



**LONG ISLAND LIGHTING COMPANY**

SHOREHAM NUCLEAR POWER STATION

P.O. BOX 604, NORTH COUNTRY ROAD • WADING RIVER, N.Y. 11792

May 9, 1983

Mr. Richard W. Starostecki  
Director Division of Project and  
Resident Programs  
U.S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

SNRC - 886

NRC INSPECTION NO. 83-05  
SHOREHAM NUCLEAR POWER STATION - UNIT 1  
DOCKET NO. 50-322

Dear Sir:

This letter is in response to your letter of March 30, 1983 which forwarded the referenced report of routine inspection activities authorized by NRC License No. CPPK-95, conducted by Messrs. J.C. Higgins and C.D. Petrone of your office on February 1 - 28, 1983. Your letter stated that it appeared that one of our activities regarding certain 24V DC power supplies was not conducted in full compliance with NRC requirements, and it was set forth in your Appendix A as a Notice of Violation. You requested that we respond within thirty (30) days of the date of that letter. The response date was later extended to May 9, 1983 in a subsequent telephone conversation with your staff. Our response is provided in Attachment 1 to this letter.

Your letter also commented that not all of the commitments regarding our earlier response to the NRC I&E Inspection Reports 50-322/81-22 and 50-322/82-13 item on "yellow-lining" of electrical drawings were being implemented. This matter is also addressed with this response in Attachment 2.

We believe that the information contained herein should be sufficient to resolve the above concerns. If, however, you feel that additional information is required, please do not hesitate to advise us accordingly.

Very truly yours,

William J. Museler  
Director - Office of Nuclear

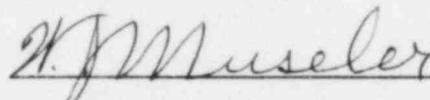
8306140358 830531  
PDR ADOCK 05000322  
Q PDR

WJM:jl

cc: MR. J. Higgins  
All parties per the attached list.  
Attach.

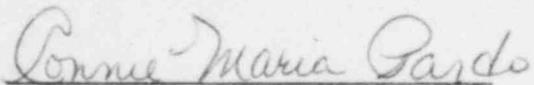
STATE OF NEW YORK     )  
                              :    ss.:  
COUNTY OF SUFFOLK    )

WILLIAM J. MUSELER, being duly sworn, deposes and says that I am the Director - Office of Nuclear of Long Island Lighting Company, the owner of the Shoreham Nuclear Power Station. I have read the Notice of Violation dated March 30, 1983, and also the response thereto prepared under my direction dated May 9, 1983. The facts set forth in said response are based upon reports and information provided to me by the employees, agents, and representatives of Long Island Lighting Company responsible for the activities described in said Notice of Violation and in said response. I believe the facts set forth in said response are true.

  
\_\_\_\_\_

WILLIAM J. MUSELER

Sworn to before me this  
10 day of *May*, 1983

  
\_\_\_\_\_

CONNIE-MARIA PARDO  
NOTARY PUBLIC, State of New York  
No. 52-46158-10  
Qualified in Suffolk County  
Commission Expires *MARCH 30, 1985*

ATTACHMENT 1

Notice of Violation

24 V DC POWER SUPPLIES

A. NRC Concern:

Output voltage testing, for the nominal input voltage case, was performed to a wider acceptance range (24±2V DC) than specified by SH1-421.

Response:

The Bailey Meter Company 120V AC, 8.7 Amp/24V DC, 20 Amp power supplies have been certified to provide 24V DC±4 percent (or approximately ±1 volt) output at the power supply under various conditions to meet Shoreham Specification SH1-421. The 24V DC output voltage specified on the data sheets in SH1-421 is a nominal voltage output. The Bailey certification of 24V DC±4 percent takes into account the effects of input frequency, supply voltage, ambient temperature and output ripple. In accordance with instrumentation equipment supplier recommendations, 24±2V DC is an acceptable input voltage range for the instrumentation supplied by these power supplies. This voltage can be measured at the power input terminals located at the back of the instrument racks or at the remotely mounted manual/auto stations.

The field testing which was conducted under E&DCR F-36217 was not performed as part of a Startup acceptance test, but was performed only as a means to obtain additional information. As such, this additional information did not involve a change to Specification SH1-421. In addition, the AC input voltage was not recorded and the data collection points could not be verified. Therefore, it appears that the results of the July 17, 1981 test were inconclusive and should not have been used as a valid source of data upon which to base an evaluation of power supply performance. As a result, the four Bailey 24V DC, 20 Amp power supplies referenced in the Notice of Violation were retested on April 28, 1983 and documented in E&DCR F-36983D under maximum and minimum input voltage and output load conditions. The results were then analytically evaluated and load-side circuit voltage drops calculated and confirmed by additional field voltage measurements. The Power Supply output voltages were found to meet specification requirements.

B. NRC Concern:

Rated full load output voltage outside that wider acceptance range were then approved without appropriate justification.

Response:

Further evaluation has shown that the instrumentation supplied by these Power Supplies would receive the specified input voltage under the various normal system operating modes. In one case of degraded operation however, the possibility of not meeting specified voltage levels by a small amount at one location in the system does exist.

These power supplies are normally operated at loads of less than 50 percent capacity. With both power supplies operational, significantly higher operating loads could still be supplied with sufficient voltage to meet the supplier's recommendations for instrument operation. However, under rated full load conditions, the input voltage supplied from a single power supply to the instrument rack may not meet the minimum voltage criteria recommended by the instrumentation supplier.

The voltage tests which were conducted on the Bailey 24V DC, 20 Amp power supplies and documented on E&DCR F-36983D demonstrates that the output voltages of the power supplies, under conditions of maximum and minimum input voltage and output load, are within the stated design tolerance of plus-or-minus four percent. An additional field check was performed under single power supply operation and existing load conditions. This test also verified that the minimum voltage requirements at a representative, remotely located, field mounted transmitter exceeded the equipment supplier's minimum voltage requirements. However, the voltage drop in the power supply output wiring contained within 1H21\*PNL060 could possibly result in an unacceptable voltage drop under the degraded conditions of single power supply operation at rated full load conditions. Therefore, E&DCR F-36983D, documents the corrective action which will be taken to reduce the voltage drop in the power supply load side wiring to acceptable limits.

C. NRC Concern:

The output voltage acceptance criteria did not account for the range of input and ambient conditions throughout which the system must perform.

Response:

The four Bailey 24V DC, 20 Amp power supplies referenced in the Notice of Violation are installed in the Relay Room. The atmosphere of this area is controlled by a redundant QA Category I ventilation system which will regulate and maintain stable ambient temperature and humidity conditions under which these power supplies will operate. Therefore since the atmospheric operating conditions are essentially ambient the acceptance criteria was appropriate for this attribute.

With respect to input parameters under normal operating conditions, these power supplies are energized from the LILCO transmission grid which is regulated in frequency to an extremely close tolerance. When the input power to these power supplies is fed solely from the Emergency Diesel Generators, except for within the first minute of initial operation when large loads are being accelerated, Diesel Generator output frequency is also closely regulated.

Therefore, the expected conditions under which these power supplies are expected to be operated have been covered under the tested conditions.

1. Corrective steps which have been taken and the results achieved. Verification tests have been conducted which document that the test results summarized in E&DCR F-36217 were inconclusive. Under normal operating conditions, the DC voltage level at the input terminals of the instrumentation racks are within the acceptable limits of  $24 \pm 2$  V DC. However, under the abnormal operating conditions of one power supply out of service and rated full load on the remaining power supply, it has been determined that the power supply load side cable runs may not be able to assure minimum acceptable voltage to the input terminals of the instrumentation rack. E&DCR F-36983D will upgrade conductor sizes in a portion of the load side circuit to eliminate the potential for marginal operation under rated full load operating conditions with one power supply out of service.
2. Corrective steps which will be taken to avoid further violation. E&DCR F-36983D will also verify that the remaining QA Category I Bailey 24V DC power supplies will perform within the limits specified in SH1-421 under full connected load operating conditions.

In addition, LILCO is presently developing a station procedure which will provide assurance that all safety-related 24V DC power supplies in the plant will perform acceptably in service for expected frequency, ambient temperature, humidity, and variations of input voltage.

3. The date when full compliance will be achieved. Implementation of E&DCR F-36983D will be completed by July 1, 1983. The station procedure to assure acceptable power supply performance will be implemented by Fuel Load.

ATTACHMENT 2

YELLOW LINING PROGRAM

NRC Concern:

Regarding "yellow-lining" of electrical drawings brought to your attention in Inspection Report 50-322/81-22 and again in 50-322/82-13, it was noted that not all of the commitments of your response letter, dated February 19, 1982, were being implemented. NRC expects that such commitments will be met and requests notification in writing if changes are made.

Response:

LILCO intends to meet the commitments set forth in SNRC-671, dated February 19, 1982. However, as indicated in Inspection Report 83-05, a test engineer is no longer assigned to the Resource Center to review revised electrical drawings and applicable E&DCR's to determine if retesting is required. As originally committed to, this position had been filled by a test engineer. However, after several months it became apparent that the burden of determining retest requirements properly belonged to the system test engineer, and not a staff type engineer. It was therefore determined that the position would be eliminated and the test engineer would be responsible for determining when retesting would be required. With the latest planned change to the Yellow Lining Program, there is still no need to have this type of individual assigned to the Resource Center since all changes due to E&DCR's or revisions to engineering drawings will be reviewed by the test engineer up until the time of acceptance of the system by Plant Staff.

As a result of continuing discussion with the NRC Resident Inspector, LILCO has made significant revisions to the procedure for controlling Yellow Line Masters, including the decision to expand the duration of the Yellow Lining Program up until the time that a particular safety-related system has been accepted by the Plant Staff. The Startup Instruction governing the Yellow Lining Program will be revised to reflect the new program. In addition, the program will call for documentation showing that the Yellow Lining process is complete at the time of Plant Staff acceptance of the system.

The program change began May 1, 1983 for Category I systems accepted by Plant Staff on May 1 or thereafter. Category I systems that were accepted by Plant Staff prior to that date will be reviewed and documented according to the new program requirements on a "backfit" arrangement with a target completion of June 30, 1983.

In response to the specific concern addressed in Inspection Report 83-05 which resulted from your review Item 81-22-02, the discrepancy for ESK 11E4101A, Rev. 7, involved the installation of a resistor in series with the shunt field winding of the HPCI vacuum tank condensate pump, 1E41\*P075. The pump test results which followed the installation are documented in C&IO package #E41-69A. The Yellow Line Master, ESK 11E4101A, Rev. 7, indicates the new resistor is located in the Motor Control Center. However, E&DCR 6084A and Repair Rework Request #E41-63 specifically place the resistor in a junction box near the pump motor. Functional testing of the circuit did not and would not pick up this discrepancy as pump performance would be essentially the same with the 90 ohm resistor in either location. Even though the E41 Yellow Line Master was yellow-lined by the Test Engineer to indicate satisfactory functional testing, test personnel realized this circuit, as well as two similar E51 circuits, were not correctly represented on their ESK's. E&DCR F-6084C was issued (in February 1982 - prior to the NRC finding) to correct the print(s). This E&DCR is annotated on ESK 11E4101A, Rev. 7, but was not identified as being addressed by the E41 Test Engineer. To resolve this concern with the Yellow-Line Master, C&IO package #E41-69B was issued to perform a wire-check on a portion of the affected circuit on ESK 11E4101A, Rev. 8 which incorporated E&DCR F-6084C. Testing will be performed by May 15, 1983.