

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of)
)
LONG ISLAND LIGHTING COMPANY) Docket No. 50-322
)
(Shoreham Nuclear Power Station,)
Unit 1))

MOTION FOR SUMMARY DISPOSITION OF
SC CONTENTIONS 17a(i)-(ii)

1. Suffolk County (SC or County) contentions 17a(i)-(ii) were accepted by the Board only for purposes of discovery because they were insufficiently particularized. See Board Order of March 8, 1978 at 4. These contentions read as follows:

17a. Intervenors contend that the Applicant and the Regulatory Staff did not adequately review the site for Shoreham for compliance with 10 CFR, Part 50, Appendix A, Criterion 2^{1/} and 10 CFR, Part 100 with regard to:

- i. Physical characteristics of the site including G-value selected for the Safe Shutdown Earthquake and Operating Basis Earthquake.
- ii. Determination of exclusion area, low population zone, and population center distance.

1/ The introductory SC contentions 17a(i)-(ii) reads "Appendix A, Criteria I." However, there is no such criterion in 10 CFR Part 50, Appendix A. It appears that the County meant to refer to Appendix A, Criterion 2 (design bases for protection against natural phenomena).

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SC's Amended Petition to Intervene at 21 (Sept. 16, 1977).

2. Further understanding of the meaning of these contentions was provided in certain SC pleadings filed after its Amended Petition to Intervene. The main allegations in these contentions are that (a) the design ground acceleration (or "G") values are inadequate (too low) and, if so, that (b) the low population zone (LPZ), exclusion area, and population center distance are improperly determined. See, e.g., SC's Particularized Contentions at 17-2 to 17-3 (Nov. 30, 1978). To substantiate the first allegation, SC listed seven items on pages 14-15 of its November 10, 1977 Amended Contentions and Legal Arguments Submitted in Compliance with the Hearing Board's Request of October 11, 1977. SC admitted that the first four of its seven items were irrelevant when it reiterated only the last three items on pages 17-18 of its Objections to Hearing Board's January 27, 1978 Memorandum and Order (Feb. 17, 1978). SC then reasserted that those three items support these contentions. SC's Particularized Contentions at 17-2 to 17-3.

3. SC contentions 17a(i)-(ii), amplified as indicated in ¶ 2 above, raise no genuine issues of fact for the reasons set out in ¶¶ 4-6 below.

4. The common thread running through these contentions and the County's subsequent filings mentioned in ¶ 2 above is the allegation that Shoreham's design ground acceleration

values for the Safe Shutdown Earthquake (SSE) and Operating Basis Earthquake (OBE) are not conservative in view of some uncertainties regarding seismicity in the eastern United States. Notwithstanding SC's allegation, Shoreham's design ground acceleration values are conservative and they comply with the applicable NRC regulations. Affidavit of Wayne E. Kilker at ¶ 2. Moreover, Shoreham's design ground acceleration values were reviewed and approved at the construction permit stage. See Long Island Lighting Co. (Shoreham Nuclear Power Station), LBP-73-13, 6 AEC 271, 276, aff'd, ALAB-156, 6 AEC 831, 857 (1973).

5. Although SC alleged that the G-values for Shoreham are too low, none of the three items discussed in its Particularized Contentions, see ¶ 2 above, suggests using values higher than those used in Shoreham's design.

a. The first of the three items is an NRC letter from B. Rusche to the ACRS, dated January 31, 1977. It requested a clarification of a recommendation by consultants to the ACRS that:

in view of the uncertainties of knowledge concerning the sources of earthquakes in the Eastern United States, a minimum safe shutdown earthquake (SSE) of 0.2g acceleration should be utilized for new plants for which construction permit applications are submitted in the future.

ACRS Report on North Anna Power Station, Units 1 and 2 (Jan. 17, 1977). This quotation indicates concern about plants designed with a SSE of less than 0.2g acceleration. Shoreham is not one of those plants because its SSE value was set at 0.2g long

before this recommendation was published.

b. The second item refers to an article in the April 28, 1978 issue of Science, entitled "Earthquakes, Faults, and Nuclear Power Plants in Southern New York-Northern New Jersey," by Yash P. Aggarwal and Lynn R. Sykes. SC claims that this article reported new information concerning the seismicity of the New England, New York, and New Jersey coastal areas. Actually, the article focused primarily on the Ramapo fault, which at its closest approach is approximately 60 miles west-northwest of the Shoreham site. See FSAR Fig. 2.5.1-5. Most of the information reported in the article had been introduced by the authors in the NRC proceeding on Indian Point Units 1, 2 and 3. There the Appeal Board concluded that the Ramapo fault was not "capable," as defined in 10 CFR Part 100, Appendix A, § III(g). Consolidated Edison Co. of New York (Indian Point Units 1, 2, and 3), ALAB-436, 6 NRC 547, 624 (1977); see generally id. at 587-624. The new data obtained by Aggarwal and Sykes did not lead them to conclude that the Ramapo fault was capable. Thus, there is no basis for considering the Ramapo fault in the seismic analysis for Shoreham.

c. SC's third item refers to an NRC letter from K. Kniel to the Applicant dated September 1, 1977, which the County characterized as:

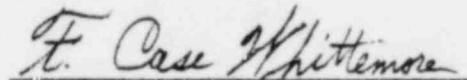
addressing the open items of seismic qualification of mechanical equipment at Shoreham, electrical equipment, and load combinations, including effect on concrete containment structures.

SC's Particularized Contentions at 17-2 to 17-3; see SC's Objections to Hearing Board's January 27, 1978 Memorandum and Order at 18 (Feb. 17, 1978). The County incorrectly perceives Mr. Kniel's letter as taking issue with Shoreham's design ground acceleration values. Actually, none of the items contained in Mr. Kniel's letter, which SC correctly summarized in the above quotation, pertains to the design ground acceleration values. Rather, these items concern the methods used to verify that certain structures and equipment will withstand seismic loads up to the design ground acceleration values.

6. Paragraphs 4-5 above demonstrate that Shoreham's design ground acceleration values are conservative and comply with the applicable regulations. SC has cited no evidence to refute these conclusions. Therefore, SC contention 17a(ii) raises no genuine issue of fact because there is no basis for its underlying assumption -- that Shoreham's design ground acceleration values are inadequate. See ¶ 2 above; SC's Particularized Contentions at 17-3. Moreover, Shoreham's LPZ, exclusion area, and population center distance meet the applicable NRC regulations. See Long Island Lighting Co. (Shoreham Nuclear Power Station), LBP-73-13, 6 AEC 271, 278, aff'd, ALAB-156, 6 AEC 831, 857 (1973); Affidavit of Foroohar Boorboor on 17(a)(ii).

7. For the above reasons, SC contentions 17a(i)-(ii) raise no genuine issues of fact. Accordingly, under 10 CFR § 2.749, they are ripe for summary disposition in favor of the Applicant. We request that disposition.

Respectfully submitted,
LONG ISLAND LIGHTING COMPANY


F. Case Whittemore
F. Case Whittemore

W. Taylor Reveley, III
Hunton & Williams
P. O. Box 1535
Richmond, Virginia 23212

DATED: February 5, 1979

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In the Matter of)	
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AFFIDAVIT OF WAYNE E. KILKER

Wayne E. Kilker, being duly sworn, states as follows:

1. I am Lead Geotechnical Engineer for the Shoreham Project. A statement of my professional qualifications is attached.

2. Shoreham's design ground acceleration values for the Safe Shutdown Earthquake (SSE) and Operating Basis Earthquake (OBE) comply with all applicable NRC regulations for the following reasons:

a. In accordance with 10 CFR Part 50, Appendix A, Criterion 2, all historically reported earthquakes in the Northeast were analyzed to determine the maximum intensity experienced at the Shoreham site due to any of these seismic events. The maximum intensity is estimated to have been IV-V (MM). FSAR § 2.5.2.5.7. This corresponds, based on Neumann's intensity-acceleration relationship, to a ground acceleration

of approximately 0.02-0.03g. Id. at Fig. 2.5.2-5. This range is considerably less than Shoreham's Safe Shutdown Earthquake (SSE) value of 0.2g, which corresponds to an intensity greater than VII (MM). Id. at § 2.5.2.9, Fig. 2.5.2-5.

b. In accordance with 10 CFR Part 100, Appendix A, the maximum intensity of potential earthquakes that might affect Shoreham was determined. This analysis was based on extensive geologic and seismic studies. The conclusion of these studies was that the maximum intensity of potential earthquakes at Shoreham is intensity VII (MM). Id. at § 2.5.2.9; see generally id. at §§ 2.5.1-.3. This corresponds to a peak ground acceleration of 0.13g, based on the intensity-acceleration relationship mentioned in ¶ 2.a above. In order to ensure that Shoreham's design is conservative, a higher SSE value of 0.2g was chosen. Id. at § 2.5.2.9. In accordance with 10 CFR Part 100, Appendix A, § V(a)(2), the OBE value was established as 0.1g, which is one-half of the SSE value. Id. at § 2.5.2.11.

Wayne E. Kilker

Subscribed and sworn to before me
this 31 day of January, 1979.

Elizabeth M. Sells
Notary Public

My commission expires: April 1985

QUALIFICATIONS OF WAYNE E. KILKER

My name is Wayne E. Kilker. My business address is Stone & Webster Engineering Corporation, 245 Summer Street, Boston, Massachusetts. I am currently Lead Geotechnical Engineer on both the Shoreham and Jamesport projects. As such, my duties have included responsibility for all geotechnical related design and site activities.

I received a Bachelor of Science degree in Civil Engineering from the University of Minnesota in 1964. I worked as an Assistant Engineer for the Arizona Highway Department from 1965 to 1966 and served as an Engineering Laboratory Teacher in the Peace Corps from 1966 to 1968. In 1970 I received a Master of Science degree in Soil Mechanics from Arizona State University. Then I was employed by Twin Cities Testing & Engineering Laboratories as a Geotechnical Engineer. There I gained experience in establishing geotechnical design criteria, performing site investigations, inspecting construction operations, and testing engineering materials.

In 1974 I joined Stone & Webster Engineering Corporation as an engineer in the Geotechnical Division and worked on several nuclear power plant projects. I assisted in planning site investigations, prepared geotechnical sections of Safety Analysis Reports, made engineering calculations, and proposed construction specifications. I became Lead Geotechnical Engineer of the Shoreham project in March of 1976. As such I have directed stability and liquefaction analyses on soil sub-

jected to seismic induced stresses and have been responsible for coordination and verification of the in-situ soil densification program. In 1977 I also became Lead Geotechnical Engineer for the Jamesport project and have been responsible for preparation of geotechnical design criteria, construction specifications, and groundwater studies.

I am a licensed professional engineer in the State of Minnesota.

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AFFIDAVIT OF FOROOHAR BOORBOOR ON 17a(ii)

Foroohar (Jeff) Boorboor, being duly sworn, states as follows:

1. I am Lead Radiation Protection Engineer in the Licensing Division of the Nuclear Engineering Department of Long Island Lighting Company. A statement of my professional qualifications is attached.

2. The criteria that govern the exclusion area, low population zone, and population center distance are set out in 10 CFR §§ 100.3, 100.11. The exclusion area for the Shoreham site is the area enclosed by a circle with a 1000-foot radius centered on the reactor vessel. This area is owned and controlled by LILCO, which gives it the authority to exclude or remove personnel and property as required by 10 CFR § 100.3(a). FSAR § 2.1.2. The doses that would be received by a person standing at the exclusion area boundary for the two hours immediately following the maximum credible accident at Shoreham are well within the limits set out in 10 CFR

§ 100.00(a)(1). See FSAR 15.1.34.5.2, Table 15.1.34-3.

3. The Shoreham low population zone is that area outside the exclusion area but within a circle having a two-mile radius and centered on the reactor vessel. LILCO has studied this area in detail and concluded that there is a reasonable probability that appropriate protective measures can be taken on behalf of the residents in the event of a serious accident as required by 10 CFR § 100.3(b). See FSAR §§ 2.1.3.4, 13.3.1.1. The doses that would be received by an individual located on the outer circumference of the low population zone that could result from the maximum credible accident at Shoreham are well within the limits set out in 10 CFR § 100.11(a)(2). See FSAR 15.1.34.5.2, Table 15.1.34-3.

4. The population center distance is defined as the distance from the reactor to the nearest boundary of a densely populated center containing more than about 25,000 residents. 10 CFR § 100.3(c). The nearest and most likely area to have 25,000 residents by the year 2020 is the unincorporated area known as Yaphank. This area is 8.8 miles SSW of the site. That distance is more than 1-1/3 times the 2-mile radius of the Shoreham low population zone, as required by 10 CFR § 100.11(a)(3). See FSAR at 2.1-14.



Foroohar Boorboor

Subscribed and sworn to before me
this 2nd day of February, 1979.

Mary Jo Terrillon
Notary Public

My commission expires: _____

MARY JO TERRILLION
Notary Public, State of New York
No. 30-4603827
Qualified in Nassau County
Commission expires Mar. 30, 1980

QUALIFICATIONS OF FOROOHAR BOORBOOR

My name is Foroohar (Jeff) Boorboor. My business address is Long Island Lighting Company, 175 East Old Country Road, Hicksville, New York. I am the Company's Lead Radiation Protection Engineer and report to the Manager of the Licensing Division in the Nuclear Engineering Department.

I received a Bachelor of Science degree in nuclear engineering and science from Rensselaer Polytechnic Institute in 1970, and a Master of Science degree in nuclear engineering and science from Rensselaer in 1971. I have completed training courses in nuclear power plant design, and I have certificates of completion from the Co-op Program of Rensselaer, the Advance Reactor Division of Westinghouse Electric Corporation, the Massachusetts Office of Emergency Preparedness, as well as Harvard University's Radiation Protection and Emergency Planning Programs.

From 1971 to 1974, I was employed by Stone & Webster Engineering Corporation as Lead Nuclear Engineer in the radiation protection group. I was with General Atomic Corporation as a Senior Safety Analyst in the Safety and Reliability Branch from 1974 to 1975. Since 1975 I have been employed by the Long Island Lighting Company.

I am a licensed professional engineer and a member of the American Nuclear Society (including Standard Committee 13.1 on "Radioactive Source Terms, Radioactive Effluents, and Radiation

Monitors for Light Water Reactors"), the Health Physics Society, the Operating Reactor Health Physicists Group, and the EEI Health Physics Task Force.