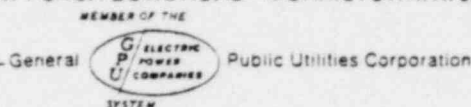


# Jersey Central Power & Light Company



MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N. J. 07960 • 201-539-6111



December 2, 1977

Mr. Boyce H. Grier, Director  
Office of Inspection and Enforcement  
United States Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

Dear Mr. Grier:

Subject: Oyster Creek Nuclear Generating Station  
Doc'tet No. 50-219  
IE Bulletin No. 77-06

The purpose of this letter is to respond to the directives set forth in IE Bulletin No. 77-06 which is concerned with potential problems with containment electrical penetration assemblies.

## Item 1.0

Do you have containment electrical penetrations that are of the G. E. Series 100, or are otherwise similar in that they depend upon an epoxy sealant and a dry nitrogen pressure environment to ensure that the electrical and pressure characteristics are maintained so as to ensure the functional capability as required by the plant's safety analysis report; namely, (1) to ensure adequate functioning of electrical safety-related equipment and (2) to ensure containment leak tightness?

## Response

The Oyster Creek Nuclear Generating Station containment does not utilize the G. E. Series 100 electrical penetrations. The installed penetrations are of the following type:

- G. E. Type NS02
- G. E. Type NS03
- G. E. Type NS04

A total of forty (40) of these penetrations exist in the containment. The above penetrations utilize an epoxy sealant and a dry nitrogen environment.

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Item 1.1

Have you experienced any electrical failures with this type of penetration?

Response

No electrical failures have been experienced with this type of penetration, nor has any degradation of penetration integrity been experienced (i.e., as related to maintaining the integrity of the reactor containment structure). Local leak rate testing of the penetrations completed during the spring 1977 refueling outage demonstrated acceptable local leakage rates.

Item 2.0

For those penetrations referenced in Item 1 above, have you maintained the manufacturer's prescribed nitrogen pressure at all times?

Response

The manufacturers of these penetrations did not prescribe that a nitrogen pressure be maintained at all times, but rather that at the completion of installation testing, the penetration contain 15 psig of dry nitrogen. The Oyster Creek penetrations have been pressurized to 35 psig for local leak rate testing during each refueling outage. Each penetration was then isolated with dry nitrogen at 35 psig minimum and no surveillance to maintain this pressure was accomplished until the next local leak rate testing period. It is, therefore, not known what the exact minimum dry nitrogen pressure was, except that the penetration did contain dry nitrogen. Presently, six (6) of the forty (40) penetrations contain less than 5 psig dry nitrogen. These penetrations contain coaxial and triaxial cables which were insulation resistance tested and were found to be satisfactory during the last refueling outage.

Item 2.1

If you have operated the penetrations without maintaining a nitrogen pressure, was any degradation of insulation resistance or anomalous component operation detected?

Response

The Oyster Creek Station has not detected any degradation of insulation resistance or anomalous component operation.

Item 2.2

If no measurements were taken during periods when nitrogen pressure was not maintained, how were you assured that the insulation resistance was not degrading or degraded?

Response

The Oyster Creek Station was assured that the insulation resistance was not degraded by (1) the continued satisfactory operation of the plant without anomalous component operation and (2) the surveillance test program of the nuclear safety equipment which required that on frequencies varying from daily, weekly, monthly, quarterly, semiannually, up through periods of the operating cycle, that various functional tests and instrumentation tests be conducted. Also, during insulation resistance testing accomplished in the past after plant modifications and during surveys, the total system insulation resistances (above 100 megohm) were satisfactory. This testing has not been previously documented.

Item 2.3

How do you determine that circuit insulation resistances values are satisfactorily maintained?

Response

The circuit insulation resistance values and proper component operation are determined to be properly maintained by both the surveillance test program, and the various insulation resistance testing as noted in response 2.2.

Item 3.0

Is there a need, as determined by either the vendor or yourself, to maintain penetrations pressurized during a LOCA?

Response

There is not a need to maintain penetrations pressurized during a LOCA. The penetration is double ended in that a seal exists on both the internal and external ends of the penetration. Either seal is designed to be capable of withstanding the pressure encountered during a loss of coolant accident.

Item 3.1

What measures have you taken to ensure that penetrations of this type will perform their design function under LOCA conditions? (design reviews, analyses or tests)

Response

The Burns & Roe, Inc. Purchase Specification S-2299-52 (Reference; FDSAR Amendment 15, Section III, Paragraph 4.2, and Section VI, Paragraph 2.2) required extensive qualification testing both for the electrical properties of the penetration and the epoxy potting compound and for the properties of the penetration to withstand the environment during a LOCA.

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Item 3.2

Are the measures that provide this assurance adequate to satisfy the Commission's regulations (GDC 4, Appendix A to Part 50; QA Criteria, Appendix B to Part 50)?

Response

The Oyster Creek Station's containment electrical penetrations were tested prior to the Commission's requirements for compliance to either the GDC 4, Appendix A to Part 50 or the QA Criteria, Appendix B to Part 50. However, it is our opinion that the testing does meet the requirements of GDC 4 and certain portions of the QA Criteria. The exact portions of the QA Criteria met will be determined within ten days.

Yours very truly,

A handwritten signature in cursive script, reading "Donald A. Ross". The signature is written in dark ink and is positioned above the typed name and title.

Donald A. Ross, Manager  
Generating Stations-Nuclear

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