Duquesne Light

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January 31, 1985

United States Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Mr. George W. Knighton, Chief
Licensing Branch 3
Office of Nuclear Reactor Regulation

SUBJECT: Beaver Valley Power Station - Unit No. 2
Docket No. 50-412
Preservice Inspection Program - Class 2 Piping Examinations, ASME Section XI PSI Program

Gentlemen:

This letter rescinds the prior request by Duquesne Light Company (DLC) for Nuclear Regulatory Commission approval of use of the 1983 Edition Winter 1983 Addenda of ASME Section XI for Class 2 piping examination stated in the referenced letter.

As a result of direct discussions with your staff personnel, DLC requests approval of the following methodology, applicable to Class 2 piping examination during Preservice Inspection (PSI):

1. The basis for examination of welds is 80W80 for "Volumetric and Surface" examination, including 74S75 requirements identified in 10CFR50.55a.

2. The 83W83, Table IWC-2500-1, Categories C-F-1 and C-F-2 will be utilized as guidance in establishing additional welds for examination, for compatibility with anticipated ISI requirements. However, a 10 percent sample criteria will be utilized in lieu of the 7.5 percent sample criteria for stainless steel systems (carbon steel systems are not effected by sampling percentage change, as minimum number of examinations takes precedence).

3. Welds which are identified requiring Augmented ISI (volumetric inspection only) will be ultrasonically inspected during PSI. These welds are located in the identified Break Exclusion Zone for Main Steam System (MSS), Feedwater System (FWS), and Steam Vent System (SVS), located outside containment (see Attachment 2 for specific jurisdication boundaries of BVPS-2 Break Exclusion Zone).

4. The combination of Items 1 through 3 above increases the volumetric examinations vs. the 80W80 (with 74S75) basis and also increases the volumetric examinations vs. the 83W83 guidance. The total number of examinations ("surface only" plus "volumetric

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and surface") exceeds the 80W80 total number of examinations through inclusion of Augmented ISI requirements in the PSI program, maintenance of 80W80 "unique" and 80W80/83W83 "common", and addition of the 83W83 "unique" nonexempt welds, even when unique 80W80 "surface only" welds are deleted. Therefore, DLC requests deletion of the 80W80 "unique" "surface only" examinations (399) as they will not be required for examination by future Code Edition/Addenda (i.e. 83W83, etc.).

5. DLC has included provisions for weld profiling (preparation for volumetric examination) "additional" welds which may require "volumetric and surface" examination in accordance with 80W80 IWC-2430 in its program. In selection of these welds, location, accessibility, and ALARA concerns were included.

As identified in the December 12, 1984, meeting with your staff at Bethesda, MD, DLC has included (as Attachment 1) modified tables for stainless steel and carbon steel systems. These tables identify the 80W80 BVPS-2 welds; the 83W83 BVPS-2 welds utilized as guidance; augmented ISI welds; and a composite "Supplemental PSI Plan," which integrates these elements.

Therefore, DLC requests NRC approval of the "Supplemental PSI Plan." Please notify us by March 1, 1985, of the closed, conformatory, or open status of this element of the PSI Program and how you intend to treat this element in the Safety Evaluation Report.

DUQUESNE LIGHT COMPANY

By E. J. Woolever
E. J. Woolever
Vice President

JJS/wjs
Attachment

cc: Mr. B. Brown, EG&G (w/a)
Mr. S. Chang, NRC (w/a)
Mr. M. Hum, NRC (w/a)
Mr. B. K. Singh, Project Manager (w/a)
Mr. G. Walton, NRC Resident Inspector (w/a)

Reference: 2NRC-4-171, dated October 19, 1984

SUBSCRIBED AND SWORN TO BEFORE ME THIS
31st DAY OF January, 1985.

Anita Elaine Reiter
Notary Public

ANITA ELAINE REITER, NOTARY PUBLIC
ROBINSON TOWNSHIP, ALLEGHENY COUNTY
MY COMMISSION EXPIRES OCTOBER 20, 1986

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this 31st day of January, 1985, before me, a Notary Public in and for said Commonwealth and County, personally appeared E. J. Woolever, who being duly sworn, deposed and said that (1) he is Vice President of Duquesne Light, (2) he is duly authorized to execute and file the foregoing Submittal on behalf of said Company, and (3) the statements set forth in the Submittal are true and correct to the best of his knowledge.

Anita Elaine Reiter
Notary Public

ANITA ELAINE REITER, NOTARY PUBLIC
ROBINSON TOWNSHIP, ALLEGHENY COUNTY
MY COMMISSION EXPIRES OCTOBER 20, 1986

ATTACHMENT 1

TABLE 1
CLASS 2 PIPING WELD EXAMINATION SUMMARY SHEET
Sect. XI, Table IWC-2500-1, Exam. Cat. C-F-1
(Sheet 1 of 2)

STAINLESS STEEL SYSTEMS:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	74S75 Sect. XI Rules						83W83 Sect. XI Guidance Using 10% Selection							
	Nonexempt Welds			ISI Req'd Exams			Nonexempt Welds					ISI Req'd Exams		
System	Surf Only	+ Vol and Surf	= Total	Surf Only	+ Vol and Surf	= Total	Surf Only	+ Vol and Surf	+ Exam N/A	= Total	As % of SS Welds	10.0% Prorata Share	= Surf Only	+ Vol and Surf
CHS	108	0	108	52	0	52	526	431	108	1065	41.009	107	59	48
QSS	------- Exempt IWC - 1220 (b) ---------						0	47	125	172	6.623	17	0	17
RHS	212	2	214	107	1	108	0	64	203	267	10.281	27	0	27
RSS	------- Exempt IWC - 1220 (b) ---------						0	126	28	154	5.930	15	0	15
SIS	342	151	493	217	88	305	176	494	269	939	36.157	94	26	68
Subtotal SS	662	153	815	376	89	465	702	1162	733	2597	100	260	85	175

NOTES: A. 10CFR50.55a(b)(2)(iv) invokes requirements to use the 74S75 Code for the above systems to determine only exemption criteria (IWC-1220) and selection criteria (IWC-2411 and Table IWC-2520, Cat. C-F and C-G). The preservice requirement and the specific required examination method remain in accordance with the Code of choice, namely 80W80.

B. The high number of welds in the CHS and SIS Systems which are candidates for surface and not volumetric examinations under the 83W83 Code is due largely to the fact that 2" NPS lines in these systems are of socket weld construction.

C. Exemption IWC-1220(b): Components in systems or portions of systems, other than emergency core cooling systems, which do not function during normal reactor operation.

TABLE 1
CLASS 2 PIPING WELD EXAMINATION SUMMARY SHEET
Sect. XI, Table IWC-2500-1, Exam. Cat. C-F-2
(Sheet 2 of 2)

CARBON STEEL SYSTEMS:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	80W80 Sect. XI Rules						83W83 Sect. XI Rules							
	Nonexempt Welds			ISI Req'd Exams			Nonexempt Welds				ISI Req'd Exams			
System	Surf Only	+ Vol and Surf	= Total	Surf Only	+ Vol and Surf	= Total	Surf Only	+ Vol and Surf	+ Exam N/A	= Total	As % of CS Welds	7.5% Prorata Share	= Surf Only	+ Vol and Surf
FWS	0	52	52	0	13	13	0	52	0	52	27.660	8	0	8
MSS	3	71	74	1	16	17	3	71	0	74	39.361	11	1	10
SVS	96	0	96	24	0	24	0	62	0	62	32.979	9	0	9
Subtotal CS	99	123	222	25	29	54	3	185	0	188	100	28	1	27
Subtotal SS	662	153	815	376	89	465	702	1162	733	2597	---	260	85	175
Total	761	276	1037	401	118	519	705	1347	733	2785	---	288	86	202

NOTE: A decrease of one weld which is required to be volumetrically examined is realized by moving to the 83W83 Code (columns 5 and 14). However this is offset by the fact that the major portion of the nonexempt weld candidates are located in the "break exclusion zone" which is subject to an augmented volumetric examination program during the operating phase of the plant. Therefore, additional welds will be volumetrically examined during each inservice inspection interval.

Advantage of Utilizing the 83W83 Code for CS Systems:

- SVS is now included in the population subject to volumetric examination due to inclusion of 3/8" through 1/2" wall under this examination requirement.
- PSI compatability with the ISI Program.

TABLE 2
Sheet 1 of 2

BVPS-2 REQ'D EXAMS & SUPPLEMENTAL PSI PLAN

System	SURF. ONLY			VOL. & SURF.			VOL. ONLY (Augmented delta from PSI, Note 1)	Total	
	Unique 80	Common 80&83	Unique 83	Unique 80	Common 80&83	Unique 83			
CHS	52	XXX	59	0	XXX	48	N/A	159	Note 2
QSS	0	XXX	0	0	XXX	17	N/A	17	
RHS	107	XXX	0	0	1	26	N/A	134	Note 3
RSS	0	XXX	0	0	XXX	15	N/A	15	
SIS	216	1	25	69	19	49	N/A	379	Notes 4,5
FWS	0	XXX	0	6	7	1	28	42	Notes 1,6,7
MSS	0	1	0	6	10	0	67	84	Notes 1,7,8
SVS	24	XXX	0	0	0	9	100	133	Notes 1,9
	399	2	84	81	37	165	195	963	

Delete all one time 'unique 80' surface exams, Notes 2, 3, 4, 8 399

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NOTES:

1. Those welds which receive an Augmented inspection do not include in the count those welds in the "break-exclusion zone (BEZ)" which receive a Section XI volumetric and surface examination superseding the Augmented volumetric examination requirement, thus a delta is shown.

	Aug. Total	= Aug. Delta	+ Sect. XI "BEZ"
FWS:	32	= 28	+ 4
MSS:	74	= 67	+ 7
SVS:	109	= 100	+ 9
	215	195	20

2. The 52 'unique 80' CHS surface exams occur on the low pressure 6 & 8" NPS suction side of the charging pumps. In 83, emphasis is shifted to inspection of the high pressure pump discharge piping including line sizes down to 2" NPS. These 52 'unique 80' welds remain as part of the nonexempt population affecting the determination of the number of examinations for this system, but are themselves not subject to examination under 83W83 Rules, i.e., they become part of the 108 Exam N/A population (less than .375" wall) from the previous Table.

3. Of the 107 'unique 80' RHS surface exams, 75-10" NPS welds are considered Exam N/A (less than .375" wall) under 83W83 Rules. The total population of 201 Exam N/A welds (including 6" NPS welds which were previously temperature and pressure exempt by 80W80 Rules) remain as part of the nonexempt population affecting the determination of the number of examinations for this system, but are themselves not subject for examination under 83W83 Rules. Inspection requirements for the remaining 32 'unique 80' (12" NPS) welds change to volumetric examination under 83W83 Rules and are appropriately addressed by the 26 'unique 83' volumetric and surface examinations.

4. The 216 'unique 80' SIS surface exams is comprised of the following: 60-8" NPS and 4-12" NPS welds on lines which are exempt by 83W83 Rules; and 63-8" NPS and 89-10" NPS welds which are considered Exam N/A under 83W83 Rules. The latter 8 & 10" NPS welds are part of the total population of 269 Exam N/A welds affecting the determination of the number of examinations for this system, but are themselves not subject to examination under 83W83 Rules. Again emphasis is shifted to high pressure piping including line sizes down to 2" NPS.

5. Of the 69 'unique 80' SIS volumetric and surface exams, 67-6 & 10" NPS welds are in excess of the number required for 83W83, but it is DLC's intention to still perform a PSI on these welds. The remaining two (2) examinations occur on 12" NPS lines that are exempt by 83W83 Rules.

6. The Augmented FWS delta does not include 6-2" branch connections, and 24-2" socket welds for which relief from Augmented volumetric examination will be requested.

7. The 12 'unique 80' FWS and MSS volumetric and surface exams occur as follows: two (2) teminal ends in each system on the "break-exclusion zone" which are subject to Augmented volumetric examination in any event; and four (4) terminal ends in each system inside containment. Although examination of these welds will be in excess of number of exams required for 83W83, it is DLC's intention to perform a PSI in these welds.

8. The Augmented MSS delta does not include 18 miscellaneous branch connections and 68-1.5" & 2" socket welds for which relief from Augmented volumetric examination will be requested.

9. Inspection requirements for some of the 24 'unique 80' SVS surface exams change to volumetric and surface examination under 83W83 Rules for those welds in the "break-exclusion zone". All of these welds are subject to Augmented volumetric examination in any case. Remaining exams occur outside this zone on lines which become exempt by 83W83 Rules.

ATTACHMENT 2

BVPS-2 Break Exclusion Zone Identification
(FSAR References)

I. The FSAR will be amended to define the Break Exclusion Zone as follows:

A. Subsection 3.6.B.1.1.2:

A subsection will be added as follows:

"Only the main steam and feedwater lines in the Main Steam Valve House and all branch lines up to the first isolation valve in the Main Steam Valve House are considered break exclusion zones."

B. Subsection 3.6.B.2.1.2.1:

1. Subitem 2, Paragraphs a and b will be revised as follows:

"2. Fluid System Piping in Containment Penetration Areas

Breaks are not postulated in the following portions of high energy piping, designated as break exclusion zones.

a. Between the containment penetration and the containment isolation valves outside the containment

b. Between the containment isolation valve and the first restraint or group of restraints designed to protect these portions of the piping from breaks outboard of break exclusion zone outside of the containment."

Note: Paragraph c will be deleted.

2. Subitem 2, Paragraph vi will have the following paragraph added:

"The Safety Class 2 portion of break excluded piping from the containment penetration up to and including the isolation valve is designed in accordance with ASME III Subarticle NE-1120. The piping between the isolation valve and the next restraint(s) is classified as non-nuclear safety and is designed in accordance with ANSI B31.1."

Note: The above, for BVPS-2, is considered as an acceptable alternative method of complying with GDC4 by following the guidance of the Standard Review Plan. It meets the requirements of SRP No. 3.6.2 in that BTP MEB 3-1, paragraph B.1.b, states that breaks need not be postulated in those portions of Class 2 piping ... provided they meet the requirements of ASME Code, Section III, Subarticle NE-1120.

C. Section 6.6.8

This section will be revised to the following:

6.6.8 Augmented In-Service Inspection to Protect Against Postulated Piping Failures

The Augmented ISI program provides for examination of high energy piping that penetrates the primary containment. The piping welds will be examined to Class 2 Examination Categories C-F of Table IWC-2500-1.

All nonexempt welds located between the containment wall outside the containment, and the Main Steam Valve House Wall, consisting of only the main steam and feedwater lines in the Main Steam Valve House and all branch lines up to the first isolation valve in the Main Steam Valve House are examined using volumetric techniques for all circumferential or longitudinal welds. During each inspection interval, these welds will be 100 percent volumetrically examined.

II. FIGURES PRESENTLY INCLUDED IN FSAR

Figures 3.6B-13a, "Feedwater Lines Outside Containment" and 3.6B-14a, "Main Steam Lines Outside Containment," depict the Break Exclusion Zone for main runs of feedwater and main steam lines.