7590-01

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the matter of	)	
	)	
Philadelphia Electric Company	)	Docket No. 50-352
	)	
(Limerick Generating Station, Unit 1)	)	

EXEMPTION

I.

The Philadelphia Electric Company (the licensee) is the holder of Facility Operating License No. NPF-39, which authorizes operation of the Limerick Generating Station (LGS), Unit 1. The license provides, among other things, that the licensee is subject to all rules, regulations, and orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

The LGS, Unit 1 facility consists of a boiling water reactor, located in Chester and Montgomery Counties, Pennsylvania.

II.

Section III.D.1.(a) of 10 CFR Part 50, Appendix J (hereafter referred to as Appendix J) requires the performance of three Type A containment integrated leakage rate tests (ILRTs), at approximately equal intervals during each 10-year service period. The third test of each set shall be conducted when the plant is shutdown for the 10-year inservice inspection (ISI).

III.

By a June 20, 1995 letter, the licensee requested a one-time exemption from the requirement to perform a set of three Type A tests at approximately equal intervals during each 10-year service period. The requested exemption

would permit a one-time interval extension of the third Type A test and would permit the third Type A test of the first 10-year ISI period to not correspond with the end of the current American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) inservice inspection interval and to be performed in the seventh refueling outage. The proposed action is requested to allow the licensee to realize cost savings and reduced worker radiation.

Subsequent to the licensee's submittal, a rulemaking was completed on Appendix J (60 FR 49495, September 26, 1995) which allows the Type A test to be performed at intervals up to once every 10 years. However, because the licensee's outage is scheduled to begin in January 1996, there is insufficient time for the licensee to implement the amended rule prior to the start of the outage.

The licensee was previously granted a similar exemption on February 16, 1994 (59 FR 9257). This 1994 exemption and the related license amendment (Amendment No. 67) allowed the licensee to perform its third Type A test during the 10-year plant ISI refueling outage by extending the test interval between the second and third test to approximately 65 months.

The licensee's request cites the special circumstances of 10 CFR 50.12, paragraph (a)(2), as the basis for the exemption. The licensee also stated that the existing Type B and C testing programs are not being modified by this request and will continue to effectively detect containment leakage caused by the degradation of active containment isolation components as well as containment penetrations. Data, supplied by the licensee, from the first

(August 1989) and second (November 1990) ILRTs at LGS, Unit 1, indicate that most of the measured leakage is from the containment penetrations and not from the containment barrier. The "as-left" leakage rate was well below the 10 CFR Part 50, Appendix J limit. Appendix J requires the leakage rate to be less than 75% of L_a to allow for deterioration in leakage paths between tests. The allowable leakage rate, L_a, is 0.5 wt.%/day. Therefore, the established acceptable limit is <0.375 wt.%/day. The as-left leakage rates for the first two ILRTs were 0.178 and 0.334 wt.%/day, which are below the acceptable limit. The Type B and C test (Local Leakage Rate Test or LLRT) program also provides assurance that containment integrity has been maintained. LLRTs demonstrate operability of components and penetrations by measuring penetration and valve leakage.

IV.

The Commission has determined, for the reasons discussed below, that pursuant to 10 CFR 50.12(a)(1) this exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. The Commission further determines that special circumstances, as provided in 10 CFR 50.12(a)(2)(ii), are present; namely, that application of the regulation in the particular circumstances is not necessary to achieve the underlying purpose of the rule.

The underlying purpose of the rule is to ensure that any potential leakage pathways through the containment boundary are identified such that leakage will not exceed allowable leakage rate values. The NRC staff has reviewed the basis and supporting information provided by the licensee

in its exemption request. The NRC staff notes that the first and second ILRTs of the set of three tests for the first 10-year service period were conducted in August 1987 and November 1990. The third ILRT will be scheduled for Refueling Outage 7, projected to start in April 1998. In a September 29, 1995 phone call, the licensee stated to the NRC staff that they will perform the general containment inspection although it is only required by Appendix J (Section V.A.) to be performed in conjunction with Type A tests. The NRC staff considers that these inspections, though limited in scope, provide an important added level of confidence in the continued integrity of the containment boundary. The regulatory guide (i.e., Regulatory Guide 1.163) accompanying Appendix J Option B specifies that the containment inspections be performed more often than the Type A tests.

The NRC staff has also made use of the information supporting the revised Appendix J, including NUREG-1493, which provides the technical justification for the 10-year test interval for Type A tests. The Type A test measures overall containment leakage. However, operating experience with all types of containments used in this country demonstrates that essentially all containment leakage can be detected by Type B and C testing. According to results given in NUREG-1493, out of 180 ILRT reports covering 110 individual reactors and approximately 770 years of operating history, only 5 ILRT failures were found that LLRT could not detect. This is 3% of all failures. This study agrees with previous NRC staff studies which show that Type B and C testing can detect a very large percentage of containment leaks.

The Nuclear Management and Resources Council (NUMARC), now called the Nuclear Energy Institute (NEI), collected and provided the NRC staff with

summaries of data to assist in the Appendix J rulemaking effort. NUMARC collected results of 144 ILRTs from 33 units; 23 ILRTs exceeded $1.0L_a$. Of these, only nine were not due to Type B or C leakage penalties. The NEI data also added another perspective. The NEI data shows that in about one-third of the cases exceeding allowable leakage, the as-found leakage was less than $2L_a$; in one case the leakage was found to be approximately $2L_a$; in one case the as-found leakage was less than $3L_a$; one case approached $10L_a$; and in one case the leakage was found to be approximately $21L_a$. For about half of the failed ILRTs, the as-found leakage was not quantified. These data show that, for those ILRTs for which leakage was quantified, the leakage values are small in comparison to the leakage value at which the risk to the public starts to increase over the value of risk corresponding to L_a (approximately $200L_a$, as discussed in NUREG-1493). Therefore, based on these considerations, it is unlikely that an extension of another cycle for the performance of the Appendix J, Type A test at LGS Unit 1 would result in significant degradation of the overall containment integrity. As a result, the application of the regulation in these particular circumstances is not necessary to achieve the underlying purpose of the rule.

Based on generic and plant-specific data, the NRC staff finds the basis for the licensee's proposed exemption to allow a one-time exemption to permit a schedule extension of an additional one cycle, to the seventh refueling outage, for the performance of the Appendix J, Type A test, provided the general containment inspection is performed in the sixth refueling outage, to be acceptable.

Pursuant to 10 CFR 51.32, the Commission has determined that granting this exemption will have no significant effect on the quality of the human environment (60 FR 57604).

This exemption is effective upon issuance, shall supersede the exemption dated February 16, 1994 and shall expire at the completion of the 1998 refueling outage.

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 25th day of January 1996

Reviewed w/Concurrence by Roy Zimmerman on 01/25/96

RL for

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NAME	MO'Brien	SDembek:rb	FRinaldi	CBerlinger	EHoller	JStolz
DATE	12/14/95	12/14/95	12/14/95	12/21/95	12/26/95	1/24/95

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