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SUBJECT: Forwards response to request for addl info in support of review of proposed Tech Specs for upgraded ECCW sys.

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W. R. McCollum, Jr.
Vice President

April 13, 1998

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287
Proposed Revision to Technical Specifications
for the Upgraded ECCW System
Technical Specification Change # 96-09
Supplemental Information Letter #5

In a letter to the staff dated August 28, 1997, Duke Energy Corporation (Duke) submitted a proposed amendment to the Oconee Nuclear Station Technical Specifications to modify the Emergency Condenser Circulating Water (ECCW) System. The August 28, 1997, Duke submittal also included a final design description of the ECCW System upgrade. It has been Duke's understanding that the review and approval of this licensing amendment will include a review of the design features of the ECCW System upgrade.

In letters dated January 22, 1998, February 19, 1998, March 19, 1998, and April 6, 1998, Duke provided additional information to support the staff's review of the proposed ECCW System Technical Specification amendment and design features description.

In a letter dated April 9, 1998, the staff requested additional information in support of its review of the proposed Technical Specifications for the upgraded ECCW System. The responses to the staff's questions in the April 9, 1998, letter are provided in Attachment 1.

Attachment 2 contains the replacement amendment pages for the proposed amendment, along with instructions for replacing the pages. The purpose of these new pages is: 1) to update the new pages since the main steam line break circuitry Technical Specification change will be approved subsequent to this proposed Specification, and 2) to change all surveillance periods from "refueling outage" frequency to "18 month" frequency in accordance with an amendment approved by the staff on February 26, 1998.

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To support operability of Unit 2's upgraded ECCW System, Duke requests that the staff complete its review of the proposed ECCW System Technical Specification amendment and design features description by April 20, 1998. Accordingly, Duke is committed to supporting the staff as necessary to meet this proposed schedule.

Please address any questions to David Nix at (864) 885-3634.

Very truly yours,

W. R. McCollum, Jr.
Oconee Site Vice President

Attachments

cc: Mr. L. A. Reyes
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Mr. M. Batavia
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ATTACHMENT 1

RESPONSES TO STAFF QUESTIONS

QUESTION A (1) and (2):

Regarding to your April 6, 1998, response to Question Number 2 concerning the new electrical cabinets, please provide the following information:

1. Physical dimensions of each new cabinet, single-bay or multi-bay,

2. Cabinet Amplification factors used for each cabinet,

Response A (1) and (2): -

Cabinets 1ESV1 and 2ESV1 are 60″ tall x 36″ wide x 24″ deep. They are single bay cabinets with a single door similar to the cabinet shown in Figure 1. An amplification factor of 4.5 (GIP, Rev 2, Corrected 6/28/91, Table 6-2) was used for these cabinets. The cabinets are mounted in the Auxiliary Building, therefore, the floor spectra is also multiplied by 1.5 for median centered in-structure spectra (GIP Table 6-1). This results in a total in-cabinet amplification factor of 4.5 x 1.5 = 6.75.

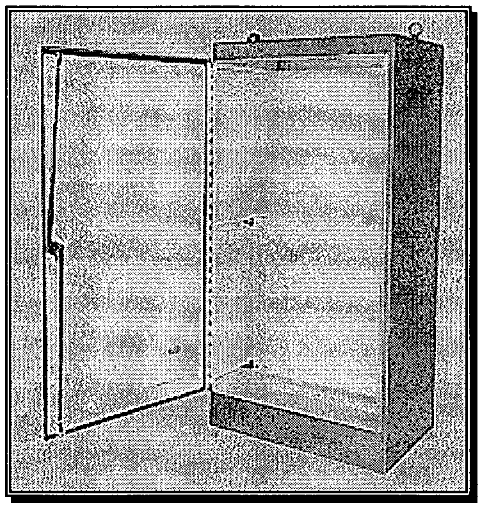

Figure 1 Typical Hoffman FS Cabinet

Cabinets 3ESV1, 3ESV2, and 3ESV3 are 36″ tall x 36″ wide x 12″ deep. They are single bay cabinets with a single door similar to the cabinet shown in Figure 2. An amplification factor of 4.5 (GIP, Rev 2, Corrected 6/28/91, Table 6-2) was used for these cabinets. The cabinets are mounted in the Auxiliary Building, therefore, the floor spectra are also multiplied by 1.5 for median centered in-structure spectra (GIP Table 6-1). This results in a total

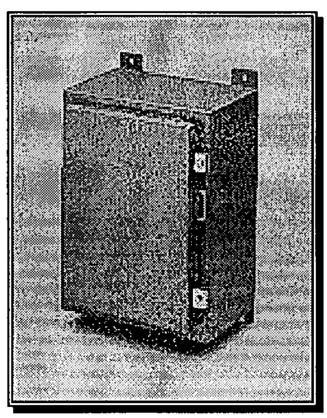

Figure 2 Typical Hoffman LP Cabinet

in-cabinet amplification factor of 4.5 x 1.5 = 6.75.

Cabinets 1ESVLCP, 2ESVLCP , and 3ESVLCP are 72″ tall x 72″ wide x 24″ deep. They are single bay cabinets with double doors similar to the cabinet shown in Figure 3. An amplification factor of 4.5 (GIP, Rev 2, Corrected 6/28/91, Table 6-2) was used for these cabinets. The cabinets are mounted in the ESV Building which is at grade. Therefore, the 1.5 factor for median centered in-structure spectra does not apply.

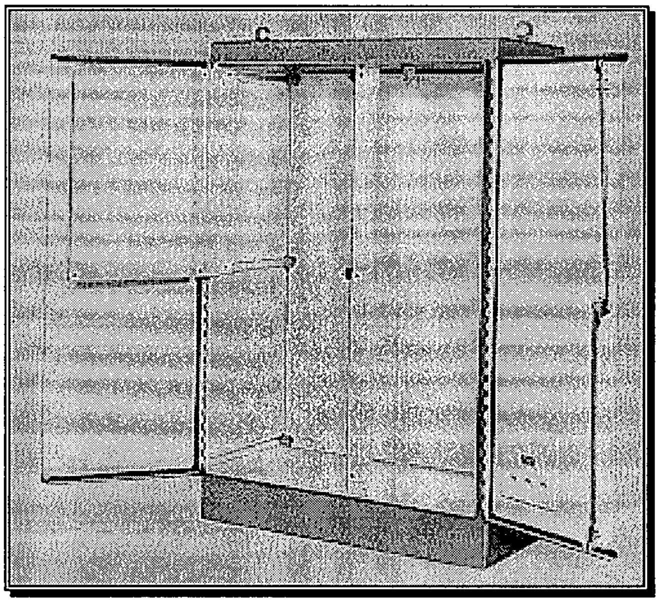

Figure 3 Typical Hoffman FSD Cabinet

Question A (3):

Regarding to your April 6, 1998, response to Question Number 2 concerning the new electrical cabinets, please provide the following information:

3. Information relating to the referenced database (Enclosed Switchboards in Figure 20-2 of EPRI NP-7149-D) for the purpose of comparing with the new cabinets:

    a. Critical characteristics for design (manufacturer, model, materials/physical properties etc.),

    b. Dimensions for each type of cabinets

    c. Single-bay or multi-bay.

Response A (3):

In order to use the GIP to evaluate seismic adequacy of the cabinets, Duke reviewed the cabinet designs for conformance with the GIP inclusion rules to "ensure that new or replacement items of equipment are properly represented in the earthquake experience or generic testing equipment classes." For new and replacement cabinets, Duke also reviewed the cabinet designs for possible "design changes that could reduce its seismic capacity." Demonstration of a one to one correspondence with particular cabinets in the experience database is not necessary per the GIP.

The cabinets listed above are continuously welded steel enclosures with hinged and latched doors. They are the same cabinets Hoffman has been supplying for many years. They are in conformance with the inclusion rules for GIP Class 20 equipment, "Instrumentation and Control Panels and Cabinets."

The electrical cabinet SEWS forms provided in Duke's submittal dated April 6, 1998, document the GIP reviews and the design difference evaluations. These evaluations note that the "structural load path of the Hoffman type enclosures is similar to that shown for Enclosed Switchboards in Fig. 20-2 of EPRI NP-7149-D." They also state in part that the "Overall construction of the Hoffman cabinets is judged to be equivalent to typical Control and Instrumentation Panels & Cabinets represented in the earthquake experience database." This level of inspection and detail is consistent with the requirements of the GIP and is documented in accordance with the GIP. The inspections confirm that the design of the cabinets is in conformance with the GIP requirements. After the cabinets are installed, the SEWS forms will be revised to document the required as-installed inspections.

The more specific list of critical characteristics provided in Duke's April 6, 1998, submittal are a part of our Nuclear Procurement process. These critical characteristics are used to guide receipt inspections for equipment as the equipment arrives. Through this process, Duke verifies that the equipment received is the equipment which was expected. Therefore, the critical characteristics for the Hoffman cabinets (manufacturer, model number, materials, physical properties, etc.) are derived from the Hoffman catalog, not from the cabinet in Fig. 20-2 of EPRI NP-7149-D.

QUESTION B:

Regarding your response to question #6 pertaining to the seismic design of newly added A-1 cable trays, indicate that the seismic evaluation implemented for the new cable trays are based on the 0.15g MHE ground response spectrum input motion with the appropriate damping values indicated on the UFSAR Section 3.7.1.3.

Response B:

The new A-1 cable trays that were installed in the ESV Building, ESV Trenches, and the Radwaste Trench were analyzed with the 0.15g ground response spectrum. The new A-1 cable trays that were installed in the Turbine Building were analyzed with the 0.10g ground response spectrum. Both sets of cable trays utilized the appropriate damping values as delineated in UFSAR Section 3.7.1.3.

QUESTION C:

The staff understands that the adequacy of commercial piece parts installed in the ECCW system following initial operation and prior to reclassification have not been verified with respect to their intended safety function. What precautions have been taken (e.g., procurement and work history reviews, walkdown verifications, performance testing, etc.) to provide reasonable assurance that commercial piece parts already installed in existing equipment will meet their intended safety functions and that fraudulent or counterfeit items (reference: Generic Letter 89-02) have not been inadvertently installed in existing equipment?

Response C:

The CCW piping provides a passive function by acting as a pressure boundary to ensure that a leak-tight siphon path exists to the suction of the Low Pressure Service Water pumps. The existing CCW flow path that is being upgraded as part of this modification does not perform any active function, nor are any component position changes necessary to support the siphon function. Although the majority of the ECCW siphon pressure boundary is piping, there are some components, such as the CCW crossover valves and the HPSW strainers, which contain internal parts needed to establish the pressure boundary.

The CCW System operating parameters and normal operating requirements provide a reasonable assurance that the system will perform its pressure boundary integrity safety function. The system operates at low pressures under all conditions. The system design pressure is only 50 psig. The normal operating pressure ranges from a slightly positive pressure to approximately 15 psig at lower elevations. In the event of accident mitigation and design basis testing, the system pressure ranges from a slight vacuum to a small positive pressure. The siphon pressure boundary is normally slightly pressurized, with water flow through the pressure boundary during normal operations. The CCW System also continuously serves the normal operation of the units by functioning as the ultimate heat sink. The CCW System has operated reliably since original plant construction.

Current Technical Specifications require functional testing of the ECCW siphon flow path every 18 months. The functional testing is designed to identify malfunctioning components which affect the siphon pressure boundary by quantifying inleakage and measuring performance of the system. This testing has historically indicated that the ECCW siphon flowpath is reliable.

Operator rounds are made at least once per shift in the areas of the ECCW siphon pressure boundary. If components in the ECCW siphon pressure boundary, such as the CCW crossover valves (1CCW-40, 2CCW-41, 3CCW-42, 3CCW-94), or any of the HPSW strainers leaked, the leakage would be readily observable during normal operator rounds due to water accumulation on the Turbine Building floor.

The process for normal receipt inspections of non QA Condition 1 (QA-1) parts is not designed to identify potentially fraudulent parts. However, a review of available work history on the CCW System piping and components was conducted. This review indicated that only one of the CCW crossover valves, 3CCW-94, has been replaced since original construction. This valve was replaced with a QA-1 component procured in 1993. Fraud detection is a part of the normal receipt inspection process for QA-1 components. Other work history on the crossover valves involves normal preventive maintenance (PM). A work history review of other components associated the siphon pressure boundary indicated that only normal PMs, maintenance, and testing were performed. A modification was made to a flange connection of the CCW pumps that rests on a concrete support beneath the intake structure. This flange is part of the siphon pressure boundary at low lake levels. The modification was done to improve sealing when the lake level is low. The modification added an elastomeric seal to the flange and did not involve procurement of typical metal based pressure retaining components. Therefore, other than the replacement of valve 3CCW-94, no history of ECCW siphon pressure boundary part replacement exists.

As a result of this review, Duke has a high level of confidence that the existing ECCW siphon pressure boundary components are not fraudulent and are not subject to malfunction due to past procurement processes.