenda, "Rules for Inservice Inspection of Nuclear Power Plant Components."

Code Category B-J, pressure-retaining welds in piping, required a complete volumetric examination of 100% of the longitudinal seam welds in piping.

Code Categories CF/CG, pressure-retaining welds in piping, pumps, and valves in systems which do/do not circulate reactor coolant, required a complete volumetric examination of 100%/50% of the longitudinal weld joints in fittings.

Contrary to the above, preservice examinations of certain longitudinal seam welds were inadvertently missed during the PSI; therefore, baseline ultrasonic examination data is unavailable to support the ISI Program.

Relief is requested from fulfilling the preservice inspection requirements for the subject components during the ISI ten year interval. Inspection of longitudinal welds will be performed in accordance with the current routine Section XI program over the ISI ten-year interval, i.e. longitudinal welds will be examined concurrent with examination of selected intersecting circumferential welds. Performance of the PSI or an increased ISI scope at this time poses an undue hardship with no compensating increase in plant safety.

II. SCOPE

A total of forty-nine (49) longitudinal seam welds, distributed by Class among the following systems, have no PSI data:

	System	Number of Welds	Lineal Ft of Weld
Class 1	RHR	14	133'
	RR	28	85'
	CS	3	7'
Class 2	RHR	4	14'
TOTAL		49	239'

All of the above welds are in stainless steel piping/fittings and are of one (1) of the following material specifications:

1) SA358 TP304 CL1, "Electric-Fusion-Welded Austenitic Chromium-Nickel Alloy Steel Pipe for High-Temperature Service."

2) SA312 TP304 Welded, "Seamless and Welded Austenitic Stainless Steel Pipe", and

[illegible]

3) SA403 WP304W, "Wrought Austenitic Stainless Steel Piping Fittings."

The forty-nine (49) longitudinal seam welds are identified as follows:

System	Weld Identification	Description
RHR Class 1	1) DCA-111-1-1-H	Pipe Seam
	2) DCA-111-1-1-J	Pipe Seam
	3) DCA-111-1-1-K	Pipe Seam
	4) DCA-111-1-1-L	Pipe Seam
	5) DCA-111-1-2-B	Pipe Seam
	6) DCA-111-1-3-C	Pipe Seam
	7) DCA-111-1-4-G	Pipe Seam
	8) DCA-111-1-4-F	Pipe Seam
	9) DCA-111-1-5-C	Pipe Seam
	10) DCA-111-1-5-D	Pipe Seam
	11) DCA-111-2-1-C	Pipe Seam
	12) DCA-111-2-2-C	Pipe Seam
	13) DCA-111-2-3-B	Pipe Seam
	14) DCA-111-2-9-A	Pipe Seam
RHR Class 2	1) DBB-107-2-1-E	Elbow Seam
	2) DBB-107-2-1-F	Elbow Seam
	3) HBB-111-1-1-H	Elbow Seam
	4) HBB-111-1-1-J	Elbow Seam
RR Class 1	1) DCA-141-1-1-C	Pipe Seam
	2) DCA-141-1-1-D	Pipe Seam
	3) DCA-141-1-3-E	Pipe Seam
	4) DCA-141-1-3-F	Pipe Seam
	5) DCA-142-1-1-C	Pipe Seam
	6) DCA-142-1-1-D	Pipe Seam
	7) DCA-142-1-3-E	Pipe Seam
	8) DCA-142-1-3-F	Pipe Seam
	9) VRR-B31-1-4-C	Elbow Seam
	10) VRR-B31-1-4-D	Elbow Seam
	11) VRR-B31-1-5-C	Elbow Seam
	12) VRR-B31-1-5-D	Elbow Seam
	13) VRR-B31-1-6-C	Elbow Seam
	14) VRR-B31-1-6-D	Elbow Seam
	15) VRR-B31-1-7-C	Elbow Seam
	16) VRR-B31-1-7-D	Elbow Seam
	17) VRR-B31-1-8-C	Elbow Seam
	18) VRR-B31-1-8-D	Elbow Seam
	19) VRR-B31-2-4-C	Elbow Seam
	20) VRR-B31-2-4-D	Elbow Seam
	21) VRR-B31-2-5-C	Elbow Seam
	22) VRR-B31-2-5-D	Elbow Seam
	23) VRR-B31-2-6-C	Elbow Seam
	24) VRR-B31-2-6-D	Elbow Seam

System	Weld Identification	Description
	25) VRR-B31-2-7-C	Elbow Seam
	26) VRR-B31-2-7-D	Elbow Seam
	27) VRR-B31-2-8-C	Elbow Seam
	28) VRR-B31-2-8-D	Elbow Seam
CS Class 1	1) DCA-107-1-1-E	Pipe Seam
	2) DCA-107-1-1-F	Pipe Seam
	3) DCA-107-1-1-G	Pipe Seam

III. BASIS FOR RELIEF

Performance of a preservice/augmented inservice inspection program on the subject welds poses an undue hardship on PP&L with no negative impact on plant safety, or compensating increase in future plant safety.

A. Inspection Hardship

SSES U#1 is currently into the second refueling outage since commercial operation in June, 1983. Examination of the longitudinal welds during this outage represents an undue hardship due to the expected radiation exposures to perform these exams.

System	Man Rem Exposure To Perform PSI[1,3]	Man Rem Exposure To Perform ISI[2,3]
RHR	9.5	2.2 (22 ft.)
RR	21.0	7.6 (25 ft.)
CS	0.57	0.9 (6 ft.)
TOTAL	31	10.7

[1]PSI exposure is based on complete volumetric examination of 100% of the welds.

[2]ISI exposure is based on a volumetric/surface examination of all subject welds:

a) ISI Class 1-for at least one (1) pipe diameter up to a maximum of twelve (12) inches from the intersecting circumferential weld, or

b) ISI Class 2 - for two and one-half (2.5) times the nominal wall thickness (t) from the intersecting circumferential weld.

[3]Exposures indicated are based on:

a) actual, recent SSES #1 H.P. surveys

b) NDE inspection time equal to 45 minutes per foot of weld for each inspection technique. (i.e. U.T., P.T.)

c) Field support resources (e.g. insulation removal, scaffolding erection, etc.) estimated as six (6) times NDE inspection times.

In addition to the above overall hardship to SSES U#1 in personnel exposure, an additional hardship exists in that the inspection personnel required to perform exams on stainless steel welds are IGSCC trained and qualified. Due to the rigorous training/testing involved in this qualification, a limited number of qualified inspection personnel are available at this time. Increasing the exposure histories of these personnel, to the point of possibly making them unavailable, would be an inefficient use of limited resources and may impact other operating facilities.

B. Plant Safety Impact

Unavailability of preservice inspection data for the subject welds poses no impact on the safe operation of SSES #1.

1. Construction Code NDE:

The subject piping was purchased from ITT Grinnell in accordance with Bechtel Specification M-201, 'Technical Specification For Shop Fabricated Piping For Nuclear Service" and the following ASME Section II material specifications, as required by subsection NB of ASME Section III:

a) SA-652, Specification For Special Requirements for Wrought Steel Welding Fittings For Nuclear and Other Special Applications.

b) SA-655, Specification For Special Requirements For Pipe and Tubing For Nuclear and Special Applications.

These specifications required the following NDE of shop fabricated piping:

a) Nuclear Class 1 longitudinal and girth welds in welded-with-filler-metal tubular products and fittings were 100% radiographed and accessible surfaces of welds and heat affected zones in base materials were examined by magnetic particle or liquid penetrant methods. Also, ultrasonic examination was required, either prior to forming or following heat treatment.

b) Nuclear Class 2 longitudinal and girth welds in welded-with-filler-metal tubular products and fittings received 100% radiography.

All Construction Code NDE was satisfactorily performed prior to plant start-up; therefore, the preservice piping pressure boundary integrity was verified prior to service. In addition, the subject piping systems were also hydrotested.

2. Materials:

The stainless steel materials involved are not susceptible to cracking due to IGSCC:

1) Materials in the subject rolled and welded piping are 0.030 max. carbon and the long seams are in the solution annealed condition, and, therefore; are conforming to NUREG 0313.

2) The fittings contain long seams also in the solution annealed condition and, therefore, are conforming to NUREG 0313.

3. Piping Pressure Stresses:

Based on a review of the piping design for the affected piping, the actual piping wall. Thicknesses have, as a minimum, a margin of thirty-two (32) percent over the required wall thicknesses as dictated by ASME Class 1 straight pipe pressure design requirements based on code allowable stresses.

Historically, no problems have been reported on stainless steel welded piping/fittings. Recently, ten (10) utilities were polled and all reported no problems with stainless steel welded pipe.

IV. ALTERNATE PROVISIONS

A. ISI Requirements

Inspection of the subject longitudinal welds will be performed in accordance with the current routine Section XI program over the ISI 10 year interval, i.e., longitudinal welds will be examined concurrent with the examination of selected intersecting circumferential welds. This program provides adequate sampling, on a system basis, of weld integrity, as illustrated below:

System	Total No. of Longitudinal Welds Per System	No. of Welds Requiring ISI	% of Total
RHR	58	18	31
RR	71	42	59
CS	3	1	33
TOTAL	132	61	46

Weld sampling on a system basis exceeds the 25% sample prescribed for Class 1 circumferential welds.

In addition, due to the recent advances in ultrasonic techniques to improve detection of IGSCC, ISI examinations will provide better, more reliable data than that previously obtained during PSI. Since the recording levels and sensitivity levels utilized during PSI were less conservative than that currently prescribed, use of the baseline data to resolve ISI indications is limited.

B. Construction NDE

ASME Section XI (74575) IWB-2100(b) allows the use of shop and field examinations in lieu of on-site preservice examinations provided such examinations are conducted utilizing techniques equivalent to those employed for subsequent inservice examinations. Since the current ISI Program for SSES #1 requires only portions of the longitudinal weld be examined, (i.e. a pipe-diameter up to twelve inches or 2.5t), shop radiography satisfies the volumetric examination requirements for balance of the weld not subject to ISI.

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Docket File
BWR#3 r/f
EHylton (2)
MCampagnone

March 6, 1986

DOCKET NO(S). 50-387/388
Mr. Harold W. Keiser
Vice President
Nuclear Operations
Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101
SUBJECT:

SUSQUEHANNA, UNITS 1 AND 2

The following documents concerning our review of the subject facility are transmitted for your information.

- ☐ Notice of Receipt of Application, dated _____.
- ☐ Draft/Final Environmental Statment, dated _____.
- ☐ Notice of Availability of Draft/Final Environmental Statement, dated _____.
- ☐ Safety Evaluation Report, or Supplement No. _____, dated _____.
- ☐ Notice of Hearing on Application for Construction Permit, dated _____.
- ☐ Notice of Consideration of Issuance of Facility Operating License, dated _____.
- ☒ Monthly Notice; Applications and Amendments to Operating Licenses Involving no Significant Hazards Considerations, dated January 29 and February 26, 1986.
- ☐ Application and Safety Analysis Report, Volume _____.
- ☐ Amendment No. _____ to Application/SAR dated _____.
- ☐ Construction Permit No. CPPR- _____, Amendment No. _____ dated _____.
- ☐ Facility Operating License No. _____, Amendment No. _____, dated _____.
- ☐ Order Extending Construction Completion Date, dated _____.
- ☐ Other *(Specify)* _____

Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc: See next page

OFFICE➤	BWR#3						
SURNAME➤	EHylton						
DATE➤	3/6/86						

NRC FORM 318 (1/84) NRCM 0240