SNUPPS
Standardized Nuclear Unit
Power Plant System

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SLNRC 81-88 FILE: 0541
SUBJ: ASB Review

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

Docket Nos.: STN 50-482, STN 50-483, and STN 50-486

Dear Mr. Denton:

In discussions with Dr. Gordon Edison, NRC Project Manager for the SNUPPS applications, it was learned that the Auxiliary Systems Branch requires additional information in order to complete their review of the SNUPPS FSAR. The information concerns handling of loads over fuel in the reactor vessel and the spent fuel pool. The enclosure to this letter provides the required information and will be incorporated in the next revision to the SNUPPS FSAR.

Very truly yours,

Nicholas A. Petrick for

RLS/dck/3a26

Enclosure

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SAFETY EVALUATION TWO - The safety-related portions of the FHS are designed to remain intact after an SSE. Section 3.7(B) provides the design loading conditions that were considered. Sections 3.5, 3.6, and 9.5.1 provide the required hazards analysis.

SAFETY EVALUATION THREE - The FHS is initially tested with the program given in Chapter 14.0. Periodic inservice functional testing is done in accordance with Section 9.1.4.4. The fuel transfer tube is inspected in accordance with the technical requirements of ASME Section XI.

SAFETY EVALUATION FOUR - Section 3.2 delineates the seismic category applicable to the safety-related portions of this system. Table 9.1-8 shows that the components meet the design and fabrication codes given in Section 3.2.

SAFETY EVALUATION FIVE - Sections 6.2.4 and 6.2.6 provide the safety evaluation for the system containment isolation arrangement and testability.

SAFETY EVALUATION SIX - In the event of a fuel handling accident in the fuel building, the radiological consequences analyzed in Chapter 15.0 demonstrate that the 10 CFR Part 100 guideline values are not exceeded. The circumstances resulting in a handling accident are limited to the following conditions.

a. Fuel drop from a lifting device

b. Improper operation of the transfer equipment and cranes

c. Drop of the fuel shipping cask

d. Drop of the RV head

The fuel handling equipment is designed to prevent a fuel assembly drop by providing special gripping devices which are locked in a manner which will not allow the release of the fuel assembly during transfer. The special features are described in Section 9.1.4.2.2.

Improper operation of the fuel transfer system is prevented by the location of special limit switches and interlocks which will not allow the movement of fuel assemblies unless they are properly oriented, thus avoiding a fuel handling accident. Further description of these devices is given in Section 9.1.4.2.2.

Limit switches and interlocks located on the fuel handling cranes prevent any improper operations which may result in a fuel handling accident. The limiting devices on the refueling machine and spent fuel pool bridge crane do not allow fuel to be moved unless it is in the proper orientation and handled correctly in the gripping tool of the crane.

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Concerning the handling of loads over fuel in the spent fuel pool, administrative controls will be employed to prevent the handling of loads that have a greater potential energy that that which have been analyzed.

Specific data pertaining to the travel speeds are shown on Table 9.1-7.

CONTAINMENT BUILDING POLAR CRANE - The polar crane is a CMAA No. 70, Class C type.

The containment has a 260/25-ton polar crane which is used, in conjunction with the various lifting rigs, to remove the reactor vessel head, the reactor vessel upper internals, and the lower internals. The 25-ton auxiliary hook on the polar crane, in conjunction with strategically located 3-ton-capacity jib cranes, is used for routine maintenance and inservice inspection. The crane is controlled from its bridge-mounted cab, a portable cab, or a portable radio control unit. The polar crane is designed to maintain its integrity with load during an SSE.

The main hoist of the polar crane has an inching feature, enabling the crane to be properly positioned.

The polar crane main and auxiliary hooks will be administratively controlled by procedure to prevent travel of potentially damaging loads over the reactor vessel when the upper internals have been removed and fuel is in the reactor vessel.

Specific data pertaining to the crane travel speeds and lifting capacity are shown on Table 9.1-7.

FUEL TRANSFER TUBE AND ASSOCIATED COMPONENTS - The fuel transfer system permits the safe underwater transfer of new and spent fuel assemblies between the fuel transfer canal in the fuel building and the refueling pool in the reactor building. Connecting these two areas is the fuel transfer tube which is a steel pipe 20 inches outside diameter and approximately 20 feet long. The pipe is inserted in a sleeve which is embedded in the concrete walls separating the two areas.

Angle rails forming a track and extending from the refueling canal through the transfer tube and into the transfer canal permit the controlled travel of the fuel car. During the fuel transfer operations, the fuel assemblies are supported by the fuel car. Attached to the car is the transfer car container which holds the fuel assembly. This container is a tube and is equipped with a centrally located pivot which allows the fuel assembly to be rotated from a vertical to a horizontal orientation for easier transfer. The fuel transfer car and container assembly travel through the transfer tube as one unit.

Positioned at each end of the transfer tube are mechanical stops and water-activated hydraulic lifting arms which are the mechanisms that allow the fuel assembly to be pivoted. The hydraulic devices are operated by a stainless steel, positive displacement pump.