

8/12/81

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))	

NRC STAFF'S ANSWERS TO "SOC'S FIRST SET OF
INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS * * * *"

Pursuant to the "Stipulation Relating to NRC Staff * * *" dated July 20, 1981, and the "* * * Stipulation Regarding SOC's Pending Discovery Requests * * *" dated August 6, 1981, the NRC Staff herewith responds to the following indicated portions of "SOC's First Set of Interrogatories and Requests for Production of Documents to the Nuclear Regulatory Commission Staff" dated July 2, 1981.

SOC Contention 1

1. No.
2. Of the regulations identified in interrogatory 1, only those that pertain to operating license applications are applicable.
3. No.
4. Not applicable.
5. Since the emergency plans are still under review, a response to this interrogatory cannot be made at the present time.
6. Not applicable.

7. Yes.

8. NUREG-0396, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants", December 1978.

9. Not applicable.

10. Not applicable.

11. Yes.

12. See answer to 8 above.

13. Not applicable.

14. Not applicable.

15. See answer to 8 above.

SOC Contention 2

1. a. No.

b. Not applicable.

2. Not applicable.

3. Not applicable.

4. The NRC does not support the conclusion stated in Interrogatory

4. Therefore, we cannot provide the requested items.

5. No.

6. Not applicable.

7. See response to Interrogatory 5 relating to SOC Contention 1 above.

8. Not applicable.

9. There are none.

10. There are none.

SOC Contention 3

1. No.

a. (1) No.

(2) We do not know at this time.

(3) June 1983. As stated in the Safety Evaluation Report for Shoreham, it is Staff's position that Shoreham should meet Regulatory Guide 1.97, Rev. 2. This means that either all the recommended instruments of the guide should be included in the design or that a technical justification should be provided for any instruments not included. With regard to schedule, this position means that if Shoreham is licensed for operation after June 1983 it should meet the provisions of the Guide prior to receiving the license. However, if Shoreham is licensed prior to June 1983, in the interim, it must meet NUREG-0737 and then meet Regulatory Guide 1.97, Rev. 2 by June 1983.

6. Yes.

a. Not applicable.

7. Yes.

a. Yes.

b. See SER for LaSalle which is available in the PDR or from the National Technical Information Service, Springfield, Va. 22181.

c. Yes.

8. No.

a. There is no basis for the Staff to require implementation of the proposed rule before it is finally adopted.

SOC Contention 8

1. Yes.

2. a. Yes. However, GDC 13 requires instrumentation to monitor variables and systems that can affect the integrity of the reactor core for anticipated operational occurrences and accident conditions but not to measure the integrity of the reactor fuel and the reactor core.

b. Not applicable.

c. (1) Reactor water level instruments are supplied. Reactor water level is measured by differential pressure devices. Condensing chambers connected to the steam space in the reactor vessel are used as the reference leg. Pressure taps at different levels in the water space of the reactor vessel are used as the variable leg sensing taps for narrow and wide range instruments. There are separate reactor vessel water level indications provided in the control room. The indications and recordings in the control room include wide range indications associated with the safety system reactor water level measurement, narrow range indicators and one recorder associated with the feedwater control system level measurement, fuel zone level indicator and recorder associated with the level measurement inside the core shroud, and one shutdown wide range indication which is available all the way to the top of the vessel. A level trip in any division will initiate the required safety function. All events that affect the integrity of the reactor core have one common factor: the reactor water level decreases and the ability to provide adequate core cooling is threatened. Radiation monitors and hydrogen monitors provide an indication of the extent of fuel damage due to an ICC event.

(2) Reactor vessel water level instrumentation will provide indication that the core is covered which will assure adequate cooling to maintain the integrity of the reactor fuel. Radiation monitors and hydrogen monitors will provide indication in direct relation to the number of fuel pins which have lost their cladding integrity.

(3) Refer to Answers 2.c.(1) and 2.c.(2).

(4) Refer to Answers 2.c.(1) and 2.c.(2).

3. Yes.

4. Yes.

a. The Applicant has adopted the CE Owners' Group Position that no additional instrumentation is needed to monitor inadequate core cooling (ICC) in a letter from J. Novarro to H. Denton dated May 29, 1981.

(1) It is in the public docket room.

(2) No.

However, the Applicant commits to implement the generic resolution of this incore thermocouple issue between the BWR Owners Group and the NRC in a letter from B.R. McCaffrey (LILCO) to H. Denton (NRC) dated July 16, 1981.

5. Yes.

a. A loss-of-coolant accident with multiple failures of ECCS equipment and/or operator errors could lead to a loss of integrity of the reactor core.

SOC Contention 9

1. No.

- a. Refer to Applicant's response to question 223.33 (Attachment 1).
- 2. Yes.
 - a. Not applicable.
- 5. Yes.
 - a. Refer to Attachment 1.
- 6. It is difficult to answer this question as phrased. Specifically, the phrase "important to safety" has not been defined. Additionally, we do not perceive how the question is pertinent to Contention 9.

SOC Contention 15 (Control Blade Life)

- 1. a. IE Bulletin 79-26 will apply to the Shoreham Plant when operation commences.
 - b. See response to 1.a.
 - c. See response to 1.a.
- 2. a. The control blades to be used at Shoreham are of a design similar to those experiencing the type of problem reported in IE Bulletin 79-26.
 - b. The technical and operational concerns expressed in IE Bulletin 79-26 are fully applicable to Shoreham. However, the action items listed in IE Bulletin 79-26 are, in part, intended to obtain information which will assist in developing a long-term solution to the control blade boron loss problem. We expect that by the time Shoreham has been operated for a time equivalent to that at which IE Bulletin 79-26 action would be triggered, sufficient information will have been obtained from plants currently in operation to permit the implementation of a long-range solution.

c. See response to 2.b.

3. Not applicable in view of answers to Questions 2.a and b.

4. a. NRC has evaluated various aspects of the coolant chemistry systems and procedures to be used at Shoreham for both normal, off-normal, and post-accident operation. See, for example, Section 5.4.5 of the Shoreham SER and Section II.B.3 of NUREG-0737, wherein it is indicated that a B concentration of 10 to 6500 ppm should be detectable during post-accident analyses.

b. A photospectrometric method is to be used in Shoreham during normal operation for measurement of boron concentration in the reactor coolant. The equipment reportedly will operate in the range of 1 to 5 ppm B. The 1 ppm limit for B "detection" cannot be directly related to "minimum boron leach-rate," however, because the leach-rate will depend on a number of factors including the size and configuration of the cladding breach, the rate of oxidation of B_4C to B_2O_3 , the rate of hydrogen and dissolution of B_2O_3 in the BWR coolant, the cleanup efficiency of the demineralizer and so on. Accordingly, we believe that B measurements may not provide reliable indication of cracked control blades. That, in part, provides the basis for the required actions listed in IE Bulletin 79-26.

c. See response to 4.b.

5. a. The rod worth tests typically performed at BWRs are intended to verify shut-down margin and would not be suitable for detection of boron loss from cracked control blade testing. Thus, because neither rod-worth tests nor reactor coolant Boron concentration measurements

would provide reliable indication of cracked control blades, IE Bulletin 79-26 requires the destructive examination of high exposure blades.

b. No.

c. Not applicable in view of answer to 5.b.

SOC Contention 17

1. a.-f. Yes, to the extent required by the cited regulation.

2. Not applicable.

3. No.

a. As stated in Section 1, "Scope", of IEEE 279-1968, ".... the nuclear power plant protection system encompasses all electric and mechanical devices and circuitry (from sensors to actuation device input terminals) involved in generating those signals associated with the protective function. These signals include those that actuate reactor trip and that, in the event of a serious reactor accident, actuate engineered safeguards such as containment isolation, core spray, safety injection, pressure reduction and air cleaning." Thus, "protection system" as referred to throughout IEEE 279-1968, including Section 4.16, does not refer to high-pressure ECCS, low pressure ECCS, or any other safety function, but, to the system, and signals generated by the system, that actuate equipment that performs safety functions. The Staff does not generally require the designs of engineered safety features (ESF) systems to be such that the operator cannot interrupt the safety function at any time subsequent to initiation. One reason is that the safety advantages of an ESF safety function that cannot be prevented by the operator from going to completion must be weighed against the potentially adverse effects on safety that could, under certain circumstances, result

from continued operation of the system. For example, it may be necessary to shut off a damaged ESF pump prior to completion of the safety function in order to prevent the loss of its physical integrity from aggravating the event.

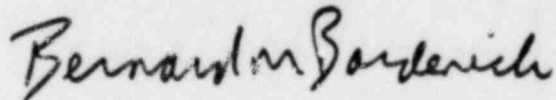
4. Yes.

- a. See Chapter 7 of the Shoreham SER (NUREG-0420).
- b. Not applicable.

5. No.

- a. Not applicable.

Respectfully submitted,

A handwritten signature in cursive script that reads "Bernard M. Bordenick".

Bernard M. Bordenick
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 12th day of August, 1981.

SNPS-1 FSAR

Request 223.33 (7.3.2.1):

The discussion of the design of the automatic bypass indication of a protective action at the system level does not fully satisfy Regulatory Guide 1.47 as augmented by Branch Technical Positions EICSB 21 of Appendix 7A of the Standard Review Plan. Particular areas of disagreement are such as the exclusion of supporting systems, component failures and administratively controlled devices from the system level bypass indication. Perform an audit of your design for the automatic bypass indication of a protection action at the system level against the positions of Regulatory Guide 1.47 as augmented by Branch Technical Position EICSB 21 of Appendix 7A of the Standard Review Plan. Modify the design as necessary to satisfy the above positions or justify non-compliance with them.

Response:

Support systems such as service water, reactor building closed loop cooling water, RBSVS chilled water, and diesel generator systems are included in the system bypass indication. Alternative approaches have been taken with respect to Regulatory Guide 1.47 in two areas.

The first area relates to support system inoperative indication actuating the inoperative indication for the supported safety system. In cases such as combined ventilation systems, it is often difficult to associate a division of a support system with a division of a safety system. When this occurs, only the support system indicator is actuated.

The second area relates to the inoperative indication itself. Two levels of indication are provided. Level 1 reflects loss of the complete safety function of a single division through the use of "inoperative" indicators. Level 2 reflects the partial loss of a division function through the use of "degraded" indicators. The two tier indication is used because it is important not to indicate a system inoperative when in fact it is not. This is just as important as indicating to the operator that a particular system has been rendered inoperative. The network arrangement of the safety systems would make the "inoperative" indicators misleading if the system "degraded" indicator were not provided.

The detailed discussion of compliance with Regulatory Guide 1.47 is incorporated in Section 7.3.2.1.2.15 of the FSAR.

The intent of Regulatory Guide 1.47 is to provide indication at a system level if a protective action of a safety system is deliberately bypassed or rendered inoperative. Regulatory Guide 1.47 and branch technical position EIC SB 21 do not address automatic indication of component failures. Exclusion of administratively controlled devices only applies to devices made inaccessible by administratively controlled key access.

UNITED STATES OF AMERICA
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In the Matter of

LONG ISLAND LIGHTING COMPANY

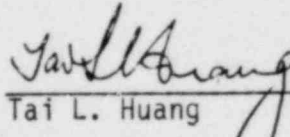
(Shoreham Nuclear Power Station,
Unit 1)

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}
Docket No. 50-322

AFFIDAVIT OF TAI L. HUANG

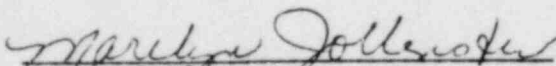
Now comes Tai L. Huang, and being duly sworn, deposes and says as follows:

1. I am employed by the Nuclear Regulatory Commission as a Nuclear Reactor Engineer in the Core Performance Branch, Office of Nuclear Reactor Regulation.
2. I am duly authorized to answer the following Interrogatories submitted to the NRC Staff by the Shoreham Opponents Coalition on July 2, 1981: SOC Contention 8, Interrogatories 1-5.
3. I hereby certify that the answers given are true and correct to the best of my knowledge and belief.



Tai L. Huang

Subscribed and sworn to before me
this 12th day of August, 1981.



Notary Public

My Commission expires: July 1, 1982.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

LONG ISLAND LIGHTING COMPANY

(Shoreham Nuclear Power Station,
Unit 1)

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Docket No. 50-322

TESTIMONY OF JERRY L. MAUCK

Now comes Jerry L. Mauck, and being duly sworn, deposes and says
as follows:

1. I am employed by the Nuclear Regulatory Commission as a Reactor Engineer in the Instrumentation and Control Systems Branch, Office of Nuclear Reactor Regulation.

2. I am duly authorized to answer the following Interrogatories submitted to the NRC Staff by the Shoreham Opponents Coalition on July 2, 1981: SOC Contentions 3, and 17, Interrogatories 1, 6, 7 and 8; and 1-5, respectively.

3. I hereby certify that the answers given are true and correct to the best of my knowledge and belief.

Jerry L. Mauck

Subscribed and sworn to before me
this day of August, 1981.

Notary Public

My Commission expires: _____.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
LONG ISLAND LIGHTING COMPANY)
(Shoreham Nuclear Power Station,)
Unit 1))

Docket No. 50-322

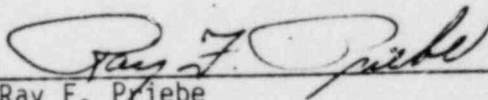
AFFIDAVIT OF RAY F. PRIEBE

Now comes Ray F. Priebe, and being duly sworn, deposes and says
as follows:

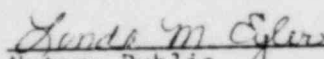
1. I am employed by the Nuclear Regulatory Commission as a
Reactor Safety Engineer in the Emergency Preparedness Licensing Branch,
Division of Emergency Preparedness, Office of Inspection and Enforcement.

2. I am duly authorized to answer the following Interrogatories
submitted to the NRC Staff by the Shoreham Opponents Coalition on
July 2, 1981: SOC Contentions 1 and 2, Interrogatories 1-15 and 1-10,
respectively.

3. I hereby certify that the answers given are true and correct to
the best of my knowledge and belief.


Ray F. Priebe

Subscribed and sworn to before me
this 12th day of August, 1981.


Notary Public

My Commission expires: July 1, 1982.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)

LONG ISLAND LIGHTING COMPANY)

(Shoreham Nuclear Power Station,
Unit 1))

Docket No. 50-322

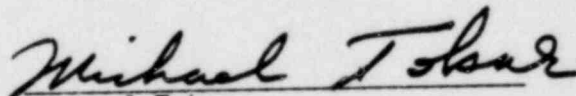
AFFIDAVIT OF MICHAEL TOKAR

Now comes Michael Tokar, and being duly sworn, deposes and says as follows:

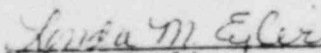
1. I am employed by the Nuclear Regulatory Commission as a Senior Reactor Fuels Engineer (Materials) in the Reactor Fuels Section, Core Performance Branch, Office of Nuclear Reactor Regulation.

2. I am duly authorized to answer the following Interrogatories submitted to the NRC Staff by the Shoreham Opponents Coalition on July 2, 1981: SOC Contention 15, Interrogatories 1-5.

3. I hereby certify that the answers given are true and correct to the best of my knowledge and belief.


Michael Tokar

Subscribed and sworn to before me
this 2nd day of August, 1981.


Notary Public

My Commission expires: July 1, 1982.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

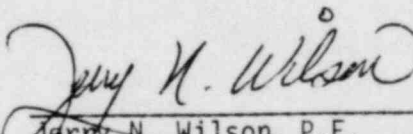
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

AFFIDAVIT OF JERRY N. WILSON

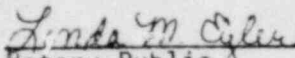
Now comes Jerry N. Wilson, and being duly sworn, deposes and says
as follows:

1. I am employed by the Nuclear Regulatory Commission as a
Licensing Project Manager in the Licensing Branch No. 2, Office of
Nuclear Reactor Regulation .
2. I am duly authorized to answer the following Interrogatories
submitted to the NRC Staff by the Shoreham Opponents Coalition on
July 1, 1981: SOC Contention 9, Interrogatories 1, 2, 5 and 6.
3. I hereby certify that the answers given are true and correct to
the best of my knowledge and belief.



Jerry N. Wilson, P.E.

Subscribed and sworn to before me
this 12th day of August, 1981.



Notary Public

My Commission expires: July 1, 1982.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)

LONG ISLAND LIGHTING COMPANY)

(Shoreham Nuclear Power Station,
Unit 1))

Docket No. 50-322

CERTIFICATE OF SERVICE

I hereby certify that copies of NRC STAFF'S ANSWERS TO "SOC'S FIRST SET OF INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS * * * *" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class or, as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal system, this 12th day of August, 1981.

Louis J. Carter
Administrative Judge
23 Wiltshire Road
Philadelphia, PA 19151

Ralph Shapiro, Esq.
Canner and Shapiro
No. 9 East 40th Street
New York, NY 10016

Dr. Oscar H. Paris*
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Howard L. Blau, Esq.
217 Newbridge Road
Hicksville, NY 11801

Mr. Frederick J. Shon,*
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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

Edward M. Barrett, Esq.
General Counsel
Long Island Lighting Company
250 Old County Road
Mineola, NY 11501

Jeffrey Cohen, Esq.
Deputy Commissioner and Counsel
New York State Energy Office
Agency Building 2
Empire State Plaza
Albany, NY 12223

Jeffrey L. Futter, Esq.
Long Island Lighting Company
250 Old County Road
Mineola, NY 11501

Irving Like, Esq.
Reilly, Like and Schneider
200 West Main Street
Babylon, NY 11702

Stephen B. Latham, Esq.
Twomey, Latham & Schmitt
Attorneys at Law
P.O. Box 398
33 West Second Street
Riverhead, NY 11901

Energy Research Group, Inc.
400-1 Totten Pond Road
Waltham, MA 02154

Joel Blau, Esq.
New York Public Service Commission
The Governor Nelson A. Rockefeller
Building
Empire State Plaza
Albany, NY 12223

David H. Gilmartin, Esq.
Suffolk County Attorney General
County Executive/Legislative Bldg.
Veteran's Memorial Highway
Hauppauge, NY 11788

Atomic Safety and Licensing
Board Panel*
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Docketing and Service Section*
Office of the Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555

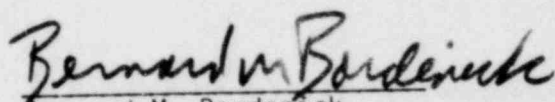
Mr. J. P. Novarro, Project Manager
Shoreham Nuclear Power Station
P.O. Box 618
North Country Road
Wading River, NY 11792

MHB Technical Associates
1723 Hamilton Avenue
Suite K
San Jose, CA 95125

Hon. Peter Cohalan
Suffolk County Executive
County Executive/Legislative Bldg.
Veteran's Memorial Highway
Hauppauge, NY 11788

Ezra I. Bialik, Esq.
Assistant Attorney General
Environmental Protection Bureau
New York State Department of Law
2 World Trade Center
New York, NY 10047

Atomic Safety and Licensing
Appeal Board*
U.S. Nuclear Regulatory Commission
Washington, DC 20555


Bernard M. Bordenick
Counsel for NRC Staff