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50-352  
June 3, 1983

Mr. A. Schwencer, Chief  
Licensing Branch No. 2  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Limerick Generating Station, Units 1 & 2  
Responses to Procedures and Test Review Branch  
Draft Safety Evaluation Report (DSER)

Reference: A. Schwencer to E. G. Bauer, Jr., letter dated  
March 11, 1983

File: GOVT 1-1 (NRC)

Dear Mr. Schwencer:

The attached documents address the following Procedures  
and Test Review Branch (PTRB) Draft Safety Evaluation Report  
open items.

1. The draft response to TMI item I.C.1 addresses PTRB  
open items 3 and 5 of the "Operating and Maintenance  
Procedures and ATWS", Section I, and appears in  
the May revision of the FSAR.

Please note that PTRB open item 4 of Section I was  
responded to in a V. S. Boyer to D. B. Eisenhut letter  
dated April 15, 1983. A copy of this letter is attached  
for your use.

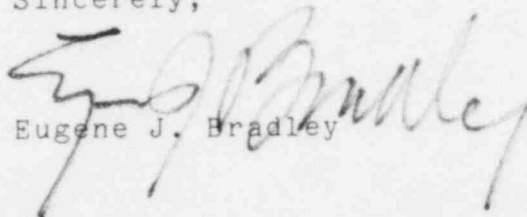
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2. The draft FSAR page change addresses "Test Review" Section II, item 7, Preoperational Test P-100.1 (Loss of Off Site Power Test) and will be incorporated into the FSAR revision scheduled for June, 1983.

Item 8 of Section II was closed in a PECO/NRC conference call dated April 21, 1983.

Sincerely,

A handwritten signature in dark ink, appearing to read "Eugene J. Bradley", is written over the typed name.

Eugene J. Bradley

RJS/gra/10

Copy to: See Attached Service List

cc:	Judge Lawrence Brenner	(w/o enclosure)
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	Judge Peter A. Morris	"
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# DRAFT

## Response to I.C.1

Emergency operating procedures have been developed from the BWR Owners Group Emergency Procedure Guidelines (EPGs), Revision 2, which have been reviewed and approved by the NRC. The development of the EPGs was based on reanalysis of transients and accidents and inadequate core cooling. The licensed operator training program includes training on the emergency operating procedures.

Additional information has been provided in a letter from V. S. Boyer to D. G. Eisenhut dated April 15, 1983.



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NUCLEAR SECTION

R. H. LOGUE

APR 15 1983

Noted

Referred

V. S. BOYER  
SR. VICE PRESIDENT  
NUCLEAR POWER

April 15, 1983

Mr. Darrell B. Eisenhut, Director  
Division of Licensing  
Office of Nuclear Reactor Regulation  
USNRC  
Washington, DC 20555

SUBJECT: Limerick Generating Station, Units 1 & 2  
Docket Nos. 50-352 & 50-353

REFERENCE: Supplement 1 to NUREG-0737  
Requirements for Emergency Response Capability  
Generic Letter No. 82-33

Dear Mr. Eisenhut:

Following are our responses to the five initiatives required to be addressed by the referenced generic letter:

## 1. SAFETY PARAMETER DISPLAY SYSTEM (SPDS)

REFERENCE: SECTION 4 OF SUPPLEMENT 1 TO NUREG-0737

### CURRENT STATUS:

The Limerick Design includes an Emergency Response Facility Data System (ERFDS). This system is based on the General Electric Emergency Response Information System. The SPDS at Limerick will be a part of this ERFDS.

The hardware design is essentially complete with installation scheduled to begin in April, 1983. The software effort is proceeding on schedule to support system check out in August, 1983. It is expected that the system will be operational by fuel load.

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#### SAFETY ANALYSIS:

The parameters included in the SPDS display are based on the entry conditions for the Limerick symptom-based emergency procedures. As changes and improvements are made to the reactor pressure vessel control and containment control procedures, the system can be modified to reflect these changes. The SPDS parameters are a subset of the parameters available in the ERFDS data base, which is based on the Reg. Guide 1.97 Rev. 2 BWR parameter list.

A written safety analysis describing the basis on which the selected parameters are sufficient to assess the safety status of each identified function for a wide range of events will be available by August 1983.

#### INTEGRATION OF SPDS WITH OTHER INITIATIVES:

Prior to fuel load, the SPDS will be reviewed in conjunction with the other NUREG-0737 supplement initiatives. As one of the final steps in integrating all of the control room modifications (i.e. Reg. Guide 1.97, SPDS, Emergency Operating Procedures), an emergency procedure walk through is scheduled as part of the control room review.

## 2. DETAILED CONTROL ROOM DESIGN REVIEW (CRDR)

REFERENCE: SECTION 5 OF SUPPLEMENT 1 TO NUREG-0737

#### CURRENT STATUS:

The CRDR effort directed by Item I.D.I and required by Supplement 1 to NUREG-0737 began in 1980 with PECO's participation in the Boiling Water Reactor Owners Group (BWROG) CRDR Subcommittee. The subcommittee produced a BWROG Generic CRDR Program which addresses Item 5.1.b of Supplement 1. This Generic Program was submitted to the NRC for review in August, 1981. The review and subsequent discussions between the NRC and representatives of the subcommittee have resulted in a supplement to the review program.

A preliminary review of the Limerick control room was conducted using the original design review program in October, 1981. At that time, the Limerick control room was still in the construction phase and the formal Limerick unique Emergency Procedures were not available for the walk through.

PECo is currently developing a program to address the Assessment, Implementation and Verification phases of the Limerick Control Room Design Review Program.

BASIC REQUIREMENTS COMPLETION DATES:  
(Numbering refers to corresponding portions Section S of Supplement 1)

- 5.1.a) As was the case during the initial review phase, a person competent in human factors engineering as well as persons competent in system design and system operation will be included in the assessment phase of the Program. This assessment will be completed by January, 1984.
- 5.1.b) A preliminary review of the control room has been completed as discussed in current status above. Completion of the review to address the supplemental check list, those items not included in the preliminary review due to construction status, and the Emergency Procedure Walk-through is scheduled for October, 1983. This date is contingent on NRC concurrence with the review approach used in the BWROG-CRDR program
- 5.1.c) Assessment of the Human Engineering Discrepancies (HED's) will be completed by January, 1984.
- 5.1.d) Proposed improvements will be reviewed by the multi-disciplinary task force described in 5.1.a to assure the proposed change addresses the identified HED and does not create additional HED's. All changes will be integrated with other control room modifications. This will be completed by February, 1984.
- 5.2.a) The program plan for completing the Control Room Design Review is outlined below:
  - i. Complete the Generic review program including the supplemental review and the emergency procedure walk-through.
  - ii. Assess the identified HED's and generate recommendations for modifications to those HED's that warrant a change.



iii. Each of the proposed modifications will be reviewed to verify that it corrects the HED it was intended to correct and does not create any new unacceptable HED's. The modifications will be coordinated with the balance of the NUREG-0737 Supplement 1 initiatives.

iv. A summary report will be prepared to document the program actions and recommendations. It will also contain a schedule for modifications to correct the HED's.

5.2.b) A summary report will be prepared and submitted May, 1984. This will include proposed modifications and the proposed schedule. Any human factors enhancements (paint-tape-label) will be completed prior to fuel load. The modifications that require hardware changes will be scheduled according to equipment availability and start up schedule. They may be deferred until the first refueling outage.

### 3. REGULATORY GUIDE 1.97 - APPLICATION TO EMERGENCY RESPONSE FACILITIES

REFERENCE: SECTION 6 OF SUPPLEMENT 1 TO NUREG-0737

#### CONTROL ROOM:

The Limerick control room has been reviewed against the recommendations of Reg. Guide 1.97, Rev. 2. This review has resulted in some modification to the plant instrumentation system. The resulting design and compliance with the provisions of the Reg. Guide are presented in the Limerick FSAR, Section 7.5. In those instances where the Limerick design does not comply with the Regulatory Guide, a detailed justification is provided on a case by case basis. The design, as described in FSAR Section 7.5, will be installed prior to fuel load.

In the case of "Neutron flux", the neutron monitoring system does not meet the qualification requirements for category 2. PECO is currently working with a vendor of neutron monitoring



equipment to develop an ex-core neutron detection system for BWR's. When this system or other systems are fully developed, an evaluation will be performed. If a change is warranted, a schedule for implementation will be proposed.

TECHNICAL SUPPORT CENTER (TSC):

All of the Regulatory Guide 1.97, Rev. 2 parameters described in Limerick FSAR Section 7.5 will be available for display in the TSC on either the Emergency Response Facility Data System (ERFDS) or the Radiation Meteorological Monitoring System (RMMS). These systems are scheduled to be in place and operating prior to fuel load.

EMERGENCY OPERATIONS FACILITY (EOF):

The information available in the TSC is also available in the EOF.

DOCUMENTATION AND NRC REVIEW:

The information requested in this section of NUREG-0737 Supplement 1 is available in Section 7.5 of the Limerick FSAR.

4. UPGRADE EMERGENCY OPERATING PROCEDURES (EOP'S)

REFERENCE: SECTION 7 OF SUPPLEMENT 1 TO NUREG-0737

The EOP's required by Section 7 are called Transient Response Implementation Plan (TRIP) procedures at Limerick.

The Limerick TRIP Procedures are presently written to revision 2 of the BWR Owners' Group Emergency Procedures Guidelines (EPG's). The staff approved revision 2 of these EPG's via letter from D. G. Eisenhower to all BWR Licensees of Operating Reactors dated February 8, 1982.

The Licensed Operator Training Program at the Limerick simulator has used the TRIP procedures since March, 1982, prior to the NUREG-0737 Supplement 1 requirement for a procedures generation package. The following information is responsive to the requested contents of the procedures generation package:

- I. Verified plant-specific data (setpoints, limits, curves, etc.) will be incorporated into the TRIP procedures and into the training program at least 9 months prior to fuel load (December, 1983).
- II. An administrative procedure will be developed to provide guidance for writing new TRIP procedures and for revising existing TRIP procedures. This administrative procedure will be available for review by November, 1983.
- III. The adequacy of existing TRIP procedures, as well as future revisions to those procedures and new procedures, is demonstrated in the following manner. A review is performed to assure that there is correspondence between the procedures and the control room hardware. Further assurance is obtained by exercising the procedures on the Limerick simulator.
- IV. The licensed operator training program for Limerick has been in operation since December, 1979. As noted above, the TRIP procedures have been a part of that program since March, 1982.

## 5. EMERGENCY RESPONSE FACILITIES (ERF'S)

REFERENCE: SECTION 8 OF SUPPLEMENT 1 TO NUREG-0737

The three types of ERF's required by Section 8 will be provided for Limerick.

The Technical Support Center (TSC) will meet all of the requirements of Section 8.3.1. The OSC will be fully functional by January, 1984.

The Operational Support Center (OSC) will meet all of the requirements of Section 8.3.1. The OSC will be fully functional by January, 1984.

The Emergency Operations Facility (EOF) is located in an existing structure approximately 17 miles from the Limerick site. The EOF will meet all of the technical requirements of Section 8.4.1. The building alterations necessary for the EOF will be completed by September, 1983. The EOF will be fully functional by January, 1984.

Staffing of the EOF and the TSC is described in the Limerick Emergency Plan, Table I-1.

We will be pleased to review the information provided above with the NRC project manager for Limerick.

Very truly yours,

*V. L. Boyer*

TJR/cam

Copy to: See attached service list

cc: Judge Lawrence Brenner  
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## LGS FSAR

TABLE 14.2-4 (Cont'd)

(Page 61 of 63)

- c. Seismic triggers operate properly.
- d. Magnetic tape playback system operates properly.
- e. Response spectrum analyzer operates properly.
- f. System alarms operate properly.

(P-99.3) Public Address and Evacuation System

Test Objective - The test objective is to demonstrate the ability of the public address and plant maintenance/test jack systems to transmit voice communication and the plant evacuation alarm and river warning systems to broadcast various alarms and prerecorded messages to selected areas.

Prerequisites - To the extent necessary to perform this test, construction is completed, and equipment is operational.

Test Method - Each public address station is operated in both the page and party line modes. Station-to-station voice transmittals are made from each station in the plant maintenance/test jack system. Evacuation alarm and river warning signals are simulated, and system operation is verified.

Acceptance Criteria

- a. The public address system is operable from all stations in the page and party line modes.
- b. All public address speakers operate properly.
- c. The plant maintenance/test jack system operates properly.
- d. The evacuation alarm system operates properly.
- e. The river warning system operates properly.
- f. The evacuation alarm system auto transfer power switch operates properly.

(P-100.1) Loss of Offsite Power Test

Test Objective - The test objective is to demonstrate that the plant systems are capable of operating as expected on an

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## LGS FSAR

TABLE 14.2-4 (Cont'd)

(Page 62 of 63)

integrated basis in normal, surveillance, and emergency modes, and thus are ready for fuel loading.

Prerequisites - Selected preoperational tests are performed prior to or concurrent with operation of equipment for the cold functional test.

Test Method - Plant operating procedures are utilized, to the extent practicable, to place plant systems in service on an integrated basis for normal, surveillance, and emergency modes. The standby diesel generators are operated in all possible combinations, in response to simulated loss of power, and loss-of-coolant accident conditions.

Equipment parameters are allowed to stabilize for each operational combination, and any abnormal conditions are investigated. Equipment not under test is monitored to verify the absence of voltage.

### Acceptance Criteria

- a. Integrated system performance, to the extent possible during the test, is satisfactory.
- b. System electrical and mechanical is satisfactory

### (P-100.2) Loss of Instrument Air

Test Objective - The test objective is to demonstrate the design response to a loss-of-instrument-air accident of components supplied by the system.

Prerequisites - To the extent necessary to perform this test, construction is completed, and instrumentation and controls are operable and calibrated. Cooling water is available to meet the requirements of the system. There are no essential plant systems operating that will be affected by performance of this test.

Test Method - The system is placed in operation, and components to be tested are placed in a position other than the failed position. Instrument air is shut off in a manner that would simulate an instrument air pipe break and the loss of instrument air by moisture freezing and plugging the main supply line. Movements of the affected components and adequacy of feeders to share the decaying air supply are verified. The test is rerun with the components in their normal operating position.



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Testing during the Loss of Offsite Power Test or prerequisite tests will be performed using maximum attainable loads (given equipment operating restrictions) during the test. If full accident load conditions are not attained, recorded currents and voltages will be extrapolated and compared with design conditions. Testing during the Loss of Offsite Power Test will be conducted using only 1 source of power to each bus.

*INSERT PG. 62 of 63  
Table 14.2-4*