



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20556

ENCLOSURE 1

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO THE INSERVICE TESTING PROGRAM AND REQUESTS FOR RELIEF

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

PENNSYLVANIA POWER COMPANY

BEAVER VALLEY POWER STATION, UNIT NO. 1

DOCKET NO. 50-334

1.0 INTRODUCTION

The Code of Federal Regulations, 10 CFR 50.55a(g), requires that inservice testing (IST) of certain ASME Code Class 1, 2, and 3 pumps and valves be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda, except where specific written relief has been requested and is subsequently granted by the Commission pursuant to Subsections (a)(3)(i), (a)(3)(ii), or (g)(6)(i) of 10 CFR 50.55a. In requesting relief, licensees must demonstrate that (1) the proposed alternatives provide an acceptable level of quality and safety, (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, or (3) conformance with certain requirements of the applicable Code edition and addenda is impractical for its facility.

By letter dated March 21, 1988, Duquesne Light Company (DLC) submitted the inservice testing program for pumps and valves for the second ten-year interval starting from September 20, 1987, for the Beaver Valley Power Station, Unit 1. This submittal superseded all previous IST program submittals. Additional revisions were submitted by letters dated April 27, 1989, October 3, 1989, and July 27, 1990. The results of the NRC staff (the staff) review of the IST program as defined by these submittals are documented in this Safety Evaluation.

DLC's program is based on the requirements of Section XI of the ASME Code, 1986 Edition.

2.0 EVALUATION

The staff was provided technical assistance with this evaluation by EG&G Idaho, Inc (EG&G). In addition, EG&G and staff members met with DLC

representatives on October 27 and 28, 1987, in a working session to discuss questions resulting from the review of an earlier program submittal. EG&G has prepared a Technical Evaluation Report (TER) which documents EG&G's evaluation of DLC's IST program and relief requests. The staff has reviewed the TER and concurs with the evaluations and conclusions contained in the TER. A summary of the pump and valve relief request determinations is presented in Table 1. The last column of Table 1 identifies the regulation under which the requested relief is granted. The granting of relief is contingent upon fulfillment of applicable commitments made by DLC in the basis for each relief request and the alternative proposed testing.

One relief request was denied, twenty-one relief requests were granted with certain conditions, and five relief requests were granted on an interim basis. DLC should refer to the specific TER section for a detailed discussion of these cases. These denials and conditions are listed in the TER Appendix B.

For Relief Requests 27, 33, and 37, in order to allow the licensee a period of time to review the staff position and to take the necessary actions to address the issues discussed in the TER, interim relief is granted under 10 CFR 50.55a(a)(3)(ii). If compliance with the Code were immediately imposed on the licensee, it would result in a hardship without a compensating increase in the level of quality and safety. The interim period should provide the licensee with sufficient time to develop the necessary procedures, procure any additional test equipment, and implement the requirements, or to further evaluate the basis for relief and submit additional information. The proposed alternative testing should continue in the interim period to provide a level of assurance of the operational readiness of the valves.

DLC should resolve all the items listed in TER Appendix B in accordance with the staff guidance therein. The actions described in paragraphs 2, 6, 21, 24, and 26, in TER Appendix B should be completed within 1 year of receipt of this Safety Evaluation or by the next refueling outage, whichever is later. As necessary, program/procedural changes covered by the remaining paragraphs in TER Appendix B should be made within 6 months of receipt of this Safety Evaluation.

During the review of DLC's inservice testing program, the staff has identified certain misinterpretations or omissions of ASME Code requirements. These items are summarized in the TER Appendix B. The IST program relief requests for Beaver Valley 1 provided by submittals through Revision 6 dated July 27, 1990, are acceptable for implementation provided that the changes and actions described in TER Appendix B are completed in accordance with the schedule set forth in the preceding paragraph of this Safety Evaluation.

3.0 CONCLUSION

The staff concludes that the relief requests as evaluated and modified by this Safety Evaluation will provide reasonable assurance of the operational readiness

of the pumps and valves to perform their safety related functions. The staff has determined that granting relief, pursuant to 10 CFR 50.55a(a)(3)(i), (a)(3)(ii) or (g)(6)(i), is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest. In making this determination, the staff has considered the alternate testing being implemented, compliance resulting in a hardship without a compensating increase in safety, and the impracticality of performing the required testing considering the burden if the ASME Code requirements were imposed.

Principal Contributors: R. Li
J. Colaccino

Date: May 6, 1991

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SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
RRP-1	2.1.1.1	IWP-3300 Bearing Temperature measurement.	All pumps except residual heat removal and low head safety injection	Measure vibration velocity using OM-6 Draft 8 acceptance criteria	Relief granted With Provisions (a)(3)(i)
RRP-2	2.2.1.1	IWP-3100 Measure pump inlet pressure	CH-P-1A, -1B, and -1C Charging Pumps	Calculate inlet pressure	Interim Relief Granted With Provisions One year or next refueling (g)(6)(i)
RRP-2	2.3.1.1	IWP-3100 Measure pump inlet pressure.	CH-P-2A and -2B Boric Acid Pumps	Calculate inlet pressure	Relief Granted With Provisions (a)(3)(ii)
RRP-3	2.3.2.1	IWP-3100 Measure pump flow rate	CH-P-2A, and -2B Boric Acid Pumps	Calculate flow during refueling outages	Relief Granted With Provisions (g)(6)(i)
RRP-4	2.4.1.1	IWP-3400(a) Quarterly pump test	RH-P-1A and RH-P-1B Residual heat removal pumps	Perform flow tests during cold shutdown and refueling outages	Relief Granted (g)(6)(i)
RRP-2	2.5.1.1	IWP-3100 Measure pump inlet pressure.	SI-P-1A and SI-P-1B Low head safety injection pumps	Calculate inlet pressure	Relief Granted With Provisions (a)(3)(ii)
RRP-2	2.6.1.1	IWP-3100 Measure pump inlet pressure	QS-P-1A and QS-P-1B Quench spray pumps	Calculate inlet pressure	Interim Relief Granted With Provisions One year or next refueling (g)(6)(i)
RRP-5	2.7.1.1	IWP-3100 Measure inlet pressure	QS-P-4A, -4B, -4C and -4D Chemical injection pumps	Measure discharge pressure and flow	Relief Granted (a)(3)(i)

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RRP-2	2.8.1.1	IWP-3100 Measure pump inlet pressure	RS-P-1A and RS-P-1B Inside recirculation spray pumps	Calculate inlet pressure	Relief Granted With Provisions (g)(6)(i)
RRP-6	2.8.2.1	IWP-3400(a) Quarterly pump tests	RS-P-1A and RS-P-1B Inside recirculation spray pumps	Run dry quarterly Test with flow during refueling outages	Relief Granted (g)(6)(i)
RRP-2	2.9.1.1	IWP-3100 Measure pump inlet pressure	RS-P-2A and RS-P-2B Outside recirculation spray pumps	Calculate inlet pressure	Relief Granted With Provisions (g)(6)(i)
RRP-7	2.9.2.1	IWP-3400(a) Quarterly pump tests	RS-P-2A and RS-P-2B Outside recirculation spray pumps	Run dry quarterly Test with flow during refueling outages	Relief Granted (g)(6)(i)
RRP-8	2.10.1.1	IWP-3100 Measurement of pump flow rate	FW-P-2, -3A and -3B Auxiliary feedwater pumps	Measure flow during refueling outages	Relief Granted With Provisions (g)(6)(i)
RRP-2	2.11.1.1	IWP-3100 Measure pump inlet pressure	WR-P-1A, -1B and -1C River water pumps	Calculate inlet pressure	Relief Granted With Provisions (g)(6)(i)
RRP-9	2.12.1.1	IWP-3100 Measurement of pump inlet pressure	EE-P-1A, -1B -1C and -1D Diesel fuel oil transfer pumps	Measure and trend discharge pressure and flow	Relief Granted (a)(3)(i)
RRP-10	2.12.2.1	IWP-4600 Measurement of flow rate	EE-P-1A, -1B -1C and -1D Diesel fuel oil transfer pumps	Calculate flow rate	Relief Granted With Provisions (g)(6)(i)

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RR-1	3.1.1.1	IWV-3420 Leak test containment isolation valves	Various Category A and A/C Containment valves	Perform 10 CFR 50 Appendix J Type C testing	Relief Granted Generic Letter 89-04 Position 10 (a)(3)(i)
RR-42	3.1.1.2	IWV-3420 Leak test containment isolation valves	IVS-183 and IVS-184 Containment isolation valves	Leak test as a group per 10 CFR 50 Appendix J	Relief Granted (a)(3)(ii)
RR-2	3.2.1.1	IWV-3522 Quarterly exercising check valves	RC-68 Pressurizer relief tank nitrogen supply check	Leak tested per 10 CFR 50 Appendix J during refueling outages	Relief Granted (g)(6)(i)
RR-3	3.2.1.2	IWV-3522 Quarterly exercising check valves	RC-72 Pressurizer relief tank supply check	Leak tested per 10 CFR 50 Appendix J during refueling outages	Relief Granted (g)(6)(i)
RR-7	3.3.1.1	IWV-3426 & IWV-3427 Assigning leak rates	TV-CH-200A, -200B and -200C Reactor coolant letdown orifice isolations	Assign a maximum leak rate for entire barrier	Relief Granted With Provisions (g)(6)(i)
RR-10	3.3.1.2	IWV-3412 Quarterly exercising	MOV-CH-308A -308B & -308C RCS pump seal water injection isolations	Exercised at cold shutdowns <100 psig and refuelings outages	Relief Granted (g)(6)(i)
RR-12	3.3.1.3	IWV-3412 Quarterly exercising	MOV-CH-378 and -381 RCP seal water return isolations	Exercising at cold shutdowns RCS <100 psig and refuelings outages	Relief Granted (g)(6)(i)

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RR-7	3.3.1.4	IWV-3426 & -3427 Assigning individual leak rates	MOV-CH-378 RCP seal water return isolation	Assign a maximum leak rate for entire barrier	Relief Granted (g)(6)(i)
RR-9	3.3.2.1	IWV-3426 & IWV-3427 Assigning individual leak rates	CH-369 RCP seal water return thermal relief check	Assign a maximum leak rate for entire barrier	Relief Granted (g)(6)(i)
RR-5	3.3.2.2	IWV-3522 Quarterly exercising of check valves	CH-31 Charging header containment isolation check	Leak test at refueling outages	Relief Granted (g)(6)(i)
RR-6	3.3.2.3	IWV-3522 Quarterly exercising of check valves	CH-181, -182 and -183 RCP seal water injection valves	Leak test at refueling outages	Relief Granted (g)(6)(i)
RR-8	3.3.2.4	IWV-3522 Quarterly exercising of check valves	CH-369 RCP seal water return thermal relief check	Leak test at refueling outages	Relief Granted (g)(6)(i)
RR-11	3.3.3.1	IWV-3412. Quarterly exercising requirements	MOV-CH-370 RCP seal water supply	Exercise at cold shutdowns RCS <100 psig and at refueling outages	Relief Granted (g)(6)(i)
RR-4	3.3.4.1	IWV-3522 Quarterly exercising of check valves	CH-22, -23 and -24 Charging pump discharge checks	Partial-stroke quarterly full-stroke at refueling outages	Relief Granted (g)(6)(i)

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RR-24	3.4.1.1	IWV-3412 Quarterly exercising	MOV-SI-867C & -867D Boron injection tank outlets	Full-stroke exercise and time during refueling outages	Relief Granted (g)(6)(i)
RR-16	3.4.2.1	IWV-3522 Quarterly exercising of check valves	SI-10, -11 and -12 low head safety injection cold leg injection checks	Full-stroke open and reverse flow at refueling outages	Relief Granted With Provisions (g)(6)(i)
RR18	3.4.2.2	IWV-3522 Quarterly exercising of check valves	SI-23, -24 and -25 Combined high and low head safety injection cold leg injection checks	Full-stroke open and reverse flow at refueling outages	Relief Granted With Provisions (g)(6)(i)
RR-20	3.4.2.3	IWV-3522 Quarterly exercising of check valves	SI-48, -49, -50 -51, -52 and -53 accumulator discharge checks	Full-stroke open at refueling outages	Relief Granted With Provisions (g)(6)(i)
RR-21	3.4.2.4	IWV-3522 Quarterly exercising of check valves	SI-83 and -84 High head safety injection hot leg injection checks	Full-stroke open at refueling outages	Relief Granted With Provisions (g)(6)(i)
RR-22	3.4.2.5	IWV-3522 Quarterly exercising of check valves	SI-94 and -95 Boron injection tank outlet and RCS fill header check	Full-stroke open at refueling outages	Relief Granted With Provisions (g)(6)(i)
RR-23	3.4.3.1	IWV-3412 Quarterly valve exercising	MOV-SI-867A and -867B Boron injection tank inlets	Full-stroke open at refueling outages	Relief Denied

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RR-13	3.4.4.1	IWV-3522 Quarterly exercising of check valves	SI-1 and -2 Low head safety injection pump containment sump suction checks	Sample disassembly and inspection at refueling outages	Relief Granted With Provisions (g)(6)(i)
RR-14	3.4.4.2	IWV-3522 Quarterly exercising of check valves	SI-5 low head safety injection pumps refueling water storage tank suction check	Partial-stroke quarterly and full-stroke at refueling outages	Relief Granted (g)(6)(i)
RR-15	3.4.4.3	IWV-3522 Quarterly exercising of check valves	SI-6 and -7 low head safety injection pumps discharge checks	Partial-stroke quarterly and full-stroke at refueling outages	Relief Granted With Provisions (g)(6)(i)
RR-19	3.4.4.4	IWV-3522 Quarterly exercising of check valves	SI-27 high head safety injection charging pumps refueling water storage tank suction check	Partial-stroke quarterly and full-stroke at refueling outages	Relief Granted With Provisions (g)(6)(i)
RR-17	3.4.4.5	IWV-3522 Quarterly exercising of check valves	SI-20, -21, -22 -100, -101 and -102 SI hot leg header checks and SI cold leg header checks	Full-stroke open at refueling outages	Relief Granted (g)(6)(i)
RR-25	3.5.1.1	IWV-3522 Quarterly exercising of check valves	RS-158 and -160 Outside recirc spray safety injection cross connect checks	Sample disassembly and inspection at refueling outages	Relief Granted With Provisions GL 89-04 Position 2 (g)(6)(i)

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RR-26	3.6.1.1	IWV-3412 Quarterly exercising valves	TV-CC-103A -103A1,-103B -103B1,-103C -103C1,-105D1 -105D2,-105E1 -105E2,-107A thru C & D1,D2,E1,E2	Full-stroke exercise at cold shutdown RCP's secured and during refueling outages	Relief Granted (g)(6)(i)
RR-27	3.6.1.2	IWV-3426 & IWV-3427(a) Assign individual leak rates	TV-CC-110F1 and -110F2 Containment isolation cooling water return valves	Assign a maximum leak rate for entire barrier	Interim Relief Granted one year or next refueling (a)(3)(ii)
RR-28	3.6.2.1	IWV-3522 Quarterly exercising of check valves	CC-289,-290 and -291 RCP cooling water supply checks	Leak test at refueling outages	Relief Granted (g)(6)(i)
RR-29	3.7.1.1	IWV-3522 Quarterly exercising of check valves	MS-18,-19 and -20 auxiliary feed pump steam supply checks	Partial-stroke quarterly and full-stroke during start up from cold shutdown and leak test at refueling outages	Relief Granted (g)(6)(i)
RR-30	3.7.1.2	IWV-3522 Quarterly exercising of check valves	MS-80,-81 and -82 Steam generator heat release reverse flow checks	Sample disassembly and inspection at refueling outages	Interim Relief Granted With Provisions one year or next refueling (g)(6)(i)
RR-31	3.8.1.1	IWV-3522 Quarterly exercising of check valves	RW-106 & -107 River water supply header checks	Full-stroke open quarterly full-stroke closed at refueling outages	Relief Granted (g)(6)(i)

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RR-32	3.8.1.2	IWV-3522 Quarterly exercising of check valves	RW-110, -111, -112 and -113	Sample disassembly and inspection every 5 years	Relief Granted With Provisions (g)(6)(i)
RR-33	3.8.1.3	IWV-3522 Quarterly exercising of check valves	RW-135 and -136 Control room redundant cooling coils supply checks	Full-stroke open at refueling outages	Interim Relief Granted one year or until next refueling (a)(3)(ii)
RR-34	3.8.1.4	IWV-3522 Quarterly exercising of check valves	RW-197 and -198 River water return parallel check valves	Sample disassembly and inspection at refueling outages	Relief Granted With Provisions (g)(6)(i)
RR-35	3.8.1.5	IWV-3522 Quarterly exercising of check valves	RW-675, -676 and -677 River water seal supply back up checks	Full-stroke open at refueling outages	Relief Granted (g)(6)(i)
RR-36	3.9.1.1	IWV-3413 Measure stroke time of power operated valves	SOV-DA-101, -102, -103 and -104 Diesel air start valves	Time indirectly with diesel generator starting times	Relief Granted (g)(6)(i)
RR-37	3.10.1.1	IWV-3412 & -3413 Quarterly stroke test and time	TS-VS-101A, -101B -101C, -101D and -101E Control room emergency air bottle outlet isolations	Full-stroke every 18 months stroke times are not measured	Interim Relief Granted One year or next refueling (a)(3)(ii)
RR-38	3.11.1.1	IWV-3426 and -3427(a) Assign individual leak rates	VS-D-5-3A and -3B Containment purge exhaust fan isolation dampers	Assign a maximum leak rate for entire barrier	Relief Granted (a)(3)(ii)

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RR-39	3.11.1.2	IWV-3426 and -3427 Assign individual leak rates	VS-D-5-5A, -5B and -6 Containment purge supply fan isolation dampers	Assign a maximum leak rate for entire barrier	Relief Granted (a)(3)(ii)
RR-40	3.12.1.1	IWV-3426 and -3427(a) Assign individual leak rates	TV-CV-150A and -150B HY-101 and -103 containment suction isolation valves	Assign a maximum leak rate for entire barrier	Relief Granted (a)(3)(ii)
RR-41	3.12.1.2	IWV-3426 & -3427 Assign individual leak rates	TV-CV-5-150C and -150D HY-102 and -104 Containment suction isolation valves	Assign a maximum leak rate for entire barrier	Relief Granted (a)(3)(ii)