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August 2, 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

Before the Commission

'84 AGD -2 P1

In the Matter of)	
)	
LONG ISLAND LIGHTING COMPANY)	Docket No. 50-322-OL-4
)	(Low Power)
(Shoreham Nuclear Power)	
Station, Unit 1))	

OFFICE OF SECRETARY
NRC

LILCO'S MOTION FOR DIRECTED
CERTIFICATION OF THE LICENSING BOARD'S
JULY 24, 1984 ORDER GRANTING IN PART AND
DENYING IN PART LILCO'S MOTIONS FOR SUMMARY
DISPOSITION ON PHASE I AND PHASE II LOW POWER TESTING

On July 23, 1984, the Atomic Safety and Licensing Board granted in part and denied in part LILCO's Motion for Summary Disposition on Phase I Low-Power Testing (Attachment A) and Motion for Summary Disposition on Phase II Low-Power Testing (Attachment B) (the Summary Disposition Motions). In those motions, LILCO contended that there was no genuine issue as to any material fact necessary to establish that no AC power would be needed to accomplish the functions specified in GDC 17 during Phases I and II of low power testing. Therefore, LILCO asserted no exemption for these two phases of low power testing was necessary inasmuch as LILCO has onsite TDI diesel generators and the capacity and capability of those TDI diesel

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generators is immaterial.^{1/}

In its July 24, 1984 Order Granting in Part and Denying in Part LILCO's Motion for Summary Disposition on Phases I and II of Low Power Testing (Attachment C), the Licensing Board substantially agreed with LILCO as to all facts material to the health and safety issues pertinent to Phases I and II. Among the material facts which the Board held to be admitted are the following:

[Phase I]

(7) During Phase I fuel loading and precriticality testing, there are no fission products in the core and no decay heat exists. Therefore, core cooling is not required. In addition, with no fission product inventory, there are no fission product releases possible. Rao, et al., Tr. 283-84; Sherwood Affidavit at ¶ 11; Hodges Affidavit at ¶ 4.

(8) Even a loss of coolant accident would have no consequences during Phase I since no core cooling is required. . . .

(9) No core cooling is required during Phase I and, therefore, no AC power is necessary during Phase I to cool the core.

1/ LILCO included Phases I and II of low power testing in its Application for Exemption. That inclusion does not, however, indicate LILCO's belief that an exemption is necessary during these phases. In short, LILCO has exercised an abundance of caution in the event that the Commission disagrees with LILCO and believes that such an exemption is necessary.

Rao, et al., Tr. 285; Sherwood Affidavit at ¶ 13; Hodges Affidavit at ¶ 3.

[Phase II]

(8) Because of the extremely low-power levels reached during Phase II testing, fission product inventory in the core will be only a small fraction of that assumed for the Chapter 15 analysis. The FSAR assumes operation at 100% power for 1,000 days in calculating fission product inventory; inventory during Phase II low-power testing will be less than 1/100,000 (0.00001) of the fission product inventory assumed in the FSAR. Rao, et al., Tr. 295; Sherwood Affidavit at ¶ 17.

(9) If a LOCA did occur during the cold criticality testing phase (Phase II), there would be time on the order of months available to restore make-up water for core cooling. . . . With these low decay heat levels, the fuel cladding temperature would not exceed the limits of 10 CFR § 50.46 even after months without restoring coolant and without a source of AC power. Thus, there is no need to rely on the TDI diesel generators, or any source of AC power. Rao, et al., Tr. 292-94; Sherwood Affidavit at ¶ 19; Hodges Affidavit at ¶ 8.

(10) During Phase II cold criticality testing conditions, there is no reliance on the diesel generators for mitigation of the loss of AC power event or the feedwater system piping break event. . . .

(12) None of the events analyzed in Chapter 15 could result in a release of radioactivity during cold criticality testing that would endanger the public health and safety. Rao, et al., Tr. 296; Sherwood Affidavit at ¶ 17.

(13) Even if AC power were not available for extended periods of time, fuel design limits and design conditions of the reactor coolant pressure boundary would not be approached or exceeded as a result of anticipated operational occurrences, and the core would be adequately cooled in the unlikely event of a postulated accident. Rao, et al., Tr. 295-96; Sherwood Affidavit at ¶ 22.

Board Order at 11-13.

The Licensing Board, nevertheless, denied the Summary Disposition Motions based on its interpretation of the Commission's May 16, 1984 Order (CLI-84-8) that:

GDC 17 means the same for low-power operations as for full-power operation, and it must be completely satisfied before any license (including low power) may be issued. Accordingly, the only recourse available to LILCO in this proceeding is to seek an exemption under the provisions of 10 CFR § 50.12(a), which is the subject of the instant evidentiary hearing.

Board Order at 9. Thus, the Licensing Board concluded that it had no power or jurisdiction to grant LILCO's Summary Disposition Motions "even though such activities do not require a qualified source of onsite AC power in order to perform the safety functions specified by GDC 17." Board Order at 9-10.

LILCO now moves the Commission immediately to order direct certification of the question of law, as described above, upon which the Licensing Board's denial of LILCO's Summary Disposition Motions is predicated and to clarify the intent of its May 16 Order.^{2/} Simply, the Commission's May 16 Order does not clearly state whether the Commission intended its ruling to apply to fuel loading and precriticality testing and, by extension, to cold criticality testing where no AC power is needed.

This ambiguity arises from a number of factors. First, the Commission in its Order pointedly did not address a fuel load and precriticality license. Second, LILCO filed with the Commission Summary Disposition Motions for Phases I and II similar to those filed with the Licensing Board. The

^{2/} Concurrently with this motion, LILCO has filed a Motion for Referral of Order Granting in Part and Denying in Part LILCO's Motions for Summary Disposition on Phase I and Phase II Low Power Testing with the Licensing Board. Ordinarily, LILCO would not endorse this dual approach. Nevertheless, in view of the Commission's response to Suffolk County's employment of this procedure with respect to potential security issues (Memorandum and Order, July 18, 1984), the Commission's apparent belief that its immediate intervention and guidance was necessary and appropriate to assure expeditious handling of this proceeding, and the Licensing Board's immediate involvement in hearings expected to last an additional several days, LILCO believes such concurrent filing is warranted in this limited instance.

Commission did not address those Summary Disposition Motions in any fashion. Had the Commission intended to apply its requirement of an exemption to Phases I and II, it could have, and likely would have, explicitly denied the Summary Disposition Motions on the grounds embodied in the Licensing Board's July 24, 1984 Order.

Third, and perhaps most importantly, the argument before the Commission on May 7, 1984, which together with preceding filings precipitated the Commission's May 16 Order, primarily focused upon the need to harmonize GDC 17 with 10 CFR § 50.57(c).^{3/} The gist of much of that discussion was that a lower level of AC power would be needed much less quickly during low power testing up to 5% power than at full power operation. LILCO further argued there that by permitting interim low power licensing, the Commission intended to take that lesser need for power into account. The Commission, in turn, was concerned about the precedential effect of allowing the Staff, or a Licensing Board, to exercise unbridled discretion in applying such a standard without the invocation of a formal exemption process.

^{3/} Commission Meeting; Oral Argument on Shoreham, May 7, 1984, at Tr. 9, 13-16, 40-44, 49, 61-65, 71-75, 83-84, 87-89, 101-107, 119-129.

In contrast, during the May 7 argument, the Commission did not focus upon the lack of any need for AC power during Phases I and II. Obviously, if no AC power is needed, there is no discretionary application of the General Design Criterion involved. Indeed, GDC 17 is actually met because LILCO has TDI diesels

provided to permit functioning of structures, systems, and components important to safety . . . [and providing] sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

10 CFR Part 50, Appendix A, General Design Criterion 17 (emphasis added). For Phases I and II, that necessary AC power is zero. Therefore, the degree of reliability of LILCO's onsite diesel generators is immaterial. There is no need for any diesel generator reliability to meet the "sufficient capacity and capability" standard.^{4/}

4/ Similarly, since there is no need for AC power and no need for an exemption, there is no need to await any subsequent proceedings concerning potential security issues. By

(footnote continued)

The issue of whether an exemption is needed for Phases I and II in these circumstances should be resolved quickly. Precedent establishes certain criteria for a decision by a licensing board to refer or certify an issue to the Commission. The same standards ought to apply to the Commission's consideration of a request for directed certification. They include:

Whether review should be undertaken on "certification" or by referral before the end of the case turns on whether a failure to address the issue would seriously harm the public interest, result in unusual delay or expense, or affect the basic structure of the proceeding in some pervasive or unusual manner.

Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), LBP-83-21, 17 NRC 593, 598 (1983); Duke Power Company (Catawba Nuclear Station, Units 1 and 2), ALAB-587, 16 NRC 460, 464 (1982); Consumers Power Company (Midland Plant, Units 1 and 2), ALAB-634, 13 NRC 96, 99 (1981). Although only one of these

(footnote continued)

definition, such security contentions could not "arise from the changes in configuration of the emergency electrical power system" or be "applicable to low power operation." Commission Memorandum and Order, June 18, 1984 at 3.

criteria need be satisfied to support directed certification, all three are satisfied here.

First, the public interest may be seriously harmed by permitting the ambiguity in the Commission's May 16 Order to remain. The NRC Staff has already indicated its discomfort with this ambiguity, as to this issue and in other respects, and a special Commission meeting has been held on the subject.^{5/} The public interest would be furthered by affording the Commission an opportunity to formally eliminate the ambiguity in its Order.

Second, failure to clear up this ambiguity will result in undue delay and expense. At a minimum, immediate referral may afford LILCO the opportunity to gain a license for Phases I and II without having to await conclusion of the present exemption proceeding and any subsequent proceeding concerning security issues though LILCO believes there are no legitimate security issues. As a result, the parties and the Licensing Board may be spared the expense and delay of

^{5/} The Commission ordered that the transcript of its July 25, 1984 proceeding not be cited for any purpose. Therefore, the substance of that meeting will not be discussed here. It is sufficient to note, however, that a meeting was held to address concerns which exist.

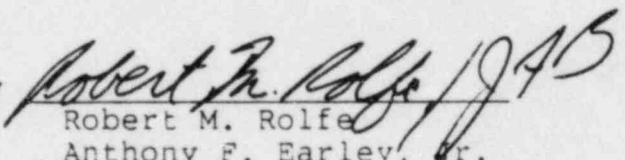
litigating further over Phases I and II when LILCO's request for a license for those phases may properly be summarily granted.

Third, resolution of this ambiguity will affect the basic structure of the low power license proceeding in a pervasive manner. Issues pertaining to Phases I and II will be removed from the low power license proceeding and a license for those phases may be issued without additional licensing proceedings.

Accordingly, the question of law presented by the Licensing Board's July 24 Order, which is the sole impediment to the Board's granting of summary disposition to LILCO for Phases I and II of its proposed low power testing, should be directly certified to and promptly considered by the Commission.

Respectfully submitted,

LONG ISLAND LIGHTING COMPANY

By 
Robert M. Rolfe
Anthony F. Earley, Jr.
Jessine A. Monaghan

Hunton & Williams
Post Office Box 1535
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DATED: August 2, 1984

LILCO, May 22, 1984

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-OL-4
)	(Low Power)
(Shoreham Nuclear Power Station,)	
Unit 1))	

LILCO'S MOTION FOR SUMMARY
DISPOSITION ON PHASE I LOW POWER TESTING

On March 20, 1984, LILCO filed its Supplemental Motion for Low Power Operating License which requested the approval of a license to conduct four phases of low power testing. LILCO renewed its March 20 motion and, pursuant to 10 CFR § 2.749, sought summary disposition with respect to Phase I of the low power testing program in a motion filed with the Commission on May 4, 1984. Subsequently, the Commission's May 16 Order vacated the Licensing Board's April 6 Memorandum and Order to the extent it was inconsistent with the Commission's view that 10 CFR § 50.57(c) did not make GDC 17 inapplicable to low power operation. The Commission did not rule on LILCO's summary disposition motions. LILCO, in a continuing effort to have the merits of its case engaged, renews its motion for summary disposition on Phase I.

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I. Basis for Summary Disposition

Phase I fuel load and precriticality testing involve both fuel loading and core verification prior to the reactor's going critical. See attached Statement of Material Facts, Material Facts 1, 5. Initial core loading involves the placement of fuel bundles in specified locations within the reactor vessel. Material Fact 2. The following testing is associated with initial core loading:

- (a) water chemistry surveillance testing
- (b) control rod drive stroke time and friction tests
- (c) installation, calibration, and utilization of special startup neutron instrumentation
- (d) core verification instrument operability check

Material Fact 3. Following placement of the fuel in the vessel, the following testing must be conducted:

- (a) local power range monitor (LPRM) sensitivity data
- (b) zero power radiation survey for background readings
- (c) recirculation system instrument calibration checks
- (d) control rod drive scram time testing
- (e) cold main steam isolation valve (MSIV) timing

Material Fact 4.

For these precriticality activities, reliable diesel generators are not necessary to satisfy the Commission's

regulations. The legal requirement for diesel generators derives from GDC 17, which states in pertinent part:

An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

10 C.F.R. Part 50, Appendix A, Criterion 17 (emphasis added). In other words, the onsite AC power source must be of sufficient capacity and capability to assure the performance of the specified safety functions.

During Phase I fuel loading and precriticality testing, there are no fission products in the core and no decay heat. Therefore, core cooling is not required and, with no fission product inventory, fission product releases are not possible. Material Fact 7. In fact, during Phase I activities, most of the anticipated operational occurrences and postulated accidents covered in Chapter 15 of the Final Safety Analysis Report (FSAR) simply could not occur. Even those Chapter 15 events that are possible would have no impact on public health and safety, if they were in fact to occur. Material Facts 6-8. Because no core cooling is required during

Phase I, no AC power, either onsite or offsite, is needed. Material Fact 9. Thus the reliability of LILCO's onsite diesel generators is not material.

The license LILCO seeks with respect to Phase I testing (fuel load and precriticality testing) is identical to the low power approval recently authorized by the Commission for the Diablo Canyon plant. As the Commission noted in that decision:

The risk to public health and safety from fuel loading and pre-criticality testing is extremely low since no self-sustaining nuclear chain reaction will take place under the terms of the license and therefore no radioactive fission products will be produced.

Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-83-27, 18 NRC 1146, 1149 (1983). Indeed, fuel loading and precriticality testing present no significant safety issue. Id.

The rationale for the Commission's grant of a license to Diablo Canyon applies with even greater force with respect to Shoreham. At the time the Commission granted Diablo Canyon a low power testing license, quality assurance litigation concerning Diablo Canyon was still ongoing. In contrast, Shoreham has already been the subject of a lengthy, favorable Partial Initial Decision on all safety issues except those concerning those its existing diesel generators. See Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), LBP-83-57, 18 NRC 445 (1983)

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(Opinion) and unpublished Board Findings of Fact and Appendices. Since there is no need for diesel generators or any AC power during Phase I, the assurance of no risk to public health and safety from Phase I activities is even greater at Shoreham than at Diablo Canyon because all quality assurance issues at Shoreham have been favorably resolved.

II. Conclusion

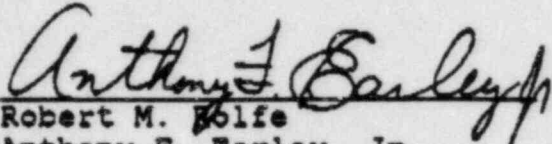
Consistent with the Commission's May 16 Order, GDC 17 requires an onsite power source during low power testing with sufficient capacity and capability to perform certain safety functions specified in the GDC. During fuel loading and precriticality testing conducted during Phase I low power testing, no AC power is required to perform these safety functions. Thus, even assuming that LILCO's onsite diesel generators do not operate, the requirements of GDC 17 are met. For the above stated reasons, LILCO's Motion for Summary Disposition on Phase I Low Power Testing should be granted.^{1/}

^{1/} If the Licensing Board believes the Commission's May 16 Order requires an exemption from the regulations for all four phases of the low power testing, then the Board should treat this motion as a motion for summary disposition of all health and safety issues with respect to Phase I.

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Respectfully submitted,

LONG ISLAND LIGHTING COMPANY


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Anthony F. Earley, Jr.
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DATED: May 22, 1984

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STATEMENT OF MATERIAL FACTS
AS TO WHICH THERE IS NO GENUINE
ISSUE TO BE HEARD ON PHASE I LOW POWER TESTING

The following is the statement of material facts as to which LILCO contends there is no genuine issue to be heard concerning Phase I low power testing:^{2/}

1. Phase I Fuel Loading and Precriticality Testing involves placing fuel in the reactor vessel and conducting tests of reactor systems and support systems. Gunther, Tr. 201-02; Notaro Affidavit at ¶ 6.

2. Initial core loading involves the placement of 560 fuel bundles in specified locations within the reactor vessel. Id.

3. The following testing is associated with initial core loading:

- (a) water chemistry surveillance testing
- (b) control rod drive stroke time and friction tests
- (c) installation, calibration, and utilization of special startup neutron instrumentation
- (d) core verification instrument operability check

^{2/} These facts appear in the record in the affidavits filed with LILCO's Supplemental Motion for Low Power License dated March 20 and in the testimony of the seven witnesses who testified on April 24 and 25 before the Licensing Board. Since these documents are readily available, copies have not been attached. Facts also appear in an affidavit of Wayne W. Hodges, dated April 4, 1984, which is attached.

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Gunther, Tr. 202; Notaro Affidavit at ¶ 6.

4. Following placement of fuel in the vessel, tests are performed to verify the operability of systems. This precriticality testing includes the following:

- (a) local power range monitor (LPRM) sensitivity data
- (b) zero power radiation survey for background readings
- (c) recirculation system instrument to calibration check
- (d) control rod drive scram time testing
- (e) cold main steam isolation valves (MSIV) timing

Gunther, Tr. 202; Notaro Affidavit at ¶ 7.

5. During all of the activities in Phase I, the reactor will remain at essentially ambient temperature and atmospheric pressure. The reactor will not be taken critical. Any increase in temperature beyond ambient conditions will be due only to external heat sources such as recirculation pump heat. There will be no heat generation in the core. Rao, et al., Tr. 279; Sherwood Affidavit at ¶ 7; Hodges Affidavit at ¶ 3.

6. Of the 38 accident or transient events addressed in FSAR Chapter 15, 18 of the events could not occur during Phase I because of the operating conditions of the plant. An additional 6 events could physically occur, but given the plant conditions, would not cause the phenomena of interest in the Chapter 15 safety analysis. The remaining 14 events could possibly occur, although

occurrence is highly unlikely given the plant conditions. The potential consequences of these 14 events would be trivial. Rao, et al., Tr. 279-84; Sherwood Affidavit at ¶¶ 8-11; Hodges Affidavit at ¶ 4.

7. During Phase I fuel loading and precriticality testing, there are no fission products in the core and no decay heat exists. Therefore, core cooling is not required. In addition, with no fission product inventory, there are no fission product releases possible. Rao, et al., Tr. 283-84; Sherwood Affidavit at ¶ 11; Hodges Affidavit at ¶ 4.

8. Even a loss of coolant accident would have no consequences during Phase I since no core cooling is required. No fission products exist and therefore no decay heat is available to heat up the core. The fuel simply would not be challenged even by a complete drain down of the reactor vessel for an unlimited period of time. Rao, et al., Tr. 284; Sherwood Affidavit at ¶ 9; Hodges Affidavit at ¶ 4.

9. No core cooling is required during Phase I and, therefore, no AC power is necessary during Phase I to cool the core. Rao, et al., Tr. 285; Sherwood Affidavit at ¶ 13; Hodges Affidavit at ¶ 3.

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 MARVIN W. HODGES
CONCERNING THE SUPPLEMENTAL MOTION FOR
LOW POWER OPERATION, PHASE I AND II, AT SHOREHAM

I, Marvin W. (Wayne) Hodges, being duly sworn, state as follows:

1. I am a Section Leader in the Reactor Systems Branch of the Office of Nuclear Reactor Regulation. A copy of my professional qualifications is attached.

2. Long Island Lighting Company (LILCO) filed a Supplemental Motion for Low Power Operating License dated March 20, 1984. In that motion, LILCO proposed a phased program for low power operation at Shoreham. The four phases proposed are:
 - a) Phase I: fuel load and precriticality testing,
 - b) Phase II: cold criticality testing,
 - c) Phase III: heatup and low power testing to rated pressure/temperature conditions (approximately 1% rated power); and
 - d) Phase IV: low power testing (1-5% rated power)

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The purpose of this affidavit is to address the impact on the health and safety of the public of operation in Phases I and II.

3. In Phase I, fuel loading and precriticality testing, the reactor will not be taken critical. There will be no heat generation in the core. There will be no fission products. Because there will have been no power generation and, consequently, no decay heat, there will be no need for cooling systems to remove decay heat.
4. In its supplemental motion, LILCO examined the 38 accident and transient events addressed in Chapter 15 of the FSAR. I have reviewed the 38 transients and accidents listed and I agree with LILCO that many of the events could not occur because of the operating conditions of the plant (e.g., a turbine trip or a load rejection transient cannot occur when the turbine is not in operation and there is no load on the generator). Of the events that could occur (e.g., loss of AC power), there are no safety concerns because of the absence of power generation.
5. Phase II, cold criticality testing, will involve testing in the power range of .0001% to .001% of rated power at essentially ambient temperature and atmospheric pressure. Because of the low power level and the limited duration of testing, fission product inventory and decay heat will be very low.

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6. As for Phase I, many of the Phase II transients and accident analyzed in Chapter 15 of the FSAR cannot occur. For those transients and accident which can occur, other than a loss-of-coolant accident, core cooling can be achieved, even without AC power, using the existing core water inventory and passive heat loss to the environment. Therefore, there would be no threat to the health and safety of the public.
7. Because of the low pressure conditions, it is not reasonable to postulate a loss-of-coolant accident during Phases I and II operation. The NRC normally postulates breaks only in high energy lines; for Phases I and II, there are no high energy lines. However, even if a loss-of-coolant accident should occur during Phase II operation, there is plenty of time available for restoring offsite power should onsite power not be available.
8. If a loss-of-coolant accident should occur during Phase II testing, LILCO states that there would be time on the order of months available to restore make-up water for core cooling. At the decay heat levels which would exist under these conditions, heat transfer to the environment would remove a significant fraction of the decay heat. However, even if no heat transfer from the fuel rods is assumed and equilibrium fission products are assumed (i.e.,

inifinite operation at .001% power), then more than 9 days are available to restore cooling prior to exceeding a temperature of 2200°F. Therefore, even assuming the unavailability of onsite power sources, there is a high probability of restoring AC power and cooling the core.

Marvin W. Hodges

Marvin W. (Wayne) Hodges

Subscribed and sworn to before me
this 3rd day of April, 1984.

Clair C. Shaver

Notary Public

My Commission Expires: July 1, 1986

Marvin W. (Wayne) Hodges

Professional Qualifications

Reactor Systems Branch

Division of Systems Integration

U. S. Nuclear Regulatory Commission

I am employed as a Section Leader in Section B of the Reactor Systems Branch, DSI.

I graduated from Auburn University with a Mechanical Engineering Degree in 1965. I received a Master of Science degree in Mechanical Engineering from Auburn University in 1967. I am a registered Professional Engineer in the state of Maryland (#13446).

In my present work assignment at the NRC, I supervise the work of 6 graduate engineers; my section is responsible for the review of primary and safety systems for BWRs. I have served as principal reviewer in the area of boiling water reactor systems. I have also participated in the review of analytical models use in the licensing evaluations of boiling water reactors and I have the technical review responsibility for many of the modifications and analyses being implemented on boiling water reactors post the Three Mile Island, Unit-2 accident.

As a member of the Bulletin and Orders Task Force which was formed after the TMI-2 accident, I was responsible for the review of the capability of BWR systems to cope with loss of feedwater transient and small break loss-of-coolant accidents.

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I have also served at the NRC as a reviewer in the Analysis Branch of the NRC in the area of thermal-hydraulic performance of the reactor core. I served as a consultant to the RES representative to the program management group for the BWR Blowdown/Emergency Core Cooling Program.

Prior to joining the NRC staff in March, 1974, I was employed by E. I. DuPont at the Savannah River Laboratory as a research engineer. At SRL, I conducted hydraulic and heat transfer testing to support operation of the reactors at the Savannah River Plant. I also performed safety limit calculations and participated in the development of analytical models for use in transient analyses at Savannah River. My tenure at SRL was from June 1967 to March 1974.

From September 1965 to June 1967, while in graduate school, I taught courses in thermodynamics, statics, mechanical engineering measurements, computer programming and assisted in a course in the history of engineering. During the summer of 1966, I worked at the Savannah River Laboratory doing hydraulic testing.

ATTACHMENT B

LILCO, May 22, 1984

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-OL-4
)	(Low Power)
(Shoreham Nuclear Power Station,)	
Unit 1))	

MOTION FOR SUMMARY
DISPOSITION ON PHASE II LOW POWER TESTING

On March 20, 1984, LILCO filed its Supplemental Motion for Low Power Operating License which requested the approval of a license to conduct four phases of low power testing. LILCO renewed its March 20 motion and, pursuant to 10 CFR § 2.749, sought summary disposition with respect to Phase II of the low power testing program in a motion filed with the Commission on May 4, 1984. Subsequently, the Commission's May 16 Order vacated the Licensing Board's April 6 Memorandum and Order to the extent it was inconsistent with the Commission's view that 10 CFR § 50.57(c) did not make GDC 17 inapplicable to low power operation. The Commission did not rule on LILCO's summary disposition motions. LILCO, in a continuing effort to have the merits of its case engaged, renews its motion for summary disposition on Phase II.

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I. Basis for Summary Disposition

Phase II of low power testing includes cold criticality testing of the plant at essentially ambient temperature and atmospheric pressure. See attached Statement of Material Facts, Material Fact 1. The testing involves a specified control rod withdrawal sequence that results in achieving reactor criticality at extremely low power levels, in the range of 0.0001% to 0.001% of rated thermal power. Material Fact 2. The primary purpose of Phase II testing is to verify the shutdown margin calculations. Material Fact 4. In order to accomplish this, plant personnel must first install vessel internals and initiate all refuel floor constraints. Expansion and vibration instrumentation is installed and cold baseline data are obtained for later comparison to data obtained during heatup. Material Fact 3.

To obtain the shutdown margin test data, control rods are withdrawn in the proper sequence until criticality is achieved. The necessary test data can be taken within 5 minutes of reaching criticality. The control rods are then reinserted and the reactor is shut down. Material Fact 4.

The extremely low risk of conducting Phase II activities, even without onsite AC power sources available, is demonstrated by a review of the accident and transient events contained in Chapter 15 of the Shoreham FSAR. Under plant conditions during Phase II, 23 of the 38 Chapter 15 events are possible. Material Fact 5-6.

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Of the 23 possible events, the standard safety analysis does not require the assumption of loss or unavailability of offsite AC power for 20 of them. Therefore, the consequences of these events are unaffected by the unavailability of the TDI diesels. Material Fact 6.

For the three events that do assume loss or unavailability of offsite power (pipe breaks inside containment (loss of coolant accident or LOCA), feedwater system piping break and the loss of AC power event), there are no consequences even assuming no onsite AC power source. Material Facts 7-10, 12.

As in Phase I, the lack of any accident consequences is attributable to the level of fission products in the core. The extremely low power levels achieved during Phase II, and the extremely short amount of time at those power levels result in essentially no fission products in the core and very little decay heat. Material Facts 4, 8-9. Accordingly, in the event a LOCA occurs, 1/ only a small amount of decay heat is present to heat up the core. Essentially unlimited time is available before core cooling would have to be restored. Thus, there is no need for any AC power, including the TDI diesels. Material Fact 9.

1/ Pipe breaks of the sort postulated in the LOCA or feedwater system break events are highly unlikely under Phase II conditions. Material Fact 11.

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With respect to the feedwater system break event and the loss of offsite power event, the reactor coolant inventory is not lost. This provides additional cooling capability and further ensures that no AC power is needed for core cooling. Material Fact 10.

As in Phase I, reliable diesel generators are not necessary to satisfy the Commission's regulations. The legal requirement for diesel generators derives from GDC 17, which states in pertinent part:

An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

10 C.F.R. Part 50, Appendix A, Criterion 17 (emphasis added). In other words, the onsite AC power source must be of sufficient capacity and capability to assure the performance of specified safety functions.

As demonstrated above, the Chapter 15 accident and transient events do not have any consequences, even assuming the unavailability of the TDI diesels. In fact, no AC power is required to protect the core. Material Fact 13.

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Thus, the Commission's analysis with respect to fuel load and precriticality testing for the Diablo Canyon plant is useful here. As the Commission noted in that decision:

The risk to public health and safety from fuel loading and pre-criticality testing is extremely low since no self-sustaining nuclear chain reaction will take place under the terms of the license and therefore no radioactive fission products will be produced.

Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-83-27, 18 NRC 1146, 1149 (1983). As already noted, self-sustaining nuclear reaction will be conducted at extremely low power levels and for very short periods of time. The radioactive fission products produced under these circumstances are negligible. Thus, operation of the plant during Phase II presents no significant safety issue. See id.

The rationale for the Commission's grant of a license to Diablo Canyon also applies with respect to Phase II activities at Shoreham. At the time the Commission granted Diablo Canyon a low power testing license, quality assurance litigation concerning Diablo Canyon was still ongoing. In contrast, Shoreham has already been the subject of a lengthy, favorable Partial Initial Decision on all safety issues except those concerning those its existing diesel generators. See Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), LBP-83-57, 18 NRC 445 (1983) (Opinion), and unpublished Board Findings of Fact and Appendices.

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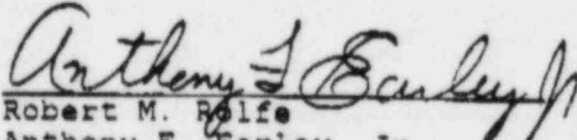
Since there is no need for reliable diesel generators during Phase II, the assurance of no risks to public health and safety from Phase II activities is even greater at Shoreham than at Diablo Canyon because all quality assurance issues at Shoreham have been favorably resolved.

II. Conclusion

Consistent with the Commission's May 16 Order, GDC 17 requires an onsite power source during low power testing with sufficient capacity and capability to perform certain safety functions specified in the GDC. During cold criticality testing conducted during Phase II, no AC power is required to perform these safety functions. Thus, even assuming that LILCO's onsite diesel generators do not operate, the requirements of GDC 17 are met. For the above stated reasons, LILCO's Motion for Summary Disposition on Phase II Low Power Testing should be granted.^{2/}

Respectfully submitted,

LONG ISLAND LIGHTING COMPANY


Robert M. Rolfe
Anthony F. Earley, Jr.
Jessine A. Monaghan

^{2/} If the Licensing Board believes the Commission's May 16 order requires an exemption from the regulations for all four phases of low power testing, then the Board should treat this motion as a motion for summary disposition of all health and safety issues with respect to Phase II.

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Hunton & Williams
Post Office Box 1535
Richmond, Virginia 23212

DATED: May 22, 1984

STATEMENT OF MATERIAL FACTS
AS TO WHICH THERE IS NO GENUINE ISSUE
TO BE HEARD ON PHASE II LOW POWER TESTING

The following is the Statement of Material Facts as to which LILCO contends there is no genuine issue to be heard concerning Phase II low power testing:3/

1. Phase II of low power testing includes cold criticality testing of the plant at essentially ambient temperature and atmospheric pressure. Rao, et al., Tr. 285-86; Sherwood Affidavit at ¶ 14; Hodges Affidavit at ¶ 15.

2. Phase II testing involves a specified control rod withdrawal sequence that results in achieving reactor criticality at extremely low power levels, in the range of 0.0001% to 0.001% of rated thermal power. During this phase, reactor operators withdraw each of the 137 control rods and monitor the effect of its withdrawal in terms of neutron flux. By analysis and calculation, Reactor Engineering personnel are able to assign a "worth to each control rod, that is, the effectiveness of each rod in controlling reactivity." Gunther, Tr. 204-06; Notaro Affidavit at ¶ 8; Hodges Affidavit at ¶ 5.

3/ These facts appear in the record in the affidavits filed with LILCO's Supplemental Motion for Low Power License dated March 20 and in the testimony of the seven witnesses who testified on April 24 and 25 before the Licensing Board. Since these documents are readily available, copies have not been attached. Facts also appear in an affidavit of Wayne W. Hodges, dated April 4, 1984, which is attached.

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3. Cold criticality testing requires plant maintenance personnel to install vessel internals in accordance with station procedure and with all refuel floor constraints in place. Expansion and vibration instrumentation is also installed. Cold baseline data are obtained to determine pipe movement as heatup occurs later in the low power test program. Gunther, Tr. 205; Notaro Affidavit at ¶ 5.

4. The primary purpose of Phase II testing is to verify shutdown margin calculations. The shutdown margin is measured by withdrawing the analytically strongest rod or the equivalent and one or more additional rods until criticality is reached. This procedure is completed and the necessary data obtained within 5 minutes after going critical. After the conclusion of the procedure, the control rods are reinserted into the core, thereby stopping the reaction and returning the core to subcritical status. Gunther, Tr. 205-06.

5. Under the plant conditions present in Phase II, many events analyzed in FSAR Chapter 15 could not occur or would be very unlikely. Even the possible Chapter 15 events would have no impact on public health and safety regardless of the availability of the TDI diesels. Rao, et al., Tr. 286-89, 295; Sherwood Affidavit at ¶¶ 15-17, 22; Hodges Affidavit at ¶ 6.

6. Of the 23 possible Chapter 15 events reviewed, 20 do not require the assumption of loss or unavailability of off-site AC

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power. Therefore, the consequences of these events are unaffected by the unavailability of the TDI diesels. Rao, et al., Tr. 291; Sherwood Affidavit at ¶ 18.

7. The three events that do assume loss or the unavailability of off-site AC power are: pipe breaks inside the primary containment, feedwater system pipe break, and the loss of AC power event. Rao, et al., Tr. 292; Sherwood Affidavit at ¶ 19.

8. Because of the extremely low power levels reached during Phase II testing, fission product inventory in the core will be only a small fraction of that assumed for the Chapter 15 analysis. The FSAR assumes operation at 100% power for 1,000 days in calculating fission product inventory; inventory during Phase II low power testing will be less than 1/100,000 (0.00001) of the fission product inventory assumed in the FSAR. Rao, et al., Tr. 295; Sherwood Affidavit at ¶ 17.

9. If a LOCA did occur during the cold criticality testing phase (Phase II), there would be time on the order of months available to restore make-up water for core cooling. At the power levels achieved during Phase II, fission product inventory is very low. At most, the average power output will be a fraction of a watt-per-rod, with no single rod exceeding approximately two watts. With these low decay heat levels, the fuel cladding temperature would not exceed the limits of 10 C.F.R. § 50.46 even after months without restoring coolant and without a source of AC

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power. Thus, there is no need to rely on the TDI diesel generators, or any source of AC power. Rao, et al., Tr. 292-94; Sherwood Affidavit at ¶ 19; Hodges Affidavit at ¶ 8.

10. During Phase II cold criticality testing conditions, there is no reliance on the diesel generators for mitigation of the loss of AC power event or the feedwater system piping break event. For these events, no loss of coolant occurs and the decay heat is minimal. Core cooling can be achieved for unlimited periods of time without AC power using the existing core water inventory and heat losses to ambient. Rao, et al., Tr. 293-94; Sherwood Affidavit at ¶ 20; Hodges Affidavit at ¶ 6.

11. The LOCA and the feedwater system piping break postulate the double-ended ruptures of a piping system. Because the reactor will be at essentially ambient temperature and atmospheric pressure during Phase II, it is extremely unlikely that such a pipe break would ever occur. The NRC Staff does not require double-ended ruptures to be postulated for low temperature and low pressure systems in safety analyses. Rao, et al., Tr. 294; Sherwood Affidavit at ¶ 21; Hodges Affidavit at ¶ 7.

12. None of the events analysed in Chapter 15 could result in a release of radioactivity during cold criticality testing that would endanger the public health and safety. Rao, et al., Tr. 305; Sherwood Affidavit at ¶ 17.

13. Even if AC power were not available for extended periods of time, fuel design limits and design conditions of the reactor coolant pressure boundary would not be approached or exceeded as a result of anticipated operational occurrences, and the core would be adequately cooled in the unlikely event of a postulated accident. Rao, et al., Tr. 295-96; Sherwood Affidavit at ¶ 22.

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 MARVIN W. HODGES
CONCERNING THE SUPPLEMENTAL MOTION FOR
LOW POWER OPERATION, PHASE I AND II, AT SHOREHAM

I, Marvin W. (Wayne) Hodges, being duly sworn, state as follows:

1. I am a Section Leader in the Reactor Systems Branch of the Office of Nuclear Reactor Regulation. A copy of my professional qualifications is attached.
2. Long Island Lighting Company (LILCO) filed a Supplemental Motion for Low Power Operating License dated March 20, 1984. In that motion, LILCO proposed a phased program for low power operation at Shoreham. The four phases proposed are:
 - a) Phase I: fuel load and precriticality testing,
 - b) Phase II: cold criticality testing,
 - c) Phase III: heatup and low power testing to rated pressure/temperature conditions (approximately 1% rated power); and
 - d) Phase IV: low power testing (1-5% rated power)

The purpose of this affidavit is to address the impact on the health and safety of the public of operation in Phases I and II.

3. In Phase I, fuel loading and precriticality testing, the reactor will not be taken critical. There will be no heat generation in the core. There will be no fission products. Because there will have been no power generation and, consequently, no decay heat, there will be no need for cooling systems to remove decay heat.
1. In its supplemental motion, LILCO examined the 38 accident and transient events addressed in Chapter 15 of the FSAR. I have reviewed the 38 transients and accidents listed and I agree with LILCO that many of the events could not occur because of the operating conditions of the plant (e.g., a turbine trip or a load rejection transient cannot occur when the turbine is not in operation and there is no load on the generator). Of the events that could occur (e.g., loss of AC power), there are no safety concerns because of the absence of power generation.
5. Phase II, cold criticality testing, will involve testing in the power range of .0001% to .001% of rated power at essentially ambient temperature and atmospheric pressure. Because of the low power level and the limited duration of testing, fission product inventory and decay heat will be very low.

6. As for Phase I, many of the Phase II transients and accident analyzed in Chapter 15 of the FSAR cannot occur. For those transients and accident which can occur, other than a loss-of-coolant accident, core cooling can be achieved, even without AC power, using the existing core water inventory and passive heat loss to the environment. Therefore, there would be no threat to the health and safety of the public.

7. Because of the low pressure conditions, it is not reasonable to postulate a loss-of-coolant accident during Phases I and II operation. The NRC normally postulates breaks only in high energy lines; for Phases I and II, there are no high energy lines. However, even if a loss-of-coolant accident should occur during Phase II operation, there is plenty of time available for restoring offsite power should onsite power not be available.

8. If a loss-of-coolant accident should occur during Phase II testing, LILCO states that there would be time on the order of months available to restore make-up water for core cooling. At the decay heat levels which would exist under these conditions, heat transfer to the environment would remove a significant fraction of the decay heat. However, even if no heat transfer from the fuel rods is assumed and equilibrium fission products are assumed (i.e.,

inifinite operation at .001% power), then more than 9 days are available to restore cooling prior to exceeding a temperature of 2200°F. Therefore, even assuming the unavailability of onsite power sources, there is a high probability of restoring AC power and cooling the core.

Marvin W. Hodges
Marvin W. (Wayne) Hodges

Subscribed and sworn to before me
this 3rd day of April, 1984.

Claire C. Shivers
Notary Public

My Commisssion Expires: July 1, 1986

VERBA TELETYPE 490 1-804-14000 04/00218- 202234161#00

Marvin W. (Wayne) Hodges
Professional Qualifications
Reactor Systems Branch
Division of Systems Integration
U. S. Nuclear Regulatory Commission

I am employed as a Section Leader in Section B of the Reactor Systems Branch, DSI.

I graduated from Auburn University with a Mechanical Engineering Degree in 1965. I received a Master of Science degree in Mechanical Engineering from Auburn University in 1967. I am a registered Professional Engineer in the state of Maryland (#13446).

In my present work assignment at the NRC, I supervise the work of 6 graduate engineers; my section is responsible for the review of primary and safety systems for BWRs. I have served as principal reviewer in the area of boiling water reactor systems. I have also participated in the review of analytical models use in the licensing evaluations of boiling water reactors and I have the technical review responsibility for many of the modifications and analyses being implemented on boiling water reactors post the Three Mile Island, Unit-2 accident.

As a member of the Bulletin and Orders Task Force which was formed after the TMI-2 accident, I was responsible for the review of the capability of BWR systems to cope with loss of feedwater transient and small break loss-of-coolant accidents.

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I have also served at the NRC as a reviewer in the Analysis Branch of the NRC in the area of thermal-hydraulic performance of the reactor core. I served as a consultant to the RES representative to the program management group for the BWR Blowdown/Emergency Core Cooling Program.

Prior to joining the NRC staff in March, 1974, I was employed by E. I. DuPont at the Savannah River Laboratory as a research engineer. At SRL, I conducted hydraulic and heat transfer testing to support operation of the reactors at the Savannah River Plant. I also performed safety limit calculations and participated in the development of analytical models for use in transient analyses at Savannah River. My tenure at SRL was from June 1967 to March 1974.

From September 1965 to June 1967, while in graduate school, I taught courses in thermodynamics, statics, mechanical engineering measurements, computer programming and assisted in a course in the history of engineering. During the summer of 1966, I worked at the Savannah River Laboratory doing hydraulic testing.

ATTACHMENT CUNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges
Marshall E. Miller, Chairman
Glenn O. Bright
Elizabeth B. Johnson

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

Docket No. 50-322-OL-4
(Low Power)

July 24, 1984

ORDER GRANTING IN PART AND DENYING IN PART LILCO'S MOTIONS
FOR SUMMARY DISPOSITION ON PHASE I AND PHASE II LOW-POWER TESTING

LILCO filed its supplemental application for a low-power license on March 20, 1984. That application relies upon supplemental emergency power sources to compensate for the absence of an acceptable onsite emergency power source. However, the Commission issued an Order (CLI-84-8) on May 16, 1984 holding that GDC-17¹ applied to low power

¹ GDC-17 states, in pertinent part, that:

"An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability

(Footnote Continued)

8/17/84

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operation and that if LILCO's application did not demonstrate compliance with GDC-17, LILCO would have to seek an exemption pursuant to 10 CFR 550.12. LILCO subsequently filed an exemption request with the Licensing Board.

On May 23, 1984, LILCO filed its "Motion for Summary Disposition on Phase I Low-Power Testing", and "Motion for Summary Disposition on Phase II Low-Power Testing", pursuant to 10 CFR §2.749. This Board denied LILCO's motion for expedited responses to its motions for summary disposition, instead directing the parties to file answers within the time limits prescribed by regulations. Suffolk County, the State of New York, and the NRC Staff filed answers to the summary disposition motions on June 13, 1984.

LILCO's motions are based upon its assertion that even if the Shoreham facility lacks a qualified source of onsite AC power, the

(Footnote Continued)

to assure that (1) specified acceptable fuel design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure" (10 CFR Part 50, Appendix A, Criterion A).

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activities which would be performed during Phases I and II² of its Low-Power testing program require no such power to perform the safety functions specified by the General Design Criteria (GDC), specifically GDC-17.

LILCO argues that as to Phase I fuel loading and precriticality testing, there are no fission products in the core and no decay heat. Thus no core cooling is required, and hence no AC power (either onsite or offsite) is needed "to permit functioning of structures, systems, and components important to safety" (GDC-17). As to Phase II cold criticality testing, LILCO asserts that any self-sustaining nuclear reaction will be conducted at extremely low power levels and for very short periods of time, and that radioactive fission products produced will be negligible. A review of the accident and transient events contained in Chapter 15 of the Shoreham FSAR allegedly shows that there are no consequences even assuming no onsite AC power source, and in fact no AC power is required to protect the core.

In essence, LILCO seeks summary disposition as to Phases I and II, because (a) no onsite or offsite AC power is necessary to perform the safety functions needed to protect the public health and safety, and

² Phase I: Fuel load and precriticality testing.
Phase II: Cold criticality testing.

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(b) since no AC power is needed, GDC-17 is said to be satisfied at Phases I and II without an approved (or indeed any) onsite power source.

The Staff in its June 13 response to LILCO's motions for summary disposition submitted that the motions should be granted in part and denied in part. It stated that the Commission's May 16 Order (CLI-84-8) stands for the proposition that GDC-17 means the same for low-power operation as for full-power operation and must be completely satisfied before any license (including low-power) may be issued. It therefore follows that, in the absence of a fully approved onsite power system, an exemption from GDC-17 is needed before any license can be issued pursuant to 10 CFR §50.57(-). LILCO did not seek summary disposition of its exemption request nor address factual issues involved therein, and accordingly the ultimate issues involved in Phases I and II could not be summarily disposed of. However, the Staff stated that partial summary disposition should be made as to some of the statements of material facts appended to the Phase I motion (Statements 5-9) and to the Phase II motion (Statements 5, 8, 9, 10, 11, 12 and 13, and reworded 6 and 7),³ and that such statements should be deemed admitted unless properly controverted.

³ These Statements of Material Facts are described and discussed infra, at pages 9-14.

The Response of Suffolk County and the State of New York (with attached affidavits and statement of material issues as to which it is alleged that there are facts in dispute) submits that the LILCO motion may not be granted because, first, the NRC allegedly lacks authority to grant what is characterized as a "no power" license. Second, because the LILCO low-power license application which was considered by the Commission in its Order of May 16, 1984 (CLI-84-8, 19 NRC ___) included Phases I and II, that are the subjects of the pending summary disposition motions, they argue that the Commission's statement that LILCO must obtain an exemption from applicable General Design Criteria (expressly GDC-17) prior to the grant of its low-power proposal, includes the grant of any portion thereof. They further argue that LILCO's position that the requirements of GDC-17 would be met during Phases I and II ignores the plain language of that criterion. Lastly, the Intervenor set forth issues of material fact which they say remain in dispute.

I. LEGAL STANDARDS FOR SUMMARY DISPOSITION

The Commission's Rules of Practice provide for summary disposition of certain issues where "the filings in the proceeding, depositions, answers to interrogatories, and admissions on file, together with the statements of the parties and the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a decision as a matter of law" (10 CFR §2.749(d)). The Rules also provide for summary disposition as to any portions of a

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matter involved in a proceeding as to which there is no genuine issue of material fact (10 CFR §2.749(a)).

The Commission and Appeal Board have encouraged the use of summary disposition to resolve contentions where an intervenor has failed to establish that a genuine issue exists.⁴ The "summary disposition rule (10 CFR §2.749) provides an ample safeguard against an applicant or the...staff being required to expend time and effort at a hearing on any contention advanced by an intervenor which is manifestly unworthy of exploration."⁵

The Commission's policy is to encourage the use of summary disposition where no genuine issue of material fact exists "so that evidentiary hearing time is not unnecessarily devoted to such issues." Statement of Policy in Conduct of Licensing Proceedings, CLI-81-8, 13 NRC 452, 457 (1981). Thus, a hearing on the questions raised by an intervenor is not inevitable. See Philadelphia Electric Co. (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-654, 14 NRC 632 (1981). The purpose of summary disposition is to avoid hearings.

⁴ Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 & 2), CLI-73-12, 6 AEC 241, 242 (1973), aff'd sub nom. BPI v. AEC, 502 F.2d 424 (D.C. Cir. 1974); Houston Lighting and Power Co. (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 550-51 (1980); Mississippi Power & Light Co. (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-130, 6 AEC 423, 424-25 (1973).

⁵ Gulf States Utilities Co. (River Bend Station, Units 1 and 2), ALAB-183, 7 AEC 222, 228 (1974).

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unnecessary testimony and cross-examination in areas where there are not material issues to be tried.⁶

The Supreme Court has very clearly stated that there is no right to a trial except so far as there are issues of fact in dispute to be determined. Ex parte Peterson, 253 U.S. 300, 310 (1920). Under the Federal Rules the motion is designed to pierce the general allegations in the pleadings, separating the substantial from the insubstantial by utilizing depositions, interrogatories or other material of evidentiary value. 6 J. Moore, Moore's Federal Practice §56.04[1] (2d ed. 1976). Mere allegations in the pleadings will not create an issue as against a motion for summary disposition supported by affidavits (10 CFR §2.749(b); Fed. R. Civ. P. 56(c)).

The Commission's summary disposition procedures have been analogized to Rule 56 of the Federal Rules of Civil Procedure.⁷ Decisions arising under the Federal Rules thus may serve as guidelines to licensing boards in applying 10 CFR §2.749.⁸ Under both Federal and

⁶ A material fact is one that may affect the outcome of the litigation. Mutual Fund Investors Inc. v. Putnam Management Co., 553 F.2d 620, 624 (9th Cir. 1977).

⁷ Cleveland Electric Illuminating Co., et al. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 753-54 (1977); Alabama Power Co. (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 217 (1974).

⁸ Perry, ALAB-443, supra at 754; Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), LBP-74-36, 7 AEC 877, 878-79 (1974).

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NRC rules, the record is to be reviewed in the light most favorable to the party opposing the motion.⁹

To draw on federal practice, the Supreme Court has pointed out that Rule 56 of the Federal Rules of Civil Procedure does not permit plaintiffs to get to a trial on the basis of the allegations in the complaint coupled with the hope that something can be developed at trial in the way of evidence to support the allegations.¹⁰ Similarly, a party may not defeat a motion for summary judgment on the hope that on cross-examination the defendants will contradict their respective affidavits. To permit trial on such a basis would nullify the purpose of Rule 56 which permits the elimination of unnecessary and costly litigation where no genuine issues of material fact exist.¹¹

All material facts adequately set forth in a motion and not adequately controverted by the responses thereto are deemed to be

⁹ *Polier v. Columbia Broadcasting System, Inc.*, 368 U.S. 464, 473 (1962); *Crest Auto Supplies, Inc. v. Ero Manufacturing Co.*, 360 F.2d 896, 899 (7th Cir. 1966); *United Mine Workers of America, Dist. 22 v. Roncco*, 314 F.2d 186, 188 (10th Cir. 1963); *Pennsylvania Power & Light Co. and Allegheny Electric Cooperative, Inc. (Susquehanna Steam Electric Station, Units 1 and 2)*, LBP-81-8, 13 NRC 335, 337 (1981), directed certification denied, ALAB-641, 13 NRC 550 (1981); *Seabrook*, LBP-74-36, *supra*, 7 AEC at 879.

¹⁰ *First National Bank of Arizona v. Cities Service Co.*, 391, U.S. 257, 289-90 (1968), rehearing den., 393 U.S. 901 (1968).

¹¹ See *Orvis v. Brickman*, 95 F. Supp 605, 607 (1951), aff'd 196 F.2d 762 (D.C. Cir. 1952), cited with approval in *Gulf States Utilities Co. (River Bend Station, Units 1 and 2)*, 1 NRC 246, 248 (1975).

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admitted (10 CFR §2.749(a)). A party opposing the motion may not rely upon a simple denial of the material facts stated by the movant, but must set forth specific facts showing that there is a genuine issue of fact remaining.¹² However, the proponent of a motion must meet the burden of proof in establishing that there is no genuine issue of material fact, even if the opponent fails to controvert the conclusions reached in the motions' supporting papers.

II. DENIAL AS TO ULTIMATE ISSUES

The Commission's May 16 Order (CLI-84-8) stated that it "has determined that 10 CFR 50.57(c) should not be read to make General Design Criterion 17 inapplicable to low-power operation" (slip opinion, page 1). That order therefore stands for the proposition that GDC-17 means the same for low-power operations as for full-power operation, and it must be completely satisfied before any license (including low-power) may be issued. Accordingly, the only recourse available to LILCO in this proceeding is to seek an exemption under the provisions of 10 CFR §50.12(a), which is the subject of the instant evidentiary hearing.

The Board does not have the power or jurisdiction to grant LILCO's motion for summary disposition of Phases I and II of its low-power testing program, even though such activities do not require a qualified

¹² 10 CFR §2.749(b), Virginia Electric and Power Co. (North Anna Nuclear Power Station, Units 1 and 2), ALAB-584, 11 NRC 451, 453 (1980).

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source of onsite AC power in order to perform the safety functions specified by GDC-17. The Commission's order requires that the GDC-17 requirements be completely satisfied even for fuel loading and precriticality testing. In its motion LILCO did not seek summary disposition of its exemption request, nor did it even address the factual issues involved therein. Accordingly, the ultimate issues involved in Phase I and II activities cannot be disposed of summarily, and that portion of the summary disposition motion is denied.

III. GRANTED AS TO CERTAIN STATEMENTS OF MATERIAL FACTS

Some of the statements of material facts appended to LILCO's Phase I motion (Statements 5-9) and to the Phase II motion (Statements 5, 8-13, and reworded 6 and 7) were not controverted and should be deemed to be admitted. Accordingly, the following statements of material fact are held to be admitted in this proceeding.

Phase I Statements 5-9:

(5) During all of the activities in Phase I, the reactor will remain at essentially ambient temperature and atmospheric pressure. The reactor will not be taken critical. Any increase in temperature beyond ambient conditions will be due only to external heat sources such as recirculation pump heat. There will be no heat generation by the core. Rao, et al., Tr. 279; Sherwood Affidavit at ¶7; Hodges Affidavit at ¶3.

(6) Of the 38 accident or transient events addressed in FSAR Chapter 15, 18 of the events could not occur during Phase I because of the operating conditions of the plant. An additional six events could

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physically occur, but given the plant conditions, would not cause the phenomena of interest in the Chapter 15 safety analysis. The remaining 14 events could possibly occur, although occurrences are highly unlikely given the plant conditions. The potential consequences of these 14 events would be trivial. Rao, et al., Tr. 279-84; Sherwood Affidavit at ¶¶8-11; Hodges Affidavit at ¶4.

(7) During Phase I fuel loading and precriticality testing, there are no fission products in the core and no decay heat exists. Therefore, core cooling is not required. In addition, with no fission product inventory, there are no fission product releases possible. Rao, et al., Tr. 283-84; Sherwood Affidavit at ¶11; Hodges Affidavit at ¶4.

(8) Even a loss of coolant accident would have no consequences during Phase I since no core cooling is required. No fission products exist and therefore no decay heat is available to heat up the core. The fuel simply would not be challenged even by a complete drain down of the reactor vessel for an unlimited period of time. Rao, et al., Tr. 284; Sherwood Affidavit at ¶9; Hodges Affidavit at ¶4.

(9) No core cooling is required during Phase I and, therefore, no AC power is necessary during Phase I to cool the core. Rao, et al., Tr. 285; Sherwood Affidavit at ¶13; Hodges Affidavit at ¶3.

Phase II Statements 5, 8-13:

(5) Under the plant conditions present in Phase II, many events analyzed in FSAR Chapter 15 could not occur or would be very unlikely. Even the possible Chapter 15 events would have no impact on public

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health and safety regardless of the availability of the TDI diesels. Rao, et al., Tr. 286-89, 295; Sherwood Affidavit at ¶¶15-17, 22; Hodges Affidavit at ¶6.

(8) Because of the extremely low-power levels reached during Phase II testing, fission product inventory in the core will be only a small fraction of that assumed for the Chapter 15 analysis. The FSAR assumes operation at 100% power for 1,000 days in calculating fission product inventory; inventory during Phase II low-power testing will be less than 1/100,000 (0.00001) of the fission product inventory assumed in the FSAR. Rao, et al., Tr. 295; Sherwood Affidavit at ¶17.

(9) If a LOCA did occur during the cold criticality testing phase (Phase II), there would be time on the order of months available to restore make-up water for core cooling. At the power levels achieved during Phase II, fission product inventory is very low. At most, the average power output will be a fraction of a watt-per-rod, with no single rod exceeding approximately two watts. With these low decay heat levels, the fuel cladding temperature would not exceed the limits of 10 CFR §50.46 even after months without restoring coolant and without a source of AC power. Thus, there is no need to rely on the TDI diesel generators, or any source of AC power. Rao, et al., Tr. 292-94; Sherwood Affidavit at ¶19; Hodges Affidavit at ¶8.

(10) During Phase II cold criticality testing conditions, there is no reliance on the diesel generators for mitigation of the loss of AC power event or the feedwater system piping break event. For these

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events, no loss of coolant occurs and the decay heat is minimal. Core cooling can be achieved for unlimited periods of time without AC power using the existing core water inventory and heat losses to ambient. Rao, et al., Tr. 293-94; Sherwood Affidavit at ¶20; Hodges Affidavit at ¶6.

(11) The LOCA and the feedwater system piping break postulate the double-ended ruptures of a piping system. Because the reactor will be at essentially ambient temperature and atmospheric pressure during Phase II, it is extremely unlikely that such a pipe break would ever occur. The NRC Staff does not require double-ended ruptures to be postulated for low temperature, and low pressure systems in safety analyses. Rao, et al., Tr. 294; Sherwood Affidavit at ¶21; Hodges Affidavit at ¶7.

(12) None of the events analyzed in Chapter 15 could result in a release of radioactivity during cold criticality testing that would endanger the public health and safety. Rao, et al., Tr. 296; Sherwood Affidavit at ¶17.

¶(13) Even if AC power were not available for extended periods of time, fuel design limits and design conditions of the reactor coolant pressure boundary would not be approached or exceeded as a result of anticipated operational occurrences, and the core would be adequately cooled in the unlikely event of a postulated accident. Rao, et al., Tr. 295-98; Sherwood Affidavit at ¶22.

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Phase II Statements 6 and 7:

(6) Of the 23 possible Chapter 15 events reviewed, 20 would not be adversely affected by the loss or unavailability of offsite AC power. Therefore, the consequences of these events are unaffected by the unavailability of the TDI diesels. Hodges Affidavit at ¶10.

(7) The three events that are adversely affected by the loss or unavailability of offsite AC power are: pipe breaks inside the primary containment, feedwater system pipe break, and the loss of AC power event. Hodges Affidavit at ¶10.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Marshall E. Miller
Marshall E. Miller, Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland
this 24th day of July, 1984.

LILCO, August 2, 1984

CERTIFICATE OF SERVICE

In the Matter of
LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station, Unit 1)
Docket No. 50-322-OL-4 (Low Power)

I hereby certify that copies of LILCO'S MOTION FOR DIRECTED CERTIFICATION OF THE LICENSING BOARD'S JULY 24, 1984 ORDER GRANTING IN PART AND DENYING IN PART LILCO'S MOTIONS FOR SUMMARY DISPOSITION ON PHASE I AND PHASE II LOW POWER TESTING were served this date upon the following by U.S. mail, first-class, postage prepaid or by hand as indicated by an asterisk.

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DATED: August 2, 1984