



LONG ISLAND LIGHTING COMPANY

SHOREHAM NUCLEAR POWER STATION

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Direct Dial Number

April 22, 1983

SNRC-879

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SER Issue No. 8
Equipment Dynamic Qualification Program
Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322

Reference: LILCO letter SNRC-861 dated March 17, 1983, J. L. Smith (LILCO) to H. R. Denton (NRC) re: Sample Surveillance and Maintenance Program for Seismically Qualified Components.

Dear Mr. Denton:

In conversations with members of your staff, subsequent and related to the above submittal, the need for LILCO to revise Enclosure 1 of SNRC-861 was identified. The purpose of the revision is to provide a description of LILCO's Inservice Inspection and Inservice Testing programs and related surveillance and maintenance activities which provide assurance that the seismic integrity (i.e. mounting bolts, restraints, etc) of electrical and mechanical components will be maintained throughout the life of the plant.

In response to these concerns, please find enclosed forty (40) copies of LILCO's revised document, "Surveillance and Maintenance Program Description", (Enclosure 1), and a sample Scheduled Activity Worksheet, including its referenced procedure, for switchgear maintenance activities (Enclosure 11). Enclosures 2 through 10 were originally transmitted as part of SNRC-861 and are not included in this submittal.

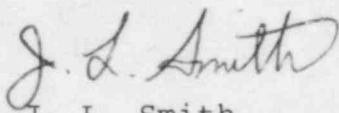
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It is LILCO's understanding that this information is confirmatory in nature. If you should have any further questions relating to this matter, please feel free to contact this office.

Very truly yours,

A handwritten signature in cursive script, appearing to read "J. L. Smith".

J. L. Smith
Manager, Special Projects
Shoreham Nuclear Power Station

DWD:bc

Enclosure

cc: J. Higgins
All Parties Listed in Attachment 1

ATTACHMENT 1

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Enclosure 1

SURVEILLANCE AND MAINTENANCE PROGRAM DESCRIPTION

Shoreham Nuclear Power Station - Unit 1

As described in Section 5 of the Environmental Qualification Report for Class 1E equipment (EQR,) Revision 4, the Shoreham Nuclear Power Station has a surveillance and maintenance program which includes documented program plans, procedures and results which will insure that the identified safety-related equipment is maintained in a state of readiness. Section 5 of the EQR also describes how various regulatory and industry programs will be monitored and evaluated for input to Shoreham's surveillance and maintenance program.

The surveillance activities performed as part of the Shoreham surveillance and maintenance program are based in part, on the requirements stated in the Shoreham Plant Technical Specification (Tech Specs). The Tech Specs require periodic testing to demonstrate and assure continued operability of essential safety systems. In addition to the Tech Specs, pertinent industry codes and standards, and applicable regulatory documents are evaluated for input into the Shoreham surveillance and maintenance program.

The Surveillance Program outlines the methodology by which these requirements are fulfilled and is comprised of tests, test procedures, and schedules. Testing, inspections, and observations as required by the Tech Specs are performed in accordance with outlined procedures. The schedules integrate all surveillance activities required for all sections and specify what test, when it was last performed, when it is to be performed, and the responsible section. Individual surveillance activities are shown on Scheduled Activity Worksheets, SAWS (Enclosure 2).

The SAW provides surveillance test procedure number, responsible section, performance frequency, conditions under which the action can be performed (e.g. hot shutdown, cold shutdown, refueling etc.) and a completion section to insure the activity has been completed or if deferred, until what date. A sign-off section is also provided to record appropriate signatures. Provisions are also included in the program to account for surveillance activities required during outages, startups/shutdowns, after maintenance or repair, and how to deal with problems encountered during surveillance testing. In the case where maintenance or repair has affected the component's operability, the appropriate surveillance test procedure or portion thereof will be performed after the work is completed to verify that the component's operability has been restored. As stated, the Tech Specs provide the foundation for the surveillance requirements. Demonstrating operability requirements of the Tech Specs via the Shoreham Surveillance Program will provide adequate assurance of the equipment's ability to perform its intended safety function.

The Shoreham Preventive Maintenance program has established an efficient reliable system for scheduling, performing, and reporting preventive maintenance in order to minimize equipment degradation or failure resulting from normal operation. Maintenance activities for mechanical and electrical equipment will be routinely performed and will include lubrication, greasing, meggar testing, and operational performance testing in addition to test equipment calibration and general inspections. Procedures and reports have been developed to assist in implementing the preventive maintenance program.

Preventive maintenance activities scheduled in the various reports are shown on Scheduled Activity Worksheets - SAWS (Enclosure 3). These worksheets contain designations for responsible section, activity and procedure number, activity description, references, frequency, and a completion section which includes sign-off by responsible individuals. The procedures referenced on the SAWS provide detailed instructions for performing maintenance activities and include any precautions and materials or test equipment required. The Reference section of the procedure provides additional information to aid in performing the required maintenance. This section would include applicable alternate procedures, ANSI standards or applicable vendor reference manuals.

Similar to the Surveillance Program, the Preventive Maintenance Program is adaptable to changes resulting from problems identified by the various industry and regulatory monitoring programs. It has provisions to perform maintenance activities during outages and updated information, e.g. new maintenance frequency, additional weekly checks etc., can be inserted into the program by revising the applicable SAW.

To fulfill the requirements of 10CFR50.55a, subparagraph (g), Shoreham has developed an Inservice Inspection (ISI) Program Plan and an Inservice Testing (IST) Program Plan. The specific guidelines given in Section XI of the ASME code, entitled "Rules for Inservice Inspection of Nuclear Power Plant Components," provided a basis for the development of these programs. These programs were developed in order to assure operability of essential mechanical equipment (i.e. pumps and valves) throughout the design life of the plant. By virtue of performing the required tests and inspections, adequate assurance exists that the equipment seismic integrity is also maintained. A brief discussion of relative aspects of the ISI and IST programs is provided in the following paragraphs.

Examinations within the ISI Program Plan reflect those outlined in article 1WA-2000 of the ASME code and are of three types; visual, surface and volumetric. One of the four categories of visual examination, VT-3, provides that visual examination shall be conducted to determine the generic mechanical and structural conditions of components and their supports, such as the presence of loose parts, debris or abnormal corrosion products, wear,

erosion, corrosion and the loss of integrity at bolted or welded connections. The inspection may also require as applicable the measurement of clearances, detection of physical displacement, structural adequacy of supporting elements, connections between load carrying structural members and tightness of bolts in order to determine structural integrity. Compliance with the examination frequencies specified in the ISI Program (which reflect the ASME Code requirements) in addition to Technical Specification surveillance requirements will assure that the equipments ability to function during and after a seismic event is maintained.

The Shoreham IST Program Plan fulfills the requirements of Section XI of the ASME code applicable to inservice testing of pumps and valves (Articles IWP and IWV). The program when implemented assures the operability of pumps and valves throughout their service life. This is generally accomplished by measuring various test parameters for pumps (i.e. inlet and differential pressure, flow rate, vibration velocity) and stroke testing or measuring seat leakage for valves as applicable. Prior to implementation, a base set of reference values is established for all parameters to be measured. When testing is performed, measured values are compared to base line data for significant deviations and when necessary, corrective action is initiated. When significant deviations, from baseline data are identified, but corrective action (e.g. replacement) is not yet required, continued operation may be based on any or all of the following; increased frequency of testing, further maintenance, or analysis to demonstrate operability. After maintenance is performed, baseline values are re-determined as required for future testing. By performing the tests in accordance with their outlined frequencies, operability during and after a seismic event will be assured.

Overall, the combination of surveillance and preventive maintenance performed in conjunction with the various programs described above provides adequate assurance that equipment is in an operable condition such that it will perform its intended safety function when required.

Sample Surveillance and Maintenance Activities

Batteries

Enclosure 4 provides the surveillance requirements for Electrical Power Systems - D.C. Sources. The applicable Technical Specifications section is provided and outlines the Limiting Condition for Operation (LCO), Action, and Surveillance Requirements. Enclosure 5 provides the preventive maintenance requirements for Battery 1R42*BA-A1. The SAWS associated with each maintenance activity for this particular battery as well as the referenced procedures and/or vendor manual are attached.

Motors

Enclosure 6 provides the surveillance requirements for the service water system pump motor. Section 3/4.7.1 of the Tech Specs states the LCO, Action, and Surveillance requirements for the Service Water System. Although the motor is not specifically addressed, Section 3/4.7.1.1C does state that, along with other surveillances, once every 18 months, the Service Water system will be demonstrated operable by verifying that each pump starts automatically. Enclosure 7 provides the associated SAWS, procedures and vendor manuals required for performance of maintenance activities. Enclosure 8 is selected pages of the "Shoreham Surveillance Activity List", By Activity Number 11 and the relevant Procedure Number is shown in the respective columns. Also included are the frequencies of the surveillance activities.

Enclosure 8 illustrates that a link between the surveillance requirements and preventive maintenance activities exists. Additional procedures will be utilized to perform required maintenance activities aside from those shown in Enclosure 8. Also note that the number of surveillance activities does not correspond to the Technical Specifications requirements. This is due to restructuring the Surveillance program requirements to accommodate plant procedures and station operations and does not infer an omission of Tech Spec surveillance requirements.

Electrical Distribution Equipment

In the case of electrical distribution equipment, LILCO has incorporated into its maintenance and surveillance program, periodic requirements to clean and inspect electrical equipment. As an example, Enclosure 11 consists of the Scheduled Activity Worksheet for 4160V switchgear 1R22*180SWG-102 and the referenced maintenance procedure SP32.050.02. Sections 8.1 and 8.2 of the procedure outline the necessary activities to verify the mechanical integrity of the switchgear and related components. By virtue of performing the required maintenance on this and other electrical distribution equipment, the ability of the equipment to function as needed during and after a seismic event is assured.

General Notes:

- 1). Although they are marked "Draft", the Technical Specifications provided in Enclosure 4 and 6 are the latest revision. All Technical Specifications will be finalized after a "Proof and Review" is performed by the Staff and will then be issued as a NUREG and attached to the plant operating license.
- 2). The numbers 110, 180, and 181 in the Activity Number on the SAWS are file codes utilized in retrieving information from the computer listing.

- 3). The SAWS provided as Enclosures for the battery and motor differ from those shown in Enclosure 2 and 3 in that they do not contain the sign-off section. This is because these SAWS were provided for information purposes only. Those SAWS utilized with the various Surveillance or Maintenance reports will be working copies with the appropriate sign-off sections included.
- 4). Enclosures 9 and 10 are the relevant sections from the Surveillance and Maintenance Procedures respectively and provide descriptions of the various entries on the SAW sheets.