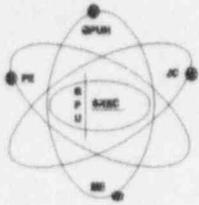


**SAXTON NUCLEAR EXPERIMENTAL CORPORATION
GENERAL PUBLIC UTILITIES SYSTEM**



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

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March 8, 1996
C301-96-2016

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Gentlemen,

Subject: Saxton Nuclear Experimental Corporation (SNEC)
Operating License No. DPR-4
Docket No. 50-146
Request for NRC Approval to Replace the Shield Blocks Removed for
Characterization with Steel Plates

During the January 16, 1996 meeting between SNEC and the NRC, SNEC representatives addressed the desirability of not returning the reactor/ fuel storage cavity shield blocks to their pre-characterization position. Since the SNEC facility Technical Specifications do not permit facility modification without NRC approval, the purpose of this letter is to request NRC approval to leave the shield blocks in their present stored condition in the SNEC facility Containment Vessel and leave the steel plates currently covering the opening in place after the completion of reactor/fuel storage cavity characterization activities.

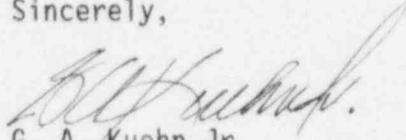
As background, the key block and two 20 ton shield blocks were removed in mid-June 1995 to permit characterization studies in the reactor/ fuel storage cavity. Shield block removal was permitted by the Technical Specifications as a characterization activity. The NRC Staff safety evaluation supporting the license amendment permitting performance of characterization activities stated that the blocks would be reinstalled following the completion of reactor/fuel storage cavity characterization activities.

SNEC considered it prudent to eliminate the potential for an unplanned or unauthorized entry into the cavity by covering the resultant opening with steel plates during periods when characterization activities within the cavity were not in progress. Because reinstallation of the shield blocks is a difficult and man-power intensive operation and the plates are as effective an access barrier as the shield blocks, SNEC requests permission to leave them in place after the completion of cavity characterization activities in the reactor/fuel storage cavity. The attached engineering safety evaluation supports this action and concludes that no unreviewed safety question exists.

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Sincerely,



G. A. Kuehn Jr.
Vice President SNEC

WGH
Attachment

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

ATTACHMENT

SAFETY EVALUATION IN SUPPORT OF NOT INSTALLING THE CAVITY SHIELD BLOCKS AT THE SAXTON FACILITY

PURPOSE AND SCOPE

The purpose of this document is to provide a safety evaluation in support of leaving the reactor/fuel storage cavity shield blocks in their present stored condition at the Saxton Nuclear Experimental Corporation (SNEC) facility at Saxton, Pennsylvania. Two shield blocks were removed in mid June 1995 to permit characterization studies in the cavity. The current Technical Specifications permitted their removal for characterization but are silent on the issue of leaving them removed. However, the NRC Staff stated in their safety evaluation that they would be reinstalled after completion of characterization activities.

BACKGROUND

The Saxton Decommissioning Plan And Safety Analysis Report, dated April 1972, was submitted to the US Nuclear Regulatory Commission to describe the plan for decommissioning of the Saxton reactor facility. It described the intended "as left" condition of the facility and presented a safety analysis of those conditions. The following are significant points regarding the shield blocks in that report:

1. The report states, "The reactor vessel will be contained inside of the reactor/fuel storage compartment which cannot be breached without the use of special equipment which will not be in service on site." Further, it states that "entry to the high radiation area reactor/fuel storage compartment will require physically restoring the electrical supply (major breakers) to the rotary bridge crane in order to remove the 20 ton shield blocks ...".
2. In describing the conditions of the containment vessel, the report states that the removable concrete shield blocks over the reactor vessel will be left in place and that the rotary bridge crane (i.e. the polar crane) which is required for removal of the blocks

would be positioned so that it couldn't be used for shield block removal and electrically deactivated.

3. The safety analysis section of the report states that "entry into the high radiation area reactor/fuel storage compartment will require replacing power supply breakers and lifting the 20 ton shield blocks".

The primary concern at the time the document was written was the potential of an unplanned or unauthorized entry into a high radiation area of a facility that had a minimal level of on-site staffing and direct management and administrative controls. The potential for such an entry creating a threat to the public health and safety or an environmental concern was insignificant. However, it could have resulted in considerable hazard to the individual making such an unauthorized entry.

SNEC letter to the USNRC dated February 20, 1975, documented the final as-left condition of the Saxton site as compared to the approved decommissioning plan. That report stated, "The removable concrete shield blocks are in place over the reactor/fuel storage compartment and the rotary bridge crane which is required for removing these shield blocks has been positioned so that it cannot be utilized for their removal. Electrical power to the rotary bridge crane is disconnected."

As with the original decommissioning plan, the final status report implies that the intent of "parking" the polar crane was to prevent removal of the shield blocks and allow an unauthorized entry into the reactor/fuel storage cavity.

GPU Nuclear safety evaluation SE-510000-001, dated July 18, 1994, provided an evaluation in support of reactivating the polar crane while the shield blocks were in place. Subsequently, the USNRC approved License Amendment No. 12 which allowed removal of the shield blocks for characterization activities in the reactor/fuel storage cavity.

CURRENT CONDITIONS

The reactor/fuel storage cavity was opened for access by removing two adjacent 20 ton shield blocks as well as the "key" block in mid June of 1995. When access to the cavity is not required, the opening left by the removal of the shield blocks is covered by four steel plates that weigh about 750 pounds each. These plates prevent unauthorized access yet are strong enough to support normally expected personnel traffic over top of the cavity.

Administrative controls are in place to assure that the polar crane is operated in accordance with procedures, and to control access to the containment vessel. In addition, entry into the reactor/fuel storage cavity requires additional access controls in the form of radiation work permits. The general area radiation levels on the operating floor area of the containment vessel are about 0.2 to 0.3 mrem/hr in areas back a few feet from the opening to the cavity. These levels do not vary appreciably with removal or installation of the steel cover plates. The radiation level three feet above the cavity cover plates is about 4 mrem/hr, and about 5 mrem/hr on contact with the cover plates.

The NRC Staff's safety evaluation in support of License Amendment No. 12 stated that the shield blocks would be reinstalled as soon as practicable after completion of the characterization program. However, at this time, it is desirable to leave the cavity opening covered with the steel plates rather than reinstalling the shield blocks. The removal and reinstallation of the blocks is a difficult, man-power intensive operation due to the weight of each block being very near the design limit of the polar crane and the very close tolerances between the blocks and the support ledge in the cavity. Although the risk assessment prepared prior to removal of the shield blocks, and actual experience gained in their removal, have demonstrated that the task can be performed safely, there is very little enhancement to the plant safety to be gained by their reinstallation.

SAFETY EVALUATION

Although the provisions of 10CFR50.59 are no longer applicable to the Saxton facility, this safety evaluation uses the criteria of 10CFR50.59 to demonstrate that leaving the shield blocks uninstalled does not constitute an unreviewed safety question and should be permitted under the current license conditions.

Our proposal to leave the reactor/ fuel storage cavity shield blocks in their stored position rather than reinstalling them over the cavity does not involve an unreviewed safety question based on the following:

- i. The reactor/fuel storage cavity shield blocks serve to shield the operating floor and its equipment from the extremely high radiation levels that would exist during periods of reactor operation. Since the reactor was shut down, defueled, and all fuel removed from the site, they provided an intrusion barrier against unauthorized entry into the high radiation area around

the reactor vessel during the period when the site had minimal staffing and administrative controls. If an intruder were to gain unauthorized and undetected access to the containment vessel, entry into the cavity would require operation of the polar crane to lift the 20 ton shield blocks clear of the cavity opening. When the cavity is open, administrative controls are in place to assure that proper radiological controls are in place such that only authorized and properly trained individuals are allowed to enter both the exclusion area (i.e.- the containment vessel) and the high radiation area. When not open for planned and controlled access, the cavity is presently covered with four steel plates that weigh about 750 pounds each. Thus, even with the shield blocks removed, access would still require the operation of the polar crane since there is no other available equipment capable of lifting the 750 pound weight. In addition to the normal procedural controls on crane operation, the polar crane is provided with a pendant control station which is the only station from which the crane can be operated, and a lockable main power supply breaker. The pendant control box is a plug-in module that is readily removable from the pendant cable. The operating procedures require that the control box be physically removed and stored in a locked container, and the main power supply breaker is locked open when the crane is not in use for authorized activities.

In the event all safeguards failed under the present conditions, the consequences of the failure would be an unplanned radiation exposure to the individuals involved. The efforts required to bypass the present safeguards and the consequences of bypassing them are the same whether the cavity is covered with the concrete shield blocks or the steel plates. Thus, with the current controls in place, leaving the cavity covered with the steel plates rather than the shield blocks does not result in an increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report.

- ii. As previously stated, the potential accident for which the shield blocks were put in place was unplanned

radiation exposure resulting from unauthorized entry into the reactor/fuel storage cavity. Routine access to the cavity was permitted under the former operating license when the reactor was shut down and proper radiological controls were in effect, and there was no requirement to install the shield blocks under shut down conditions as a routine means of preventing access. In fact, the current controls over cavity access exceed those in place when the reactor was licensed for operation. Therefore, the activity of leaving the shield blocks removed does not create the possibility of any accidents or malfunctions of a different type than any evaluated previously in the safety analysis report.

- iii. The margin to safety was based upon access controls that prevented unauthorized entry into the cavity. This activity does not reduce those access controls. Thus, the margin of safety has not been reduced by this proposed activity.

In conclusion, the proposed activity does not require any license or Technical Specification changes and does not involve an unreviewed safety question. Therefore, they are permissible under 10CFR50.59.