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August 20, 1984
RBG-18730
File Nos. G9.5, G9.25.1.1

Mr. John T. Collins, Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV, Office of Inspection and Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Dear Mr. Collins:

River Bend Station Unit 1
Docket No. 50-458
Final Report/DR-199

On July 20, 1984, GSU notified Region IV by telephone that it had determined DR-199 to be reportable under 10CFR50.55(e). This deficiency concerns coaxial and twinaxial connectors on Conax Corporation electrical penetration assemblies. The attachment to this letter is GSU's final 30-day written report pursuant to 10CFR50.55(e) with regard to this deficiency.

Sincerely,

for J. E. Booker
Manager-Engineering,
Nuclear Fuels & Licensing
River Bend Nuclear Group

JEB/PJD/lp

cc: Director of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

NRC Resident Inspector-Site

INPO

IE-27
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ATTACHMENT

August 20, 1984
RBG-18730

DR-199/Separation of Coaxial and Twinaxial Cables From Connectors on Conax Corporation Electrical Penetration Assemblies

Background and Description of the Problem

The problem involves the separation of coaxial and twinaxial cables from connectors on electrical penetration assemblies supplied by Conax Corporation. While performing rework on penetration assemblies in accordance with Engineering and Design Coordination Report (E&DCR) No. P-20,737D, nonconformances were identified with coaxial cable assemblies and documented on Nonconformance and Disposition Report (N&D) Nos. 5717 and 5888. It was also noted, while performing rework according to E&DCR No. P-20,737D, that a twinaxial cable also had a nonconformance, and N&D No. 6042 was subsequently initiated for dispositioning.

The conditions which have been identified and comprise the subject of Deficiency Report No. 199 were primarily attributable to the uniqueness of the River Bend application, the difficulty experienced by Conax in working with the Amphenol connector procedures, and subsequently, to the lack of more definitive assembly, test, and quality control measures regarding the Amphenol procedures.

Because these nonconformances were identified on various types of Conax Corporation-supplied cable assemblies, E&DCR No. C-24,970 was initiated to inspect all Category I Conax connections to determine to what extent the nonconformances existed.

The Category I connections were inspected by Field Quality Control (FQC) and witnessed by Stone & Webster Engineering Corporation (SWEC) and Conax Corporation's field representative. The results of the inspection are contained in N&D No. 6701, which identified a sample size of 160 connections. Of the 160 connections inspected, 132 were found to deviate from the vendor's assembly instruction manual as a problem requiring further evaluation and dispositioning by Conax and SWEC.

Safety Implication

SWEC subsequently requested that Conax evaluate each of the identified problems and determine the potential effect of each problem. Conax provided the results of its evaluation and determined that 6 connections were technically unacceptable out of the 132 evaluated.

Summarizing the results, of the six connections that were found functionally unacceptable, two are used in spare circuits. The remaining four unacceptable connections are integral to the operation of the neutron monitoring system (NMS), specifically affecting three intermediate range monitors (IRMs).

The IRM system provides neutron flux information during reactor startup, heatup, and power ascension. In addition to providing the operator with neutron flux information, the IRM initiates the appropriate scram signal for an abnormal operational transient while operating within the intermediate range of power between the upper portion of the source range monitor (SRM) and the lower portion of the average power range monitor (APRM).

The IRM is divided into two groups of four IRM channels, each of which comprises a reactor protection system (RPS) channel. RBS-Unit 1 Technical Specifications, Section 3/4.3.1, Table 3.3.1-1, shows that three IRMs per RPS channel must be operable to continue startup; otherwise, the operator must return to the shutdown condition.

For the conditions identified by this deficiency report, two IRMs were in one RPS channel and one IRM was in the other RPS channel. Consequently, the technical specification requirements would not be met, and startup could not continue until the IRMs were functional. This situation would not affect the safe operations of the plant.

However, if it is assumed that the two spare Category I modules might have been used at a later date for a circuit required in the safe shutdown of the plant, then the safe operations of the plant could possibly have been affected.

Corrective Action

As corrective action, Conax recommended that all penetrations be reassembled and that all connectors be reinstalled using the revised procedures recommended by Conax. The corrective action will be accomplished in accordance with the disposition details of N&D No. 6701.

To preclude recurrence of the problems identified, Conax has revised the coax/twinax connector to flexible cable assembly instructions to include more definitive quality control measures. Conax is also scheduling training for assembly and quality control personnel according to the revised assembly instruction procedures.

Because the existing SWEC Product Quality Assurance (PQA) program did not inspect for this attribute, the PQA inspection program will be upgraded to specifically check for the conditions identified to prevent recurrence of the problem.