

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Director, Office of Nuclear Reactor Regulation

In the Matter of)
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LONG ISLAND LIGHTING COMPANY)

) Docket No. 50-322
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(Shoreham Nuclear Power Station,
Unit 1))
)

**Long Island Lighting Company's Request for an Exemption from
the Primary Containment Leak Rate Testing Requirements of
10 C.F.R. § 50.54(o) and Appendix J, ¶ III.D.1 through III.D.3**

I. Introduction

Pursuant to 10 C.F.R. § 50.12, Long Island Lighting Company (LILCO or the Company) hereby requests an exemption from the primary containment leak rate testing requirements of 10 C.F.R. § 50.54(o) and Part 50, Appendix J, ¶ III.D.1 through III.D.3. Two factors justify the exemption.

First, under the Settlement Agreement between itself and New York State, LILCO is contractually prohibited from ever operating Shoreham. Under the Settlement Agreement, LILCO will maintain the plant in its present defueled condition and will seek to transfer Shoreham to the Long Island Power Authority (LIPA) or some other New York State entity.

Second, with Shoreham in a defueled condition, the entire basis for primary reactor containment leak rate testing, i.e., to establish and implement a periodic testing program to ensure the continued integrity of a principal fission product barrier to

mitigate the consequences of design basis accidents, no longer exists at Shoreham. Of all the design basis accidents described in the Shoreham Updated Safety Analysis Report (USAR) for which the primary containment is required for mitigation, none are presently possible.

II. Background

On February 28, 1989, LILCO entered into a Settlement Agreement with New York State, under which LILCO is contractually prohibited from operating Shoreham notwithstanding the NRC's issuance of a full power license on April 21, 1989. LILCO's shareholders voted to approve the Settlement Agreement on June 28, 1989, and it became effective and legally binding. Under the Settlement Agreement, LILCO will apply to the NRC for permission to transfer Shoreham to the Long Island Power Authority (LIPA) or some other entity of New York State.

In preparation for this eventual transfer, and in accordance with the Amended and Restated Asset Transfer Agreement between LILCO and LIPA, on July 14, 1989, LILCO began transferring the fuel from the reactor pressure vessel to the spent fuel storage pool. Defueling was completed on August 9, 1989. LILCO will maintain Shoreham in this defueled condition until it is allowed to transfer Shoreham to New York State.

The regulation from which LILCO seeks an exemption, 10 C.F.R. § 50.54(o), provides as follows:

Primary reactor containments for water cooled power reactors shall be subject to the requirements set forth in Appendix J to this part.

In turn, 10 C.F.R. Part 50, Appendix J sets forth the criteria and the schedules for the conduct of so-called "Type A," "B," and "C" leak rate tests.

Specifically, ¶ III.D.1 of Appendix J requires that, "[a]fter the preoperational leakage rate tests," a set of "three Type A tests shall be performed, at approximately

equal intervals during each 10-year service period." Similarly, ¶ III.D.2 provides that Type B tests, except tests for air locks, are to be conducted during refueling outages, "but in no case at intervals greater than 2 years." In general, air locks must be tested after being opened, as well as at 6-month intervals. Finally, pursuant to ¶ III.D.3, Type C tests "shall be performed during each reactor shutdown for refueling but in no case at intervals greater than 2 years."

As explained below, there is no health and safety rationale for subjecting LILCO to the testing schedule set forth in Appendix J, ¶ III.D.1 through III.D.3. Accordingly, an exemption from the regulation is justified.

III. Discussion: Shoreham's Defueled Status Provides a Sufficient Basis for Granting an Exemption from the Appendix J Leak Rate Testing Requirements

The legal standard for obtaining an exemption from specific NRC regulations is provided by 10 C.F.R. § 50.12. The rule uses a two tier test to determine if a licensee's request for an exemption should be granted. First, the regulation specifies that the NRC may grant exemptions that are

[a]uthorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security.

10 C.F.R. § 50.12(a)(1).

Second, the regulation provides that an exemption request will not be considered unless one or more of six "special circumstances" are present. 10 C.F.R. § 50.12(a)(2)(i)-(vi). Specifically, "special circumstances" are present whenever

- (1) Application of the regulation in the particular circumstances conflicts with other rules or requirements of the Commission; or
- (2) 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; or
- (3) Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when

the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated; or

(4) The exemption would result in benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption; or

(5) The exemption would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation; or

(6) There is present any other material circumstance not considered when the regulation was adopted for which it would be in the public interest to grant an exemption.

At the threshold, it is clear that two of the considerations in the initial tier of the § 50.12 standard present no bar to the exemption being sought by LILCO. First, the action being requested is plainly authorized by law. The NRC has the legal authority to modify the primary reactor containment leak rate testing requirements for a licensee and has exercised that authority in the past.^{1/} Second, granting LILCO's exemption request would have no impact on the "common defense and security" of the United States.^{2/}

Consequently, in determining whether an exemption from § 50.54(o) and, in turn, the primary reactor containment leak testing requirements in paragraph III.D.1 through III.D.3 of Appendix J should be granted, the NRC must consider (1) whether there would be any undue risk to the public health and safety, and (2) whether special circumstances

^{1/} LILCO's review of documents from the NRC's Public Documents Room in Washington, D.C., reveals that the NRC has granted exemptions from various Appendix J testing requirements to dozens of other utilities. Additionally, as is evident from Shoreham's operating license, LILCO itself has been granted an exemption from the requirements of Appendix J, §§ II.H.4 and III.C.2. See NPF-82, ¶ D.(b).

^{2/} The Commission has determined that the phrase "common defense and security," as used in 10 C.F.R. § 50.12(a), refers principally to "the safeguarding of special nuclear material; the absence of foreign control over the applicant; the protection of Restricted Data; and the availability of special nuclear material for defense needs." See Florida Power & Light Co. (Turkey Point Nuclear Generating Station, Units 3 and 4), 4 AEC 9, 12 (1967).

exist to justify the exemption. As shown below, LILCO's exemption request satisfies each of these requirements.

A. LILCO's Exemption Request Poses No Undue Risk to the Public Health and Safety

Given Shoreham's defueled condition, the requested exemption would not present an "undue risk" to the public health and safety. The requirement that a licensee perform leak rate testing of the primary reactor containment exists to provide reasonable assurance that the primary containment will function adequately as a principal fission product barrier. This is made clear in the Supplementary Information that accompanied the rule when the Commission first proposed adding Appendix J to 10 C.F.R. Part 50. The Commission reasoned that containment systems are provided "to prevent uncontrolled releases of radioactive materials to the environment if the barriers provided by the fuel cladding and the reactor coolant pressure boundary should be breached," and stated that "[p]eriodic testing is needed to assure that the containment will continue to perform its function throughout the life of the plant." 36 Fed. Reg. 17053 (Aug. 27, 1971).

The Commission reiterated this rationale, both when it adopted Appendix J as a final rule, 38 Fed. Reg. 4385 (Feb. 14, 1973), and when it subsequently proposed to amend Appendix J to update testing criteria and clarify questions of interpretation. 51 Fed. Reg. 39538 (Oct. 29, 1986). For instance, in the Supplementary Information to its proposed amendment in 1986, the Commission listed several assumptions "inherent in Appendix J." 51 Fed. Reg. 39538. Significant among these assumptions are the statements that "[c]ertain levels of radiation exposure at the plant site boundary shall not be exceeded under . . . operating or . . . design basis accident conditions," and that "[a] standard loss-of-coolant accident is assumed as the design basis accident." *Id.* LILCO, of course, is contractually obligated not to operate Shoreham and, given the plant's

defueled condition, a standard loss-of-coolant accident is impossible. It follows, therefore, that cessation of primary containment leak rate testing would not present an "undue risk" to the public health and safety, since the primary containment need not (indeed, with Shoreham defueled, cannot) perform its design function as a principal fission product barrier.

Additionally, under Shoreham's technical specifications (NUREG-1357), the requirement to conduct primary containment leak rate testing is linked directly to the plant's Operational Condition. Specifically, § 3.6.1.2 of the plant's technical specifications, which sets forth acceptable primary containment leak rates, provides that these leak rates must be met whenever Primary Containment Integrity is required under § 3.6.1.1. Consistent with the NRC's practice of implementing the provisions of Appendix J by means of a licensee's technical specifications,^{3/} Primary Containment Integrity is demonstrated in accordance with Surveillance Requirements set forth in §§ 4.6.1.1 through 4.6.1.4.

Maintenance of Primary Containment Integrity, however, is required only when the plant is in Operational Conditions 1, 2, or 3. NUREG-1357, § 3.6.1.1. If Primary Containment Integrity is not maintained, ultimately the plant must be placed in cold shutdown. Once the plant is shutdown, there is no requirement under the technical specifications that the Surveillance Requirements in §§ 4.6.1.1 through 4.6.1.4 be performed.^{4/} Under the Settlement Agreement, of course, Shoreham is and will remain shut down.

^{3/} See 51 Fed. Reg. 39538 (Oct. 29, 1986).

^{4/} Specifically, § 4.0.3 of the technical specifications states, in relevant part, that the "[f]ailure to perform a Surveillance Requirement within the specified time interval shall constitute a failure to meet the OPERABILITY requirements for a Limiting Condition for Operation," but also provides that "[s]urveillance requirements do not have to be performed on inoperable equipment."

In short, with Shoreham defueled, there is no need to maintain Primary Containment Integrity and, correspondingly, no requirement under the technical specifications to perform leak rate testing. The fact that the cessation of Appendix J testing would be entirely consistent with Shoreham's technical specifications is further evidence that the requested exemption would not pose an "undue risk" to the public health and safety.

B. Special Circumstances Exist That Further Support LILCO's Exemption Request

As explained below, at least three of the "special circumstances" listed under 10 C.F.R. § 50.12(a)(2) apply to Shoreham's situation.

(1) Application of the Regulation in the Particular Circumstances Would Not Serve the Underlying Purpose of the Rule and Is Not Necessary to Achieve its Underlying Purpose

Section 50.12(a)(2)(ii) applies to Shoreham's situation. Application of the primary reactor containment leak rate testing requirements would neither serve the underlying purpose of Appendix J, nor is it necessary in order to achieve the underlying purpose of the rule. As has already been noted, the purpose of requiring a licensee to perform leak rate testing of the primary reactor containment is to ensure that there will not be an uncontrolled release of radioactive material as a result of the failure of the two other principal fission product barriers, *i.e.*, fuel cladding and the reactor coolant system, during an accident. More specifically, the design basis accident that is assumed to occur is the standard loss-of-coolant accident as described in § 15.1.34 of the Shoreham USAR. Such an accident simply cannot happen at Shoreham, now that the fuel has been removed from the reactor core and placed in the fuel pool.

- (2) Compliance Would Result in Undue Hardship or Other Costs that Are Significantly in Excess of Those Contemplated When the Regulation Was Adopted and That Are Significantly in Excess of Those Incurred by Others Similarly Situated

Section 50.12(a)(2)(iii) also applies to Shoreham's situation. First, requiring LILCO to conduct Appendix J testing would result in undue hardship and other costs that are significantly in excess of those contemplated when the regulation was adopted. It costs LILCO approximately \$138,000 to perform a Type A integrated leak rate test and approximately \$445,000 to conduct the Type B and C local leak rate tests each 18-24 month cycle. Yet, as explained above, with Shoreham in a defueled condition, performance of Appendix J testing will not result in any increased protection of the public health and safety. The costs incurred by LILCO during the period before the plant is transferred to New York State will be reflected in the rates paid by the Company's customers. As a consequence, requiring LILCO to conduct Appendix J testing imposes an undue hardship on both LILCO and its ratepayers.

Second, requiring LILCO to comply with Appendix J would subject the Company to costs that are significantly in excess of those incurred by others similarly situated. The NRC has granted exemptions from Appendix J to other utilities in analogous situations.

For instance, the NRC granted Boston Edison Company (BECO) an exemption from Type A testing for the Pilgrim Nuclear Power Station near the outset of Pilgrim's recent extended outage. See Boston Edison Co. (Pilgrim Nuclear Power Station), Docket No. 50-293 (Dec. 1, 1986) ("BECO Exemption"). The NRC, after stating that "Type A testing is performed to assure that primary containment leakage is within acceptable limits during plant operation," noted that Pilgrim "will not be operating prior to the end of [a refueling outage] next spring, at which time a Type A test will be successfully performed." BECO Exemption at 2. The NRC concluded that, thus, the "performance

of an earlier Type A test to meet the 18-month schedular requirements is unnecessary to achieve the underlying purpose of the rule." Id.

Similar reasoning led the NRC more recently to grant the Tennessee Valley Authority (TVA) an exemption from Type B and Type C testing for the Sequoyah Nuclear Plant, Unit 1. See Tennessee Valley Authority (Sequoyah Nuclear Plant, Unit 1), Docket No. 50-327 (July 14, 1988)("TVA Exemption"). Sequoyah Unit 1 was shut down for refueling in August 1985, at which time all Type B and C leak rate tests were performed. With the plant in cold shutdown following refueling for a period extending beyond August 1987, TVA sought an exemption from the two year testing requirements for Type B and C tests. The NRC granted the exemption, stating as follows:

The staff has considered the Appendix J exemption request from the Type B and C tests and has concluded that it is justified on a one-time basis since Unit 1 has been in Mode 5 (cold shutdown) for this period and containment integrity is not required when the reactor is in the cold shutdown condition. Furthermore, prior to entering Mode 4 (Heatup at Power), the licensee will conduct the Type B and C leakage tests in order to ensure containment integrity. Accordingly, the staff concludes that this Appendix J exemption is justified.

TVA Exemption at 3.

The situation that exists at Shoreham is, in large measure, indistinguishable from those that existed at Pilgrim and Sequoyah Unit 1. Requiring LILCO to conduct Appendix J testing for a defueled Shoreham would plainly impose on the Company costs that are significantly in excess of those incurred by other utilities in similar situations.

- (3) The Exemption Would Provide Only Temporary Relief from the Applicable Regulation and the Licensee Has Made Good Faith Efforts to Comply with the Regulation

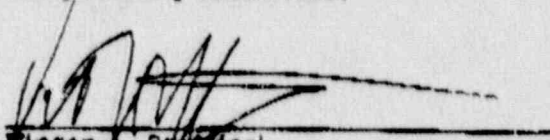
Finally, § 50.12(a)(2)(v) applies to Shoreham's situation. First, the exemption is only temporary, as it would terminate should the plant be placed in some Operational Condition for which Primary Containment Integrity is required. Second, LILCO has made a good faith effort to comply with the regulation. Since receiving a license to

load fuel, NPF-19, on December 7, 1984, LILCO has performed periodically primary containment leak rate testing, in compliance with Appendix J.^{5/} Moreover, under LILCO's systems lay-up program, even without Appendix J testing the pipes and valves for which such testing is designed will be protected from degradation pending Shoreham's transfer to New York State.

IV. Conclusion

For the reasons given above, LILCO respectfully requests that the NRC grant the Company an exemption from 10 C.F.R. § 50.54(o) and, in turn, the primary containment leak rate testing requirements of 10 C.F.R. Part 50, Appendix J, ¶ III.D.1 through III.D.3.

Respectfully submitted,


Victor A. Staffieri
General Counsel
Long Island Lighting Company

Long Island Lighting Company
175 East Old Country Road
Hicksville, New York 11801

Of Counsel:
Hunton & Williams
707 East Main Street
P.O. Box 1585
Richmond, Virginia 23212

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^{5/} For instance, on January 19-21, 1987, an unannounced Containment Integrated Leak Rate Test (CILRT) was conducted at Shoreham by the NRC. Within the scope of the inspection, no violations were observed. NRC Inspection Report 50-322/87-02 describes the results of this inspection. In addition, on April 21, 1987, LILCO submitted to the NRC its own report on the results of the CILRT, as well as a summary analysis of the local leak rate tests conducted in 1986.