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T.F. B7.1.2

United States Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

References: (a) Construction Permits CPPR-135 and CPPR-136, Docket Nos. 50-443 and 50-444

Subject: Spent Fuel Pool Temperature Reduction

Dear Sir:

We have enclosed a revised version of FSAR Section 9.1.3.3 and FSAR Table 9.1-3.

These revisions indicate a reduction in the Spent Fuel Pool temperature under abnormal operating conditions. The temperature decrease is attributable to a recalculation with design component cooling water flow to the intact Spent Fuel Pool Heat Exchanger. The previous temperature was based on less than full design flow.

The enclosed revision will be incorporated into a future OL Application Amendment.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

John DeVincentis
Project Manager

cc: Atomic Safety and Licensing Board Service List

A001
1/1

c. Reactor Cavity and Canal Cleanup System

The reactor cavity cleanup portion of the system is designed to purify the reactor cavity during refueling operations to improve the optical clarity of the water. A composite drawing showing this function is shown in Figure 9.1-2. The system consists of five surface skimmers at the water surface of the refueling cavity and refueling canal, all piped to the suction of the reactor cavity cleanup system. The cavity water is pumped through the chemical and volume control system mixed bed demineralizer and filters to the suction of the residual heat removal pumps where it is returned to a cold leg through a residual heat removal heat exchanger. Suction can also be taken from any of the cavity drains and final cavity cleanup effected by pumping the cavity water through a portable cleanup filter.

The reactor cavity cleanup pump motor is not Class 1E, and is supplied from a motor control center in the control building.

9.1.3.3 Safety Evaluation

Normally, more than 25 feet of water is maintained over the spent fuel. During fuel handling operations, the operator is protected from direct shine emanating from the spent fuel by at least 10 feet of water. The purification provided by the cleanup system, in addition to the water levels maintained above the spent fuel, result in a pool surface radiation level of less than 2.5 mr/hr, which allows unlimited operator access to the surface of the pool and cooling system components. However, the filters and the demineralizer in the cleanup system are expected to collect particulate and ionic radioactive materials, and thus have restrictive access. These components are located in the primary auxiliary building behind shield walls. A radiological evaluation of the purification loop is presented in Chapters 11 and 12. 44 49

Each spent fuel pool pump is capable of circulating pool water through either spent fuel pool heat exchanger. If one spent fuel pool pump becomes inoperable for any reason, the remaining pump supplying half flow to each heat exchanger can maintain pool water temperatures at 135°F, with sixteen spent core regions stored in the pool.

If only one spent fuel pool pump and heat exchanger are operable, the pool water temperature can be maintained below ~~170°F~~ 140°F with 16 spent core regions in the pool (refer to Table 9.1-3). 48

The thermal capacity of the spent fuel pool cooling system equals the physical storage capacity of the spent fuel pool. Thus, actual water temperatures will be no greater than those indicated in Table 9.1-3.

The spent fuel pool cooling and cleanup system is designed so that the pool level will not be inadvertently drained below a point approximately 10 feet

TABLE 9.1-3

SPENT FUEL POOL COOLING AND CLEANUP SYSTEM

DESIGN CONDITIONS

NORMAL OPERATING CONDITIONS

	Sixteen 1/3 cores stored; both SFPHX's and pumps operating	Full Core Plus sixteen 1/3 cores stored; both SFPHX's and pumps operating
Each Operating SFPHX		
Heat Load, 10^6 Btu/hr	9	21.3
SF Pump Flow, gpm	1100	1100
PCCW Flow, gpm	810	3000(1)
Pool Temperature, ^oF (max.)	122	141

ABNORMAL OPERATING CONDITIONS

	(1) Normal Power sixteen 1/3 cores stored; both SFPHX's and one pump operating	Normal Power sixteen 1/3 cores stored; one SFPHX and one pump operating
Each Operating SFPHX		
Heat Load, 10^6 Btu/hr	9	18.1
SF Pump Flow, gpm	550	1100
PCCW Flow, gpm	810	~~810(1)~~ 3000
Pool Temperature, ^oF (max.)	135	~~157~~ 140

Note:

(1) Increased PCCW is available under this condition.

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