UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
PENNSYLVANIA POWER AND LIGHT COMPANY	)	
	)	
(SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2)	)	Docket Nos. 50-352 and 50-353

EXEMPTION

I.

Pennsylvania Power and Light Company (the licensee), is the holder of Facility Operating License Nos. NPF-14 and NPF-22, which authorize operation of the Susquehanna Steam Electric Station (SSES), Units 1 and 2. The licenses provide, among other things, that the licensee is subject to all rules, regulations, and orders of the Nuclear Regulatory Commission (the Commission) now and hereafter in effect. The facilities consist of two boiling water reactors located in Luzerne County, Pennsylvania.

II.

Section 50.54(o) of 10 CFR Part 50 requires that primary reactor containments for water cooled power reactors be subject to the requirements of Appendix J to 10 CFR Part 50. Appendix J contains the leakage test requirements, schedules, and acceptance criteria for tests of the leak tight integrity of the primary reactor containment and systems and components which penetrate the containment. Sections II.H.4 and III.C.2(a) of Appendix J to 10 CFR Part 50 require leak rate testing of Main Steam Isolation Valves (MSIVs) at the calculated peak containment pressure related to the design basis accident, and Section III.C.3 requires that the measured leak rates be

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included in the combined local leak rate test results. The proposed deletion of the MSIV Leakage Control System (LCS), and proposed use of an alternate leakage pathway affects the description of an existing exemption which allows the leak rate testing of the MSIVs at a reduced pressure and the exclusion of the measured leakage from the combined local leak rate test results. The original exemption is contained in the SSES Safety Evaluation Report (SER) (NUREG-0776).

By letter dated February 21, 1995, the licensee requested an exemption from the Commission's regulations. The subject exemption is from the requirements of 10 CFR Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," Sections II.H.4, III.C.2(a), and III.C.3, to allow alternative testing pressure and leakage limits for the MSIVs and to exclude MSIV leakage from the combined local leak rate test results after deletion of the LCS.

The staff issued for SSES, Units 1 and 2, the current exemption from 10 CFR Part 50, Appendix J, Sections II.H.4, III.C.2(a), and III.C.3, based on the conclusion that the SSES, Units 1 and 2, MSIV leak testing methods were acceptable alternatives to the requirements. This conclusion was included in the SSES SER (NUREG-0776). The SER also described that in the event of a loss-of-coolant-accident (LOCA), the MSIV LCS will maintain a negative pressure between the MSIV and the effluent will be discharged into a volume where it will be processed by the standby gas treatment system before being released to the environment. The licensee had performed a radiological analysis based on an assumed leak rate limit of 11.5 standard cubic feet per hour (scfh), and the MSIVs were planned to be periodically tested to ensure the validity of the radiological analysis. The staff concluded that the

current SSES testing procedure, where two valves on one steam line are tested simultaneously, between the valves, utilizing a reduced test pressure (i.e., half the peak containment pressure of 22.5 psig applied between the MSIVs) was acceptable. Also, the staff excluded the MSIV test leakage rate from the combined local leak rate because the MSIV leakage had been accounted for separately in the radiological analysis of the site.

By letter dated November 21, 1994, the licensee submitted a Technical Specifications (TS) amendment request for SSES, Units 1 and 2, which supports the planned modification to eliminate the MSIV LCS and utilize an alternate leakage pathway (main steam lines and condenser). This proposal is based on the Boiling Water Reactor Owners Group (BWROG) method summarized in General Electric Report NEDC-31858P, Revision 2, "BWROG Report for increasing MSIV Leakage Rate Limits and Elimination of Leakage Control System." Therefore, the description of the MSIV LCS and the assumed MSIV leak rate are no longer accurate once the proposed TS modification is performed and implemented.

The licensee's November 21, 1994, TS (amendment) request states that a plant-specific radiological analysis has been performed in accordance with NEDC-31858P, Revision 2, to assess the effects of the proposed increase to the allowable MSIV leakage rate in terms of Main Control Room (MCR) and off-site doses following a postulated design basis LOCA. This analysis utilizes the hold-up volume of the main steam piping and condenser as an alternate method for treating MSIV leakage. The radiological analysis uses standard conservative assumptions for the radiological source term consistent with Regulatory Guide (RG) 1.3, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss-of-Coolant-Accident for Boiling Water

Reactors," Revision 2, dated June 1974. The analysis results demonstrate that dose contributions from the proposed MSIV leakage rate limit of 100 scfh per MSIV, not to exceed 300 scfh for all four main steam lines, and considering the proposed deletion of the MSIV LCS, result in an acceptable increase to the LOCA doses previously evaluated against the regulatory limits for the off-site doses and MCR doses contained in 10 CFR Part 100, and 10 CFR Part 50, Appendix A, General Design Criteria (GDC) 19, respectively. The proposed calculated off-site and MCR doses resulting from a LOCA are the sum of the LOCA doses previously evaluated (currently described in the Updated Final Safety Analysis Report), and the additional doses calculated using the alternate MSIV leakage treatment method. The method of calculating the revised doses is conservative, since the LOCA doses previously evaluated already include dose contributions from MSIV leakage at the maximum leakage rate currently permitted by the TS. Appendix 2 of Attachment 3 of the January 14, 1994, submittal shows the previously calculated doses and the new calculated doses resulting from the proposed changes.

The staff concluded that the current exemption was acceptable based on: the method of MSIV testing (i.e., 22.5 psig test pressure when applied between MSIVs on a single steam line); a radiological analysis that assumed a 11.5 scfh MSIV leak rate, and the licensee's commitment that the MSIVs would be periodically tested to ensure the validity of the radiological analysis (i.e., verify that the MSIV leakage rate during testing is accounted for separately in the radiological analysis of the site). The proposed changes do not affect the bases for the current exemption. The modification and implementing TS change request: will not alter the procedure method of MSIV testing (i.e.,

test pressure will remain at 22.5 psig when applied between MSIVs) and are based on the results of a radiological analysis where the proposed leakage rate and the resulting doses are still within regulatory limits. Also, the MSIVs will be periodically tested to assure the validity of the analysis (i.e., verify that the proposed MSIV leakage rate assumed in the radiological analysis is not exceeded per proposed TS 3.6.1.2.c), and the MSIV leakage will still be accounted for separately in the radiological analysis of the site.

For the reasons set forth above, the NRC staff concludes that there is reasonable assurance that: the current MSIV leak testing method (i.e., test pressure of 22.5 psig when applied between MSIV) is an acceptable method; the proposed alternate MSIV leakage pathway (main steam lines and condenser), and the calculated doses obtained by performing radiological analysis (calculated using an MSIV leakage rate limit of 100 scfh per MSIV not to exceed 300 scfh for all four main steam lines) are within the limits of 10 CFR Part 100 and GDC 19. The staff finds it acceptable to continue to exclude the measured MSIV leakage rate from the combined local rate, since the leakage is accounted for separately and continues to meet the underlying purpose of the rule. Therefore, the staff finds the requested exemption presented in the licensee's February 21, 1995, submittal acceptable.

III.

Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR Part 50 when (1) the exemptions are authorized by law, will not present an undue risk to public health and safety, and are consistent with the common defense and security; and (2) when special circumstances are

present. Special circumstances are present whenever, according to 10 CFR 50.12(a)(2)(ii), "Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule...."

The underlying purpose of the rule is to assure that the total valve leakage is within the limits of 10 CFR Part 100 and GDC-19. The licensee's analysis has demonstrated that an adequate margin can be maintained even if leakage from the MSIV is considered separately and subject to a leakage restriction of 100 scfh per MSIV, not to exceed a total of 300 scfh for all four main steam lines.

IV.

Accordingly, the Commission has determined that, pursuant to 10 CFR Part 50.12, an exemption is authorized by law and will not present an undue risk to the public health and safety, and that there are special circumstances present, as specified in 10 CFR 50.12(a)(2). An exemption is hereby granted from the requirements of Sections II.H.4, III.C.2(a), and III.C.3 of Appendix J to 10 CFR Part 50. The exemption allows 1) leakage testing of the MSIVs after deletion of the LCS, using a test pressure of 22.5 psig applied between MSIVs and a leakage rate limit of 100 scfh per MSIV, not to exceed 300 scfh for all main steam lines, and 2) exclusion of the measured MSIV leakage rate from the combined local leak rate.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the quality of the human environment (60 FR 42192).

This exemption is effective upon issuance and will be implemented prior to startup of Cycle 7 for SSES, Unit 2, and prior to startup of Cycle 9 for SSES, Unit 1.

FOR THE NUCLEAR REGULATORY COMMISSION

/S/

Steven A. Varga, Director
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 15th day of August 1995.

OFFICE	PDI-2/LA	PDI-2/PM	SCSB	OGC	PDI-2/D	DRPE/D
NAME	MO'Brien	CPoslusny	CBerlinger		JStolz	SVarga
DATE	7/13/95	7/12/95	7/13/95	8/1/95	8/7/95	8/9/95

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