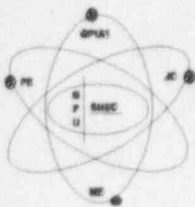


SAXTON NUCLEAR EXPERIMENTAL CORPORATION
GENERAL PUBLIC UTILITIES SYSTEM



Jersey Central Power & Light
General Public Utilities Nuclear Corporation
Metropolitan Edison Company
Pennsylvania Electric Company

MAILING ADDRESS:
One Upper Pond Road
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June 8, 1995
C301-95-2011
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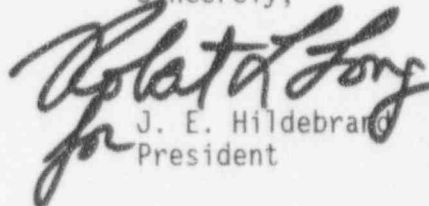
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Gentlemen,

Subject: Saxton Nuclear Experimental Corporation
Operating License No. DPR-4
Docket No. 50-146
15 Day Report Describing the Inadvertent Breach of the
SNEF Containment Vessel Liner

The purpose of this letter is to submit the attached 15 Day Report. The action is being taken in accordance with Saxton Nuclear Experimental Corporation (SNEC) Technical Specification section B.6.a.2 which requires submittal of a 15 day report when conditions arise from man-made events which affect the integrity of the containment vessel. The event described in the report involved the inadvertent breach of the integrity of the containment vessel during core boring operations in support of vessel characterization. The event did not adversely affect the health and safety of the public.

Sincerely,


J. E. Hildebrand
President

WGH
Attachment

cc: Administrator, Region I
NRC Senior Project Manager NRR
NRC Project Scientist, Region I

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S PDR

JEH

REPORT: Inadvertent Breach of the
SNEF Containment Vessel Liner

ABSTRACT:

At approximately 0900 hours on May 25, 1995 while performing a core boring operation in the rod room sump in the basement of the Saxton Nuclear Experimental Facility (SNEF) Containment Vessel, contractor personnel bored through the containment liner. Ground water entered the containment at a rate of approximately one gallon per minute until approximately 1300 hours when a temporary plug was installed stopping the in-leakage. Total in-leakage was approximately 200 gallons.

I. PLANT CONDITIONS BEFORE THE EVENT

The Saxton Nuclear Experimental Facility (SNEF) has been in a shutdown and defueled (SAFSTOR) condition since 1972. Characterization activities in preparation for future dismantlement of the containment vessel were in progress.

II. STATUS OF STRUCTURES, COMPONENTS OR SYSTEMS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

No plant systems, structures or components are in service and therefore were not contributors to the event.

III. EVENT DESCRIPTION

At approximately 0900 hours on May 25, 1995 Cutting Technologies Incorporated (the core boring contractor) personnel bored partially through the SNEF containment vessel liner below the rod room sump at the 765 foot elevation (approximately 47 feet below grade). They were in the process of making a three inch diameter, 18 inch deep bore into the rod room sump when water in excess of that being used to cool the coring bit was observed. The boring operation was secured and action to determine the source of the water was initiated.

When the bit was retracted from the bore location, the core was removed with it. The lower end of the core was smooth and conformed with the curvature of the liner. It was because of these observed characteristics and the water clarity and temperature that liner penetration, at least partially, is considered to be the cause of the in-leakage. The water flowed from the rod room sump through a cross connect line to the larger containment vessel sump from which it was pumped into 55 gallon drums. At approximately 1300, a temporary plug was installed in the hole and the in-leakage was stopped.

The water was sampled and analyzed to verify that it was ground water in-leakage. The sample counted at 1000 hours showed Cs¹³⁷ at a level above that expected. This was attributed to contamination of the sample by suspended particulates from the boring process and residual contamination in the rod room sump. This was later confirmed by a second, 1630 hour sample result which showed a reduced Cs¹³⁷ level.

IV. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

The event has been evaluated and it has been determined that there were no environmental consequences related to the event. This conclusion was drawn based on the knowledge that the liner penetration is sufficiently below grade, compared to the water table, that only containment vessel in-leakage could result. The construction of the containment vessel is such that in the area of the bore, the containment vessel liner is supported and enveloped by a concrete saddle. The bore cut is not at an area of the liner adjacent to soil but at one backed by the concrete saddle. The water making its way to the bore cut is likely water seeping between the liner/saddle interface. Samples taken at the ground water monitoring wells verified that there was no leakage of contaminated water into the ground water.

As previously discussed the core bore hole was temporarily plugged. A pneumatic plug was backed up with a mechanical device and in-leakage was verified to be stopped during inspections of the sump in the days that followed.

V. CAUSE OF THE EVENT

The cause of the event was determined to be an inadequate review of design drawings to verify that the depth of concrete was sufficient to permit completion of the intended core bore without breaching containment integrity.

The Westinghouse drawing series D37792 to D37795 were used by TLG Engineering Inc. (TLG), the firm contracted to provide a characterization plan for SNEC, in determining the location and characteristics for the core bore to be made in the rod room sump as described in Exhibit 1-6 of the SNEC Site Characterization Plan. Independent design review by TLG failed to identify the actual depth of the concrete. Failure to verify the adequacy of the depth of the concrete persisted through the internal reviews of the Characterization Plan by GPUN. During the internal reviews, GPUN requested of TLG a specific depth be identified for this core bore. As a result, a depth of 18" was specified by TLG. This depth was chosen to allow characterization of possible deep activation from postulated high energy neutron streaming from the control rod drive mechanisms.

Since the initial characterization plan drafted by TLG and the one ultimately utilized by GPUN to perform the characterization activities varied only in format, the original error was carried forward. Both

plans were reviewed with the practical and technical emphasis on the adequacy of the characterization effort to provide meaningful data for the decommissioning of the SNEF containment vessel. Before the boring began, an engineer utilizing Westinghouse drawing D37757, a suitable structural drawing for the location, misread the drawing during the walkdown to locate the specific core bore site. Work instruction procedure drafts were revised to include precautions and depth stops to prevent inadvertent breach of the liner. Although these actions were taken, the error was not prevented since the depth of concrete below the proposed bore location remained incorrectly identified.

VI. CORRECTIVE ACTIONS TAKEN

Immediate and interim corrective actions involved the following:

- A. Basement floor core boring activities were postponed until the cause of the event could be determined.
- B. Eliminated the in-leakage of ground water into the containment vessel with temporary plugs and inspected for leakage until assured that in-leakage has been stopped.
- C. Sampled the ground water monitoring wells to assure that there was no leakage from the containment.

VII. CORRECTIVE ACTIONS PLANNED

- A. Utilize the results of the root cause determination to preclude the possibility of a recurrence of the event. This will include a review of the process for work instruction technical review, use of appropriate drawings and require an additional review of the remaining basement core bores to limit boring depths to preclude another breach of the containment vessel liner. This will be completed by June 30, 1995.
- B. Increase the environmental surveillance on the ground water monitoring wells as follows: perform a second surveillance during the week of 6/12 for comparison with the results obtained on 5/30. If there is no positive indication of ground water contamination, sampling will be performed monthly thereafter for the next six months. If samples obtained on the monthly interval continue to show no positive activity, the once per quarter surveillance frequency will be reinstated (after approximately 12/12/95).
- C. Design and install a permanent plug or seal to fully restore containment vessel integrity. This work will be completed by July 31, 1995.