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December 5, 1986
ST-HL-AE-1824
File No.: G9.17, J41.1

Mr. Vincent S. Noonan, Project Director
PWR Project Directorate #5
U. S. Nuclear Regulatory Commission
Washington, DC 20555

South Texas Project
Units 1 and 2
Docket Nos. STN 50-498, STN 50-499
QDPS Noise, Fault, Surge, and Radio
Frequency Interference Test Report

Dear Mr. Noonan:

Section 7.5.6.2.7 of the South Texas Project (STP) FSAR states that noise and isolation testing of the Qualified Display Processing System (QDPS) will be addressed by a separate WCAP. Westinghouse has recently completed noise, fault, surge withstand, and radio frequency interference testing of the QDPS.

During the final QDPS Verification and Validation Program Audit on November 18-19, 1986, the NRC staff raised a related question concerning separation within the QDPS cabinets as specified by RG 1.75. The QDPS cabinets meet the requirements of IEEE-384-1974 but do not comply with the augmentation of separation requirements for redundant Class 1E wiring in instrumentation cabinets as specified in Regulatory Guide 1.75, Revision 2. Metallic barriers and metallic conduits are used in the QDPS cabinets, but the one inch spacing is not provided in all cases. The justification for this exception is that instrumentation cabinets, because of their design and installation, are not exposed to physical damage, such as missiles that could threaten Class 1E wiring runs. The cabinets are totally enclosed and installed in cubicles in protected areas. Furthermore, cabinet entry doors are annunciated in the control room.

The recent tests showed that the system remained functional within its specified accuracy, and met the acceptance criteria of isolation between the Class 1E safety instrumentation and non-Class 1E instrumentation, thus fulfilling the performance demonstration option of RG 1.75 position C.4 and IEEE 384-1974.

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The test conclusively demonstrated that the system continued to operate when subjected to the following:

- o Maximum credible fault voltage
- o Continuous fault current
- o Maximum surge withstand capability
- o Radio frequency interference
- o Random noise
- o Crosstalk noise - chattering relays
- o Military specification noise
- o High voltage transient noise

In no case was the performance of the system degraded by abnormal electrical conditions imposed on the isolated input/output field wiring. No changes in the design are necessary. In particular:

- o The microprocessors continued to operate undisturbed.
- o The output to the operator display was continuous and accurate.
- o The noise, fault, and surge transients were not propagated through the isolation circuitry or picked up wire to wire.
- o The analog and digital (contact input/output) signals to other Class 1E systems were continuous and accurate.

In summary, the noise, fault, surge, and radio frequency interference test program convincingly demonstrated that the system performance did not degrade even when subjected to abnormal electrical conditions which far exceed those that can be reasonably postulated. The test reports have been prepared in both proprietary and non-proprietary version and are enclosed as follows:

1. 5 copies of WCAP-11340, "Noise, Fault, Surge, and Radio Frequency Interference Test Report: Westinghouse EAGLE 21 Family as Used in QDPS, PSMS, RVLIS-86, and ICCM" (Proprietary).

2. 5 copies of WCAP-11341, "Noise, Fault, Surge, and Radio Frequency Interference Test Report: Westinghouse EAGLE 21 Family as Used in QDPS, PSMS, RVLIS-86, and ICCM" (Non-Proprietary).

Also enclosed is a Westinghouse authorization letter, CAW-86-110, Proprietary Information Notice, and accompanying Affidavit.

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As item 1 contains information proprietary to Westinghouse Electric Corporation, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.790 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10CFR Section 2.790 of the Commission's regulations.

Correspondence with respect to the proprietary aspects of the Application for Withholding or the supporting Westinghouse Affidavit should reference CAW-86-110 and should be addressed to R. A. Wiesemann, Manager of Regulatory and Legislative Affairs, Westinghouse Electric Corporation, P. O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

If you should have any questions on this matter, please contact Mr. M. E. Powell at (713) 993-1328.

Very truly yours,

M. R. Wisenburg
Deputy Project Manager

THC/yd

Attachments: W Authorization Letter CAW-86-110, Proprietary Information Notice, and Affidavit

5 copies of WCAP-11340 (Proprietary)

5 copies of WCAP-11341 (Non-Proprietary)

L1/NRC/fh

Houston Lighting & Power Company

cc:

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(*) Contains attachments 1 & 2. All others without attachments unless otherwise noted.

(**) Contains attachment 2 only (i.e. non-proprietary copy of report).