

# Duquesne Light Company

Beaver Valley Power Station  
P.O. Box 4  
Shippingport, PA 15077-0004

JOHN D. SIEBER  
Vice President - Nuclear Group

(412) 393-6255

June 25, 1990

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

Reference: Beaver Valley Power Station, Unit No. 1  
Docket No. 50-334, License No. DPR-66  
Inservice Inspection Program Revisions

Gentlemen:

This submittal forwards revisions to the Beaver Valley, Unit No. 1, Inservice Inspection (ISI) Program resulting from a telephone conference call on May 18, 1990. On April 20, 1990, we provided our response to the NRC's March 1, 1990, request for additional information. As part of the NRC review effort, it was necessary to further address questions D and J and this resulted in a commitment to provide revisions to the ISI Program by July 1, 1990.

The attachment to this submittal provides additional information as discussed during the May 18 conference call. The following is a restatement of the NRC's questions D and J, their concerns, our original response and a supplemented response.

Question D: Paragraph 10 CFR 50.55a(b)(2)(iv) requires that ASME Code Class 2 piping welds in the Residual Heat Removal (RHR), Emergency Core Cooling (ECC), and Containment Heat Removal (CHR) systems shall be examined. These systems should not be completely exempted from inservice volumetric examination based on Section XI exclusion criteria contained in IWC-1220. From the information in the August 11, 1989 submittal, the staff has not identified any CHR welds receiving ISI examinations during the second 10-year inspection interval. Verify that the CHR system has not been completely exempted from ISI examinations and that a representative sampling of welds in this system will receive volumetric examination during the second 10-year inspection interval. Similar plants have included a 7.5% sampling of the welds between the CHR pump and the first weld beyond the isolation valve inside containment.

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Response: Recirculation Spray (RS) and Quench Spray (QS) are the Containment Heat Removal Systems at BV-1. These systems are not exempt based on the exclusion criteria of IWC-1220. While examinations are scheduled on the Recirculation Spray Pump casing welds and welded attachments, no examinations are scheduled on RS or QS pipe welds per Examination Category C-F-1, i.e., this piping is greater than 4 in. NPS but less than 3/8 in. nominal wall thickness. This piping is required to be pressure tested per IWC-5000.

NRC Concern: Our ISI program does not require examination of CHR welds (Recirculation Spray/Quench Spray) based on ASME XI permitting exclusion of these welds as stated in our response. However, 10 CFR 50.55a(b)(2)(iv) specifically requires examination of welds in these systems and other plants have included a 7.5% sampling of these welds. It is the NRC's position that we should perform an examination of a sample of these welds.

Supplemental Response: We will schedule certain welds in the recirculation spray/quench spray systems for examination. Included in the attachment are six new pages to be inserted into the Unit No. 1 ISI Program. These pages identify the welds to be examined during the Unit No. 1 second interval inspection program.

Question J: The following Relief Requests list radiation levels as the basis for relief:

BV1-IWC-C-A (Rev. 0)	BV1-C1.20-1 (Rev. 1)
BV1-C1.10-1 (Rev. 1)	BV1-C1.20-2 (Rev. 1)
BV1-C1.10-2 (Rev. 1)	BV1-C1.20-3 (Rev. 1)
BV1-C1.10-3 (Rev. 1)	BV1-C3.10-1 (Rev. 0)
BV1-C1.10-4 (Rev. 1)	

The Licensee has stated that the Code-required examinations will not be performed if the examiner will receive a whole body dose in excess of 1250 mr in order to complete any one examination.

Five of the relief requests indicate a general background radiation ranging from 100 to 200 mr/hr, three relief requests indicate 100 to 200 mr/hr backgrounds with 2 r/hr hot spots on the component, and one relief request indicates a general background of 200 mr/hr with a 7 r/hr hot spot. Staff estimates of the times that might be required to complete the Code-required examination, by the examiner, indicate that the majority of the Code-required examinations can probably be performed within the 1250 mr whole body dose limit as established by the Licensee.

The Licensee should consider withdrawing these relief requests until such time as it is determined that relief is required. If it is determined that relief is required, the following information to support the relief request should be provided:

- (1) radiation levels at the specific test area;
- (2) the total time required to perform the specific examination;
- (3) total estimated man REM exposure involved in the examinations.
- (4) consideration of shielding which might reduce the radiation level; and
- (5) considerations for remote inspections.

Other Licensees, with similar operating experience, have not requested relief from examination of these particular items based on radiation levels.

Response:

DLC is presently preparing detailed man REM estimates for each of these requests for relief. The suggested support information noted above will be included. The focus of these estimates will be the total man REM exposure involved in the preparation and examination of each weld. These estimates will be provided to the NRC upon completion.



NRC Concern: They are preparing their Safety Evaluation Report (SER) on the Unit No. 1 ISI Program and would like to resolve question J in time to support issuing the SER. When could we provide the requested information.

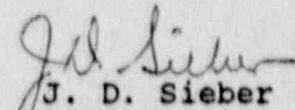
Supplemental Response: Included in the attachment are two new relief requests:

- BV1-CH-E-2-1, Rev. 0
- BV1-CH-E-3-1, Rev. 0

Each relief request contains supporting information detailing the dose estimates for the welds and attachments discussed in question J. We believe this represents sufficient information to permit the NRC to grant approval of these requests. The two above mentioned relief requests replace the nine referenced in the Unit No. 1 ISI Program and question J. We hereby withdraw those nine as written and request NRC approval of the two relief requests submitted herein in their place. Please remove the nine relief requests contained in the Unit No. 1 Second Ten-Year Inservice Inspection Program and insert the two contained in the attachment.

If you have any questions regarding this submittal, please contact me or members of my staff.

Sincerely,

  
J. D. Sieber  
Vice President  
Nuclear Group

Attachment

cc: Mr. J. Beall, Sr. Resident Inspector  
Mr. T. T. Martin, NRC Region I Administrator  
Mr. A. DeAgazio, Project Manager  
Mr. R. Saunders (VEPCO)

ATTACHMENT

QUENCH SPRAY SYSTEM PIPE WELD SUPPLEMENT

BEAVER VALLEY POWER STATION UNIT 1  
SECOND INTERVAL  
TEN YEAR PLAN

SUMMARY

NUMBER COMPONENT IDENTIFICATION  
\*\*\*\*\*

COMPONENT DESCRIPTION  
\*\*\*\*\*

ITEM NDE PERIOD  
NUMBER METHOD 1ST 2ND 3RD  
\*\*\*\*\*

\*\* SYSTEM: QUENCH SPRAY

\* ISOMETRIC NUMBER: 0077A

897100	QS-3-1-S-01	PIPE WELD	C05.011			----	----	----
897200	QS-3-1-S-02	PIPE WELD	C05.011			----	----	----
897300	QS-3-1-S-03	PIPE WELD	C05.011			----	----	----
897400	QS-3-1-F-02	PIPE WELD	C05.011			----	----	----

\* ISOMETRIC NUMBER: 0111A

897500	QS-2-1-F-02	PIPE WELD	C05.011	UT	PT	----	X----	----
897600	QS-2-1-S-01	PIPE WELD	C05.011			----	----	----
897700	QS-2-1-S-02	PIPE WELD	C05.011			----	----	----
897800	QS-2-1-S-03	PIPE WELD	C05.011			----	----	----
897900	QS-2-1-S-04	PIPE WELD	C05.011			----	----	----
898000	QS-2-1-S-05	PIPE WELD	C05.011			----	----	----
898100	QS-2-1-S-07	PIPE WELD	C05.011			----	----	----
898200	QS-2-1A-F-2A	PIPE WELD	C05.011			----	----	----
898300	QS-2-1A-S-06	PIPE WELD	C05.011			----	----	----
898400	QS-2-2F-S-01	PIPE WELD	C05.011			----	----	----
898500	QS-2-2-F-4E	PIPE WELD	C05.011			----	----	----
898600	QS-2-2-S-03	PIPE WELD	C05.011			----	----	----
898700	QS-2-2B-F-4B	PIPE WELD	C05.011			----	----	----
898800	QS-2-2B-S-05	PIPE WELD	C05.011			----	----	----
898900	QS-2-2C-S-06	PIPE WELD	C05.011			----	----	----
899000	QS-2-2C-S-07	PIPE WELD	C05.011			----	----	----
899100	QS-2-2L-S-08	PIPE WELD	C05.011			----	----	----
899200	QS-2-3-F-05	PIPE WELD	C05.011			----	----	----
899300	QS-2-3B-S-01	PIPE WELD	C05.011			----	----	----
899400	QS-2-3B-F-06	PIPE WELD	C05.011	UT	PT	----	X----	----
899500	QS-2-4-F-07	PIPE WELD	C05.011	UT	PT	----	X----	----
899600	QS-2-4-S-01	PIPE WELD	C05.011			----	----	----
899700	QS-2-4-S-02	PIPE WELD	C05.011			----	----	----
899800	QS-2-4-S-03	PIPE WELD	C05.011			----	----	----
899900	QS-2-4-S-04	PIPE WELD	C05.011			----	----	----
900000	QS-4-14-S-02	PIPE WELD	C05.011			----	----	----
900100	QS-4-14-S-01	PIPE WELD	C05.011			----	----	----
900200	QS-4-13-S-07	PIPE WELD	C05.011	UT	PT	----	X----	----
900300	QS-4-13-S-06	PIPE WELD	C05.011	UT	PT	----	X----	----
900400	QS-4-13-S-05	PIPE WELD	C05.011			----	----	----
901200	QS-4-13-S-04	PIPE WELD	C05.011			----	----	----
901300	QS-4-13-S-03	PIPE WELD	C05.011			----	----	----
901400	QS-4-13-S-02	PIPE WELD	C05.011			----	----	----
901500	QS-4-13-S-01	PIPE WELD	C05.011			----	----	----
901600	QS-4-12-F-17	PIPE WELD	C05.011			----	----	----
901700	QS-4-12-S-07	PIPE WELD	C05.011			----	----	----
901800	QS-4-12-S-06	PIPE WELD	C05.011			----	----	----
901900	QS-4-12-S-05	PIPE WELD	C05.011			----	----	----



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QUENCH SPRAY SYSTEM PIPE WELD SUPPLEMENT

BEAVER VALLEY POWER STATION UNIT 1  
SECOND INTERVAL  
TEN YEAR PLAN

SUBSIDIARY NUMBER	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	ITEM NUMBER	NDE METHOD	PERIOD		
					1ST	2ND	3RD
902000	QS-4-12-S-04	PIPE WELD	C05.011		----	----	----
902100	QS-4-12-S-03	PIPE WELD	C05.011		----	----	----
902200	QS-4-12-S-02	PIPE WELD	C05.011		----	----	----
902300	QS-4-12-S-01	PIPE WELD	C05.011		----	----	----
902400	QS-P2-H-F-03	PIPE WELD	C05.011		----	----	----
902500	QS-P2-H-S-0A	PIPE WELD	C05.011		----	----	----
902600	QS-P2-H-S-0B	PIPE WELD	C05.011		----	----	----
902700	QS-P2-H-F-04	PIPE WELD	C05.011		----	----	----
902800	QS-P2-J-F-05	PIPE WELD	C05.011		----	----	----
902900	QS-P2-J-S-0C	PIPE WELD	C05.011		----	----	----
903000	QS-P2-J-S-0D	PIPE WELD	C05.011		----	----	----
903100	QS-P2-J-F-06	PIPE WELD	C05.011		----	----	----
903200	QS-P2-K-F-07	PIPE WELD	C05.011		----	----	----
903300	QS-P2-K-S-0J	PIPE WELD	C05.011		----	----	----
903400	QS-P2-K-S-0H	PIPE WELD	C05.011		----	----	----
903500	QS-P2-K-S-0G	PIPE WELD	C05.011		----	----	----
903600	QS-P2-K-S-0F	PIPE WELD	C05.011		----	----	----
903700	QS-4-11-F-06	PIPE WELD	C05.011		----	----	----
903800	QS-4-11B-F-15C	PIPE WELD	C05.011		----	----	----
903900	QS-4-11C-F-15B	PIPE WELD	C05.011		----	----	----
904000	QS-4-10A-F-14A	PIPE WELD	C05.011		----	----	----
904100	QS-4-9C-F-14	PIPE WELD	C05.011		----	----	----
904200	QS-4-9B-F-13C	PIPE WELD	C05.011		----	----	----
904300	QS-4-9A-F-13B	PIPE WELD	C05.011		----	----	----
904400	QS-4-9-F-13A	PIPE WELD	C05.011		----	----	----
904500	QS-4-9-F-13	PIPE WELD	C05.011		----	----	----
904600	QS-4-9-F-12	PIPE WELD	C05.011		----	----	----
904700	QS-4-8-F-10	PIPE WELD	C05.011		----	----	----
904800	QS-4-8-S-01	PIPE WELD	C05.011	UT PT	----	X----	----
904900	QS-4-8-F-11	PIPE WELD	C05.011		----	----	----
905200	QS-4-1-S-01	PIPE WELD	C05.011		----	----	----
905300	QS-4-1-S-05	PIPE WELD	C05.011		----	----	----
905400	QS-4-1-S-02	PIPE WELD	C05.011		----	----	----
905500	QS-4-1-S-03	PIPE WELD	C05.011		----	----	----
905600	QS-4-1-S-04	PIPE WELD	C05.011		----	----	----
905700	QS-4-1-F-02	PIPE WELD	C05.011		----	----	----
* ISOMETRIC NUMBER: 0113A							
905800	QS-1-1-F-02	PIPE WELD	C05.011	UT PT	----	----	X----
905900	QS-1-1-S-01	PIPE WELD	C05.011		----	----	----
906000	QS-1-1-S-02	PIPE WELD	C05.011		----	----	----
906100	QS-1-1-S-03	PIPE WELD	C05.011		----	----	----
906200	QS-1-1-S-04	PIPE WELD	C05.011		----	----	----
906300	QS-1-1B-F-2b	PIPE WELD	C05.011		----	----	----
906400	QS-1-1A-F-2A	PIPE WELD	C05.011		----	----	----
906500	QS-1-1A-S-06	PIPE WELD	C05.011		----	----	----
906600	QS-1-1A-F-03	PIPE WELD	C05.011		----	----	----

QUENCH SPRAY SYSTEM PIPE WELD SUPPLEMENT

BEAVER VALLEY POWER STATION UNIT 1  
SECOND INTERVAL  
TEN YEAR PLAN

SUMMARY NUMBER	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	ITEM NUMBER	NDE METHOD	PERIOD		
					1ST	2ND	3RD
906800	QS-1-2A-S-01	PIPE WELD	C05.011	UT PT	----	----	X---
906800	QS-1-2-F-1A	PIPE WELD	C05.011		----	----	----
906900	QS-1-2-S-03	PIPE WELD	C05.011		----	----	----
907000	QS-1-2-S-04	PIPE WELD	C05.011		----	----	----
907100	QS-1-2-S-05	PIPE WELD	C05.011		----	----	----
907200	QS-1-2-S-06	PIPE WELD	C05.011		----	----	----
907300	QS-1-2-S-07	PIPE WELD	C05.011		----	----	----
907400	QS-1-3A-F-02	PIPE WELD	C05.011		----	----	----
907500	QS-1-3-F-2A	PIPE WELD	C05.011		----	----	----
907600	QS-1-3-S-01	PIPE WELD	C05.011		----	----	----
907700	QS-1-3-F-03	PIPE WELD	C05.011	UT PT	----	----	X---
907800	QS-1-4-F-04	PIPE WELD	C05.011	UT PT	----	----	X---
907900	QS-1-4-S-03	PIPE WELD	C05.011		----	----	----
908000	QS-1-4-S-02	PIPE WELD	C05.011		----	----	----
908100	QS-1-4-S-01	PIPE WELD	C05.011		----	----	----
908200	QS-3-13-S-02	PIPE WELD	C05.011		----	----	----
908300	QS-3-13-S-01	PIPE WELD	C05.011		----	----	----
908400	QS-3-14-S-06	PIPE WELD	C05.011		----	----	----
908500	QS-3-14-S-05	PIPE WELD	C05.011		----	----	----
909100	QS-3-14-S-04	PIPE WELD	C05.011	UT PT	----	----	X---
909200	QS-3-14-S-03	PIPE WELD	C05.011		----	----	----
909300	QS-3-14-S-02	PIPE WELD	C05.011		----	----	----
909400	QS-3-14-S-01	PIPE WELD	C05.011		----	----	----
909500	QS-3-15-S-07	PIPE WELD	C05.011		----	----	----
909600	QS-3-15-S-06	PIPE WELD	C05.011		----	----	----
909700	QS-P-2A-F-01	PIPE WELD	C05.011		----	----	----
909800	QS-P-2A-S-0A	PIPE WELD	C05.011		----	----	----
909900	QS-P-2A-S-0B	PIPE WELD	C05.011		----	----	----
910000	QS-P-2A-S-0C	PIPE WELD	C05.011		----	----	----
910100	QS-P-2B-F-02	PIPE WELD	C05.011		----	----	----
910200	QS-P-2B-S-0D	PIPE WELD	C05.011		----	----	----
910300	QS-P-2B-F-03	PIPE WELD	C05.011		----	----	----
910400	QS-P2-D-F-06	PIPE WELD	C05.011		----	----	----
910500	QS-P2-D-S-0P	PIPE WELD	C05.011		----	----	----
910600	QS-P2-D-S-0M	PIPE WELD	C05.011		----	----	----
910700	QS-P2-D-S-0N	PIPE WELD	C05.011		----	----	----
910800	QS-P2-F-2-F-07	PIPE WELD	C05.011		----	----	----
910900	QS-P2-F-2-S-0L	PIPE WELD	C05.011		----	----	----
911000	QS-P2-F-2-F-08	PIPE WELD	C05.011		----	----	----
911100	QS-P2-E-F-14	PIPE WELD	C05.011		----	----	----
911200	QS-P2-E-S-0K	PIPE WELD	C05.011		----	----	----
911300	QS-P2-F-3-F-15	PIPE WELD	C05.011		----	----	----
911400	QS-P2-G-F-09	PIPE WELD	C05.011		----	----	----
911500	QS-P2-G-S-0J	PIPE WELD	C05.011		----	----	----
911600	QS-P2-G-S-0H	PIPE WELD	C05.011		----	----	----
911700	QS-P2-C-F-10	PIPE WELD	C05.011		----	----	----
911800	QS-P2-C-S-0G	PIPE WELD	C05.011		----	----	----



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QUENCH SPRAY SYSTEM PIPE WELD SUPPLEMENT

BEAVER VALLEY POWER STATION UNIT 1  
SECOND INTERVAL  
TEN YEAR PLAN

SUMMARY			ITEM	NDE	PERIOD		
NUMBER	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	NUMBER	METHOD	1ST	2ND	3RD
-----	-----	-----	-----	-----	-----	-----	-----
911900	QS-P2-C-S-0F	PIPE WELD	C05.011		----	----	----
912000	QS-P2-C-F-04	PIPE WELD	C05.011		----	----	----
912100	QS-P2-C-S-0E	PIPE WELD	C05.011		----	----	----
912200	QS-3-16-F-05	PIPE WELD	C05.011		----	----	----
912300	QS-3-16C-F-15A	PIPE WELD	C05.011		----	----	----
912400	QS-3-16D-F-15B	PIPE WELD	C05.011		----	----	----
912500	QS-3-16A-S-03	PIPE WELD	C05.011		----	----	----
912600	QS-3-16A-S-02	PIPE WELD	C05.011		----	----	----
912700	QS-3-16A-S-01	PIPE WELD	C05.011		----	----	----
912800	QS-3-17-S-03	PIPE WELD	C05.011		----	----	----
912900	QS-3-17-S-01	PIPE WELD	C05.011		----	----	----
913000	QS-3-17A-F-18	PIPE WELD	C05.011		----	----	----
913100	QS-3-17B-S-01	PIPE WELD	C05.011		----	----	----
913200	QS-3-17B-F-20	PIPE WELD	C05.011		----	----	----
913300	QS-3-17B-F-19	PIPE WELD	C05.011		----	----	----
913400	QS-3-18-F-21	PIPE WELD	C05.011		----	----	----
913500	QS-3-18-S-01	PIPE WELD	C05.011	UT PT	----	----	X----
913600	QS-3-18-F-22	PIPE WELD	C05.011		----	----	----
913700	QS-3-18-S-02	PIPE WELD	C05.011		----	----	----

RECIRCULATION SPRAY SYSTEM PIPE WELD SUPPLEMENT

BEAVER VALLEY POWER STATION UNIT 1  
SECOND INTERVAL  
TEN YEAR PLAN

SUMMARY		COMPONENT DESCRIPTION	ITEM NUMBER	NDE METHOD	PERIOD		
NUMBER	COMPONENT IDENTIFICATION				1ST	2ND	3RD
*****	*****	*****	*****	*****	*****	*****	*****
** SYSTEM: RECIRCULATING SPRAY							
* ISOMETRIC NUMBER: 00798							
755300	RS-25-1-F-01	PIPE WELD	C05.011		----	----	----
755400	RS-25-1-S-01	PIPE WELD	C05.011		----	----	----
755500	RS-25-1-S-02	PIPE WELD	C05.011		----	----	----
755600	RS-25-1-F-02	PIPE WELD	C05.011		----	----	----
* ISOMETRIC NUMBER: 00808							
763600	RS-26-1-F-01	PIPE WELD	C05.011		----	----	----
763700	RS-26-1-S-01	PIPE WELD	C05.011		----	----	----
763800	RS-26-1-S-02	PIPE WELD	C05.011		----	----	----
763900	RS-26-1-S-03	PIPE WELD	C05.011		----	----	----
764000	RS-26-1-S-04	PIPE WELD	C05.011		----	----	----
764100	RS-26-1-S-05	PIPE WELD	C05.011		----	----	----
764600	RS-26-1-F-02	PIPE WELD	C05.011		----	----	----
* ISOMETRIC NUMBER: 0084A							
789850	RS-7-1-F-02	PIPE WELD	C05.011	UT	PT	----	X----
789851	RS-7-1-S-08	PIPE WELD	C05.011	UT	PT	----	----
789852	RS-7-1-S-09	PIPE WELD	C05.011	UT	PT	----	----
789853	RS-7-1-F-01	PIPE WELD	C05.011	UT	PT	----	----
789854	RS-8-1-F-08	PIPE WELD	C05.011	UT	PT	----	X----
789855	RS-8-1-S-08	PIPE WELD	C05.011	UT	PT	----	----
789856	RS-8-1-S-09	PIPE WELD	C05.011	UT	PT	----	----
789857	RS-8-1-F-09	PIPE WELD	C05.011	UT	PT	----	----
* ISOMETRIC NUMBER: 0112A							
789900	RS-9-1A-S-08	PIPE WELD	C05.011		----	----	----
790000	RS-9-1A-S-07	PIPE WELD	C05.011		----	----	----
790200	RS-9-1A-F-3A	PIPE WELD	C05.011		----	----	----
790400	RS-9-1B-F-3B	PIPE WELD	C05.011		----	----	----
790500	RS-9-1D-S-04	PIPE WELD	C05.011		----	----	----
790600	RS-9-1D-S-03	PIPE WELD	C05.011		----	----	----
790700	RS-9-1D-S-02	PIPE WELD	C05.011		----	----	----
791600	RS-9-1E-F-3C	PIPE WELD	C05.011		----	----	----
791700	RS-9-1-F-3D	PIPE WELD	C05.011		----	----	----
792000	RS-9-1-S-01	PIPE WELD	C05.011		----	----	----
792100	RS-9-1-F-03	PIPE WELD	C05.011	UT	PT	----	X----
792300	RS-9-2-F-02	PIPE WELD	C05.011		----	----	----
792700	RS-9-2-F-01	PIPE WELD	C05.011		----	----	----
* ISOMETRIC NUMBER: 0112B							
792800	RS-10-1A-S-01	PIPE WELD	C05.011		----	----	----
792900	RS-10-1A-S-02	PIPE WELD	C05.011		----	----	----
793100	RS-10-1A-F-3A	PIPE WELD	C05.011		----	----	----
793400	RS-10-1-S-04	PIPE WELD	C05.011		----	----	----

PAGE NO. 2  
05/24/90

RECIRCULATION SPRAY SYSTEM PIPE WELD SUPPLEMENT

BEAVER VALLEY POWER STATION UNIT 1  
SECOND INTERVAL  
TEN YEAR PLAN

SUMMARY			ITEM	NDE	PERIOD		
NUMBER	COMPONENT IDENTIFICATION	COMPONENT DESCRIPTION	NUMBER	METHOD	1ST	2ND	3RD
-----	-----	-----	-----	-----	----	----	----
793500	RS-10-1-S-05	PIPE WELD	C05.011		----	----	----
793600	RS-10-1-S-06	PIPE WELD	C05.011		----	----	----
793700	RS-10-1-S-07	PIPE WELD	C05.011		----	----	----
793800	RS-10-1-S-15	PIPE WELD	C05.011		----	----	----
795000	RS-10-1-S-08	PIPE WELD	C05.011		----	----	----
795100	RS-10-1-F-03	PIPE WELD	C05.011		----	----	----
795300	RS-10-2-F-02	PIPE WELD	C05.011	UT PT	----	----	X----
795700	RS-10-2-F-01	PIPE WELD	C05.011		----	----	----



DUQUESNE LIGHT COMPANY  
Beaver Valley Power Station Unit No. 1

Relief Request No. BV1-CH-E-2-1, Rev. 0

Component

Non-Regenerative Heat Exchanger (CH-E-2) welds C-1 and C-2 and welded attachments A-1, A-2, A-3, and A-4.

Section XI Requirement (83S83)

Table IWC-2500-1, Category C-A, Item No.'s C1.10 and C1.20 require volumetric examination of 100% of welds C-1 and C-2. Item C3.10 requires surface examination of the welded attachments.

Basis for Relief

The general radiation level in the area of the Non-Regenerative Heat Exchanger is 350 mRem/hr; contact readings are 2 Rem/hr. These readings were recorded in the attached May 8, 1990 survey. The manrem estimate to prepare, inspect, and reinsulate these welds is projected to be 18.5 Rem. This total is based on dose rates and approximate work durations noted in the attached manrem estimate. This estimate represents an optimum work schedule, any difficulties encountered would increase the doses.

Previous ultrasonic exams performed on welds C-1 and C-2 during the first ten year interval detected no indications.

The proposed (alternative) visual examination for leakage is a more practical examination for monitoring the integrity of the components than the Code required examination. The required examinations are of limited value because component geometry limits the volumetric examination of welds C-1 and C-2 to one side only. The endcap-to-vessel weld (weld C-1) cannot be examined from the endcap side and the flange-to-vessel weld (weld C-2) cannot be examined from the flange side. In addition, the proximity of the vessel supports, inlet and outlet nozzles and weld crown further limit the one-sided examination by limiting search unit approach distance. These restrictions make it difficult to obtain meaningful results from the volumetric examination of these welds. The affected welds are double-V butt welds in 0.625", SA-240 (Type 304) stainless steel in a vessel head of 27" outside diameter. Drawing 8700-ISI-E-003B is attached for information.

Because these welds are subject to routine monitoring during plant operation, weld degradation sufficient to cause a through-wall leak would be detected in a timely manner. There are several mechanisms to detect such leakage.

- a. The control room operators perform Operating Surveillance Test (OST) 1.6.2 "Reactor Coolant System Water Inventory Balance" every three (3) days when the plant is operating at steady state conditions. Leakage through the subject welds would be detected by this OST.
- b. The inventory in the liquid waste system is logged daily (log L3-11). Since leakage from these welds would be collected by the liquid waste system, a through-wall leak would be apparent in this inventory. The inventory is reviewed daily by the Shift Supervisor and weekly by the Site Radwaste Coordinator. Radiation monitors within the liquid waste system would also detect any leakage from these welds.
- c. Monthly, the Radiological Control Department personnel enter the cubicle to perform radiation surveys. Seepage (not detectable by OST 1.6.2 or the liquid waste inventory) would be detected during this survey.
- d. OST 1.48.2 "High Energy Line and ECCS Inspection" is performed quarterly. This visually examines accessible high energy lines outside of containment for degradation of welds on high energy systems (CH-E-2 is included).

The component is readily isolable should a leak occur. The heat exchanger has double-valve isolation from the primary system and is automatically isolated on a pressurizer low level signal. It could be easily isolated by the control room operators should one of the welds be discovered to be leaking.

Remote examination in this situation is not practical because of the configuration of this component (nozzles, supports, flange interferences). If such a method was available, installation, calibration, and operation of the unit may prove less ALARA conscious than a direct examination.

Shielding is not practical since the source of radiation is the component to be examined. The location of the welds and design of the heat exchanger do not readily provide supporting structure for the shielding. If the shielding could be supported, the majority of dose would not be mitigated since the shielding would be removed from the weld area for weld preparation and examination.

#### Alternate Examination

Visual examination (VT-2) for leakage during the performance of the system leakage examinations performed each 40-month period. This is augmented by radwaste monitoring, radiation surveys, and OST 1.6.2 and OST 1.48.2.



**CH-E-2 MANREM ESTIMATE**  
**CIRCUMFERENTIAL WELDS C-1 and C-2 - UT EXAM**  
**ATTACHMENT WELDS A-1,-2,-3 and -4 - PT EXAM**

**CH-E-2 Non-Regenerative Heat Exchanger**  
**General area radiation level: 350 mR/hr**  
**Contact radiation level: 2 R/hr**

<u>WORK TASK</u>	<u># OF INDIVIDUALS AND JOB CLASS</u>	<u>ANTICIPATED TIME IN RADIATION FIELD (hrs)</u>		<u>EXPOSURE RATE (mR/hr)</u>		<u>ESTIMATED EXPOSURE (mR)</u>
CONSTRUCT SCAFFOLDING	(2) CARPENTERS	X	(6)	X	350	= 4200
REMOVE INSULATION	(2) INSULATORS	X	(2)	X	350	= 1400
PREPARATION OF WELDS 1 & 2	(2) FITTERS	X	(2)	X	500	= 2000
UT EXAM OF WELDS 1 & 2	(2) INSPECTORS	X	(2)	X	500	= 2000
PREPARATION OF 4 ATT'MENTS	(2) FITTERS	X	(2)	X	500	= 2000
PT EXAM OF 4 ATT'MENTS	(2) INSPECTORS	X	(2)	X	500	= 2000
REINSTALL INSULATIO.	(2) INSULATORS	X	(4)	X	350	= 2800
REMOVE SCAFFOLDING	(2) CARPENTERS	X	(3)	X	350	= 2100
TOTAL ESTIMATE FOR ALL WELDS:						18500 mR



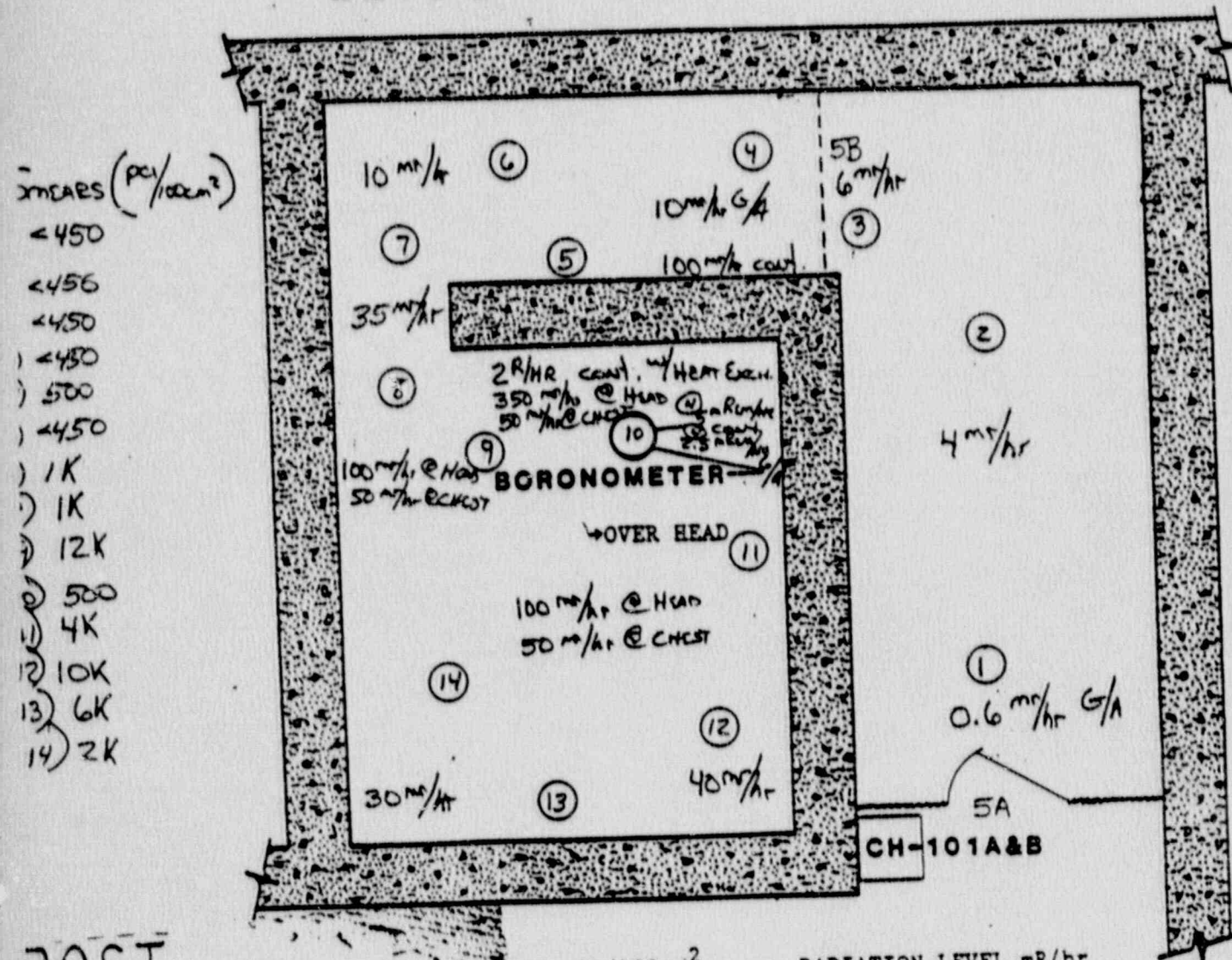
MAP-43A

SURVEY DATE 5-8-90 TIME 0900  
 SURVEY BY Mobile  
 REACTOR POWER 98%  
 RWP# / RACP# 1637  
 INST. TYPE RO-2 SR# 4170  
 INST. TYPE E-140N SR# 538  
 OTHER PR WORK

PNR-4 #380

NOTE: NUMBERS INDICATE CONTAMINATION SURVEY LOCATIONS  
 CIRCLED NUMBERS INDICATE RADIATION SURVEY LOCATIONS

## LETDOWN CUBICLE PAB 722'

POST  
FILEDOG  
HoneyCONTAMINATION pci/100cm<sup>2</sup>

1	
2	
3	
4	
5	
6	
7	

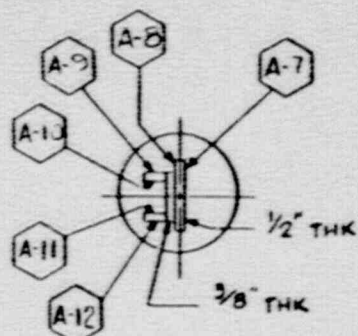
RADIATION LEVEL mR/hr

1	
2	
3	
4	
5	
6	
7	
8	
9	

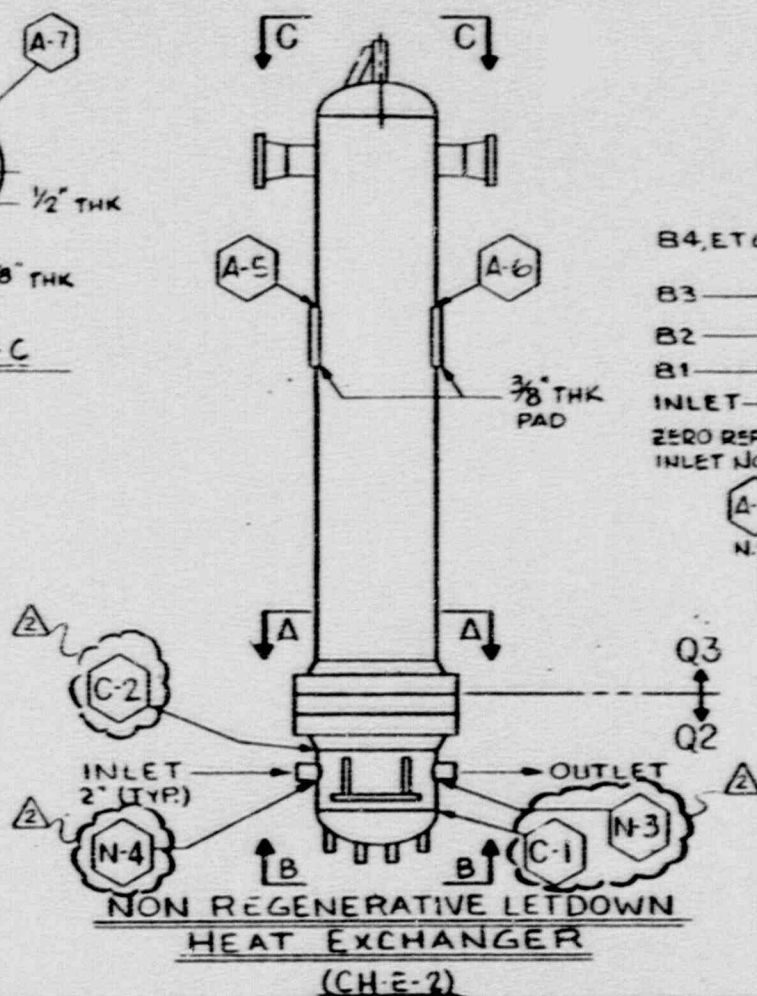
Kimmick

5-8-90

ILLUSTRATIVE ONLY

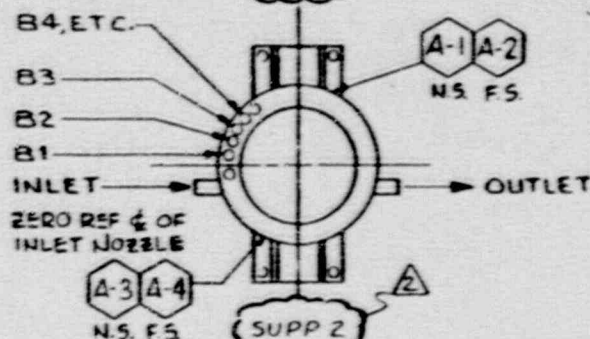


SECTION C-C



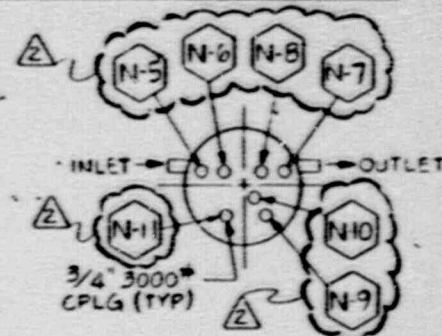
NON REGENERATIVE LETDOWN  
HEAT EXCHANGER

(CH-E-2)



SECTION A-A

MATERIAL : .625" T SA-240 TP 304  
DIA. : 27.0" O.D.  
CIRC. : 84.82"  
BOLTING : 36-1.125" DIA.  
SUPPORTS: 2 INTEGRALLY WELDED



SECTION B-B

NOTES:

- 1) THIS DWG. SUPERSEDES WESTINGHOUSE DWG. N-2-DLW-2-1140, DATED 1-8-52.

Q.A. CATEGORY 1

<b>Duquesne Light Company</b> NUCLEAR GROUP				SHIPPENSBURG, PA.	
SCALE	DATE 7-28-84	NUCLEAR APP. NA	EGA: JNE	FINAL APP. FOR ISSUE	
DRAWN BL		SELECT APP.		N-11	
CHECKED		MECH. APP.		N-11	
VERIFIED		ARCHITECT. APP.		N-11	
NON-REGENERATIVE LETDOWN HEAT EXCHANGER EL. 722'-6" - AUXILIARY BUILDING					
D.C.P. NO. 1	D.P.E. NO.	D.W.G. NO.		LL 8700-15E-003B-2	
STA. NO. 14	C.D. NO.				

ORIGINAL ISSUE REVISIONS TER 470 D.W.G. NO. CHANGED FROM 8700-15E-003B 8700-15E-003B DATED PER QA AUDIT UP BY C-88-02 AND LATEST PLANT DESIGN CHANGES ENG. 10-1-84 SUP. D.W.G. DIR. D.W.G. CAN 10-1-84 2 TER 1841 CORRECTED WELD N-5 ENG. 1-6-89 SUP. D.W.G. 1-6-89 DIR. D.W.G. 1-6-89 1-6-89	NRC 7-28-88 CHECKED BY N 10-1-84	
	1-6-89 1-6-89 1-6-89	
	1-6-89 1-6-89 1-6-89	
	1-6-89 1-6-89 1-6-89	

BRUNING 44-11-62312

B

A

A

B



DUQUESNE LIGHT COMPANY  
Beaver Valley Power Station Unit No. 1

Relief Request No. BV1-CH-E-3-1, Rev. 0

Component

Regenerative Heat Exchanger (CH-E-3) welds 1 through 12.

Section XI Requirement (83S83)

Table IWC-2500-1, Category C-A, Item No.'s C1.10 and C1.20 require volumetric examination of 100% of these welds.

Basis for Relief

The general radiation level in the area of the Regenerative Heat Exchanger is between 500 mRem/hr and 2 Rem/hr (See attached survey dated 9/4/89). The manrem estimate to prepare, inspect, and reinsulate these welds is projected to be 84 Rem. This total is based on dose rates and approximate work durations noted in the attached manrem estimate. This estimate represents an optimum work schedule, any difficulties encountered would increase the doses.

Previous ultrasonic exams performed on welds 1, 2, 3, 7, 8, and 9 during the first ten year interval detected no recordable indications. Only 3 inches of these welds were required to be examined during the first ten year interval.

The proposed (alternative) visual examination for leakage is a more practical examination for monitoring the integrity of the components than the Code required examination. The required examinations are restricted because of component geometry limitations. Weld crown, nozzles, end cap curvature, welded attachments and vessel support structure all contribute to limiting weld volumetric examinations to varying degrees (See attached drawings). Previous examinations did not document the percentage of exam limitations. Current radiation levels prohibit limitation measurement.

This heat exchanger has an outside diameter of 9.55 inches and consists of three types of materials: .900" T SA-240 TP 304, .938" T SA-182 TP 304 and .938" T SA-351 CF8. See attached drawing for location of each material.



Because these welds are subject to routine monitoring during plant operation, weld degradation sufficient to cause a through-wall leak would be detected in a timely manner. There are two mechanisms to detect such leakage.

- a. The control room operators perform Operating Surveillance Test (OST) 1.6.2 "Reactor Coolant System Water Inventory Balance" every three (3) days when the plant is operating at steady state conditions. Leakage through the subject welds would be detected by this OST.
- b. The inventory in the liquid waste system is logged daily (log L3-11). Since leakage from these welds would be collected by the liquid waste system, a through-wall leak would be apparent in this inventory. The inventory is reviewed daily by the Shift Supervisor and weekly by the Site Radwaste Coordinator. Radiation monitors within the liquid waste system would also detect any leakage from these welds.

The component is readily isolable should a leak occur. The heat exchanger has double-valve isolation from the primary system and is automatically isolated on a pressurizer low level signal. It could be easily isolated by the control room operators should one of the welds be discovered to be leaking.

Remote examination in this situation is not practical because of the configuration of this component (nozzles, supports and welded attachments interferences). If such a method was available, installation, calibration, and operation of the unit may prove less ALARA conscious than a direct examination.

Shielding is not practical since the source of radiation is the component to be examined. If shielding was used, the majority of dose received by the fitters and inspectors would not be mitigated since the shielding would be removed from the weld area for weld preparation and examination.

#### Alternate Examination

Visual examination (VT-2) for leakage during the performance of the system leakage examinations performed each 40-month period. This is augmented by radwaste monitoring and OST 1.6.2.

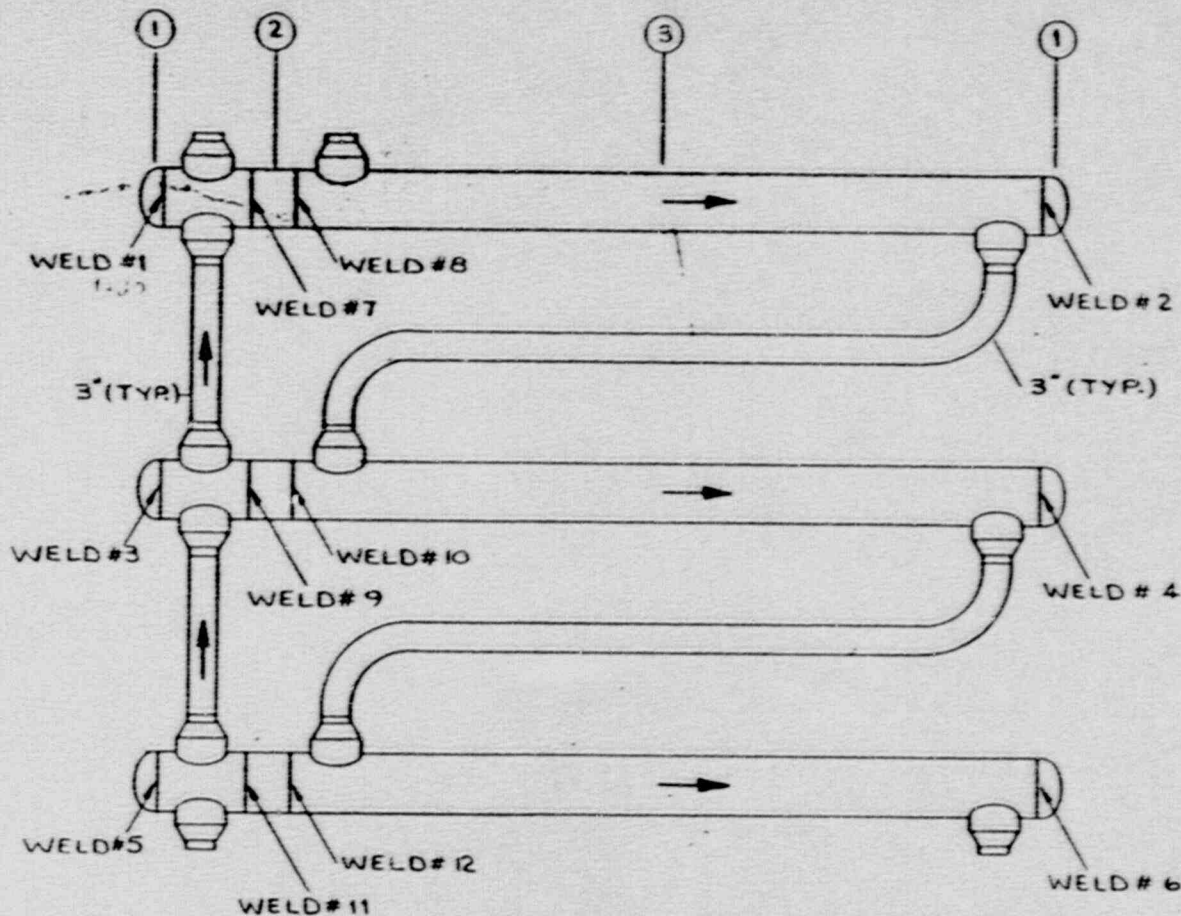
CH-E-3 EXAMINATIONS  
WELDS 1 THROUGH 12  
MANREM ESTIMATE

CH-E-3 Regenerative Heat Exchanger  
General area radiation level: 1500-2000 mR/hr

<u>WORK TASK</u>	<u># OF INDIVIDUALS AND JOB CLASS</u>	<u>ANTICIPATED TIME IN RADIATION FIELD (hrs)</u>		<u>EXPOSURE RATE (R/hr)</u>		<u>ESTIMATED EXPOSURE (REM)</u>	
CONSTRUCT SCAFFOLDING	(2) CARPENTERS	X	(4)	X	1.5	=	12
REMOVE INSULATION	(2) INSULATORS	X	(2)	X	1.5	=	6
WELD PREPARATION	(2) FITTERS	X	(6)	X	2.0	=	24
WELD INSPECTION	(2) INSPECTORS	X	(6)	X	2.0	=	24
REINSTALL INSULATION	(2) INSULATORS	X	(4)	X	1.5	=	12
REMOVE SCAFFOLDING	(2) CARPENTERS	X	(2)	X	1.5	=	6
TOTAL ESTIMATE FOR 12 WELDS:							84 REM



ILLUSTRATIVE ONLY



MATERIAL: ① .900" T SA-240 TP 304  
(TYP.) ② .938" T SA-182 TP 304  
③ .938" T SA-351-CF8  
DIA.: 9.55" O.D.  
CIRC.: 30.0"

NOTES:  
1) THIS DWG. SUPERSEDES  
WESTINGHOUSE DWG. NO. DLW-  
2-1150, DATED 1-8-82.

ZERO REFERENCE IS TOP DEAD CENTERLINE OF EACH SHELL PASS

# REGENERATIVE HEAT EXCHANGER (CHE-3)

Q.A. CATEGORY 1

<b>Duquesne Light Company</b> NUCLEAR GROUP				SHIPPINGPORT, PA. 1	
SCALE	DATE 7-28-84	NUCLEAR APP. NA	EGA	FWL	FINAL APP. FOR ISSUE
DRAWN	BL	ELECT. APP.	M/A		
CHECKED		MECH. APP.	M/A		
VERIFIED		ARCH/STRUCT. APP.	M/A		
REGENERATIVE HEAT EXCHANGER EL. 718'-6" REACTOR CONTAINMENT					
D.C.P. NO. 1	O.P.E. NO.	LL	DWG. NO.	B700-151-CHE3	
STA. NO.	C.O. NO.				

ORIGINAL  
REVISIONS





Name: B. Rieger / W. Wittlingen

Date: 9-4-89

Time: 0200

Instr.: 102A 3604 PM-4-8481

Rx Power Level: 0

Remarks: \_\_\_\_\_

All smears <450 pCi/100 cm<sup>2</sup> except R

Rad Clearance

PRESSURIZER CUBICLE

718 LEVEL

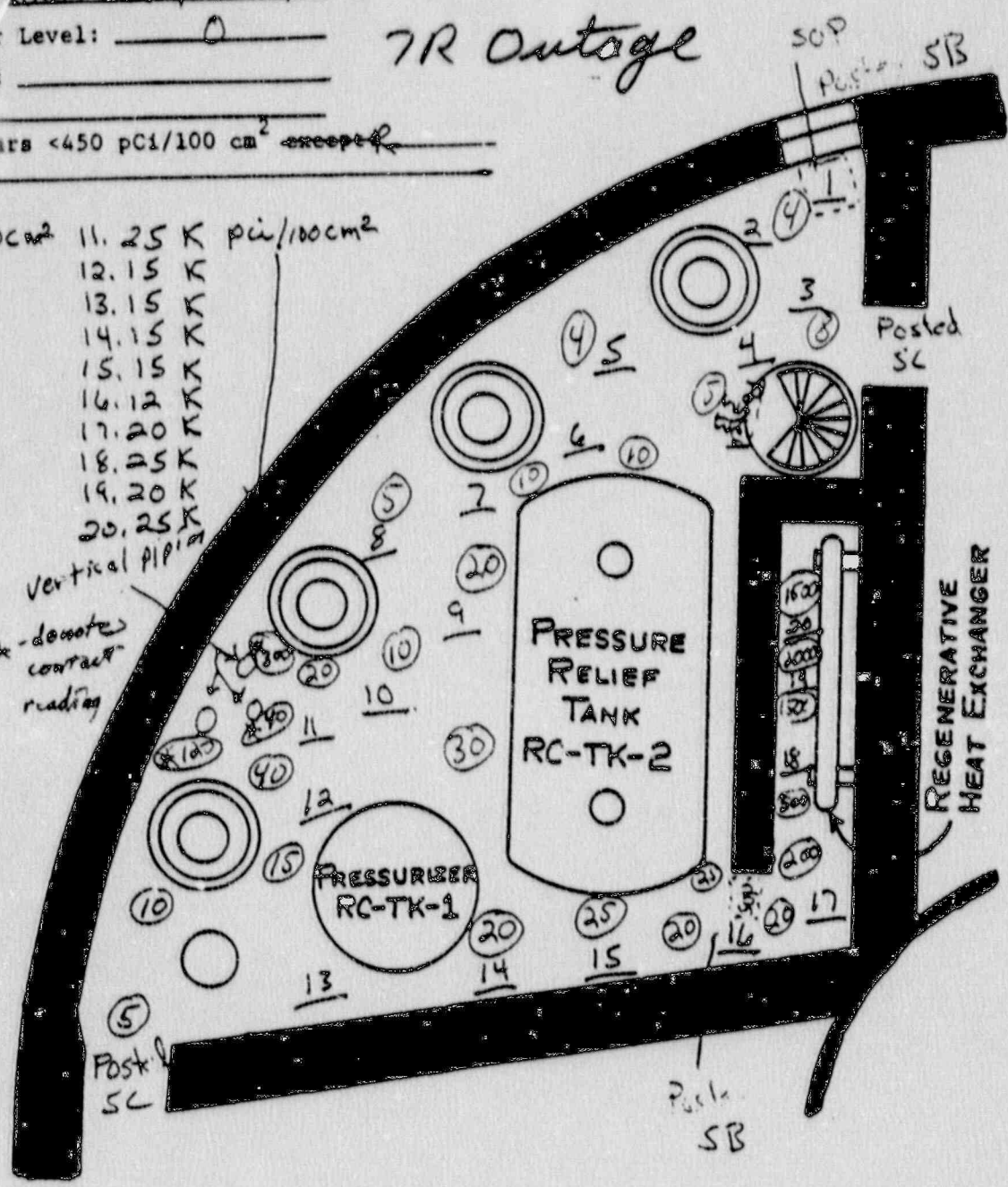
B.V.P.S. - UNIT 1

064  
**MAP-60D**

7R Outage

- |                               |                                 |
|-------------------------------|---------------------------------|
| 1. 10K pCi/100cm <sup>2</sup> | 11. 25 K pCi/100cm <sup>2</sup> |
| 2. 20K                        | 12. 15 K                        |
| 3. 20K                        | 13. 15 K                        |
| 4. 20K                        | 14. 15 K                        |
| 5. 15K                        | 15. 15 K                        |
| 6. 12K                        | 16. 12 K                        |
| 7. 12K                        | 17. 20 K                        |
| 8. 22K                        | 18. 25 K                        |
| 9. 20K                        | 19. 20 K                        |
| 10. 15K                       | 20. 25 K                        |

Vertical piping  
\* - denotes contact reading



*J. L. ...*  
9.4.89

- |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|   |   |   |   |   |   |   |