



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA STREET, N.W.
 ATLANTA, GEORGIA 30323

Report No.: 50-425/88-26

Licensee: Georgia Power Company
 P. O. Box 4545
 Atlanta, GA 30302

Docket No.: 50-425

Construction Permit No.: CPPR-109

Facility Name: Vogtle Unit 2

Module: No. 17/19, Electrical Raceways
 and Supports

Reviews Conducted: May 4 - 26, 1988

On-Site Inspections Conducted: May 16 - 26, 1988

Inspectors: M. D. Hunt
 M. D. Hunt, Reactor Inspector, Region II

8/19/88
 Date Signed

Team Member

C. G. Bruch, Consultant, Region II (EG&G Idaho, Inc.)

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8-19-88
 Date Signed

SUMMARY

Background: This evaluation was performed for one of eleven Readiness Review Modules produced as part of a Pilot Readiness Review Program being operated by the licensee pursuant to a recommendation contained in NUREG 1055. The NRC agreed to participate in the program by reviewing and commenting on each module.

Scope: This evaluation was performed by reviewing the module report, examining supporting documentation and inspecting associated hardware. The licensee's review was verified by sampling hardware and documentation seen by the licensee's reviewers, sampling hardware and documentation not selected by the licensee's reviewers, by reviewing records of previous NRC inspections at Vogtle and by interviewing licensee personnel who were closely associated with preparing the module.

Results: Major weaknesses and verification errors were not found. One Unresolved Item was identified which involved incomplete verification of safety train separation criteria application, thermal separation criteria and tray cover installation.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

M. Cusack, Q.C. Inspector (Electrical)
*D. Edenfield, RRT Engineering Supervisor
*A. Harrelson, Manager, Electrical Construction
*R. Hollands, Superintendent, Electrical Compliance
J. Jacobs, Electrical Engineer
*E. Laner, Supervisor, Electrical Engineering Group
*J. Lavoy, RRT I&C Team Leader
J. Lovekamp Deputy Supervisor, Civil Engineering Group
*R. McManus, Manager, Readiness Review
J. Orchard, Leader, Hazards Group
R. Poole, Q.C. Inspector (Electrical)
*W. Ramsey, Manager, Engineering
*P. Rico, Vice President & Project Director
R. Smith, Project Manager, Electrical and I&C
R. Thomas, Member, Readiness Review Board
R. Valdez, Project Quality Engineer

NRC Inspector

R. Scheppens, Senior Resident Inspector, Construction

*Attended exit interview

Acronyms and abbreviations used throughout this report are listed in the last paragraph.

2. Module 17/19 Electrical Raceways and Supports

a. Unit 2 Review

The Readiness Review Program is being conducted at the initiative of Georgia Power Company (GPC) management to assure that all design, procurement, construction, and operational commitments have been properly identified and implemented at the Vogtle Electric Generating Plant (VEGP) Unit 2. Module 17/19, which was submitted on March 1, 1988, presents an assessment of the compliance of the Electrical Raceways and Supports contained in Seismic Category I structures with Final Safety Analysis Report (FSAR) commitments and regulatory requirements. This evaluation was conducted to determine if the results of the program design, fabrication and installation for review of Electrical Raceways and Supports presented in this module represented an effective and accurate assessment of the requirements.

that the requirements were properly implemented, and that the resolutions of the findings identified in Module 17/19 were correct. It should be noted that a comparable review had been completed for VEGP Unit 1 in separate modules as follows during 1985 and 1986:

Module 17	Raceways
Module 19	Electrical Supports.

These two technical areas have been combined by the licensee into a single module for the Unit 2 review.

b. NRC Review Objective

The objective of this review and inspection was to evaluate the licensee's VEGP Unit 2 Readiness Review of Electrical Raceways and Supports. The evaluation was to be accomplished through a detailed examination of all sections of the module to include:

- Assuring the accuracy of the information contained.
- Verifying that the Electrical Raceway and Support commitments identified in the module are correct along with being in conformance with FSAR commitments and regulatory requirements.
- Checking a representative sample of the documents reviewed by the Readiness Review Staff along with other documents selected by the inspectors.
- Inspecting a representative sample of the Electrical Raceway and Support components currently installed in Unit 2.
- Reviewing reports of past Nuclear Regulatory Commission (NRC) inspections at Vogtle Unit 2 that pertain to Module 17/19.
- Assessing the Module 17/19 findings and the licensee's resolution thereof.
- Assuring that the findings and lessons learned from the Unit 1 review were appropriately recognized in the Unit 2 review.
- Verifying that credit can be taken for those aspects of the Unit 1 review that are directly applicable to Unit 2.

c. Review Scope

The total module was reviewed by the Region II inspection team for organization and content. This part of the NRC review disclosed that Module Sections 1, 2, 3, 4, and 5 presented data on module organization, project organization, commitments, program description, audits

and special investigations. These sections were descriptive and presented material that was similar to that presented in the similar numbered sections in Modules 17 and 19 for Unit 1. These sections did not require the review depth given to Sections 6 and 8 which covered the program verification and review assessment-plan respectively. Sections 1 through 5 were reviewed relative to changes that occurred in the Vogtle Project and Readiness Review programs since the Unit 1 review, however. Module Section 7 was similar to Section 8 of the Unit 1 modules and consisted of management's certification of the review effort and findings. Section 7 of the Unit 1 modules reflected the Independent Design Review made as part of the Unit 1 review. The licensee did not repeat this in the Unit 2 Readiness Review on the basis that the design was essentially similar for both units, was performed by the same organization and was essentially complete at the time of the Unit 1 Readiness Review. It was considered that reverification of an essentially completed program would be redundant within the Unit 2 review.

Sections 6 and 8 contain the majority of the new material and disclosed those aspects of the Unit 2 review that differed from that examined by NRC pursuant to the Unit 1 review. Review of these two sections included an examination of content; review of findings, concerns and observations; review of a sample of items reviewed by the GPC Readiness Review Team (RRT); and preparing for an examination of an independently selected sample of records and field construction.

d. Site Inspection

The site inspection was conducted at Vogtle Unit 2 during May 16-26, 1988. The following activities were conducted:

- Determining the RRT organizational element responsible for Module 17/19 and interviewing key staff members.
- Verifying the module review boundary.
- Making a general verification of the material presented in Sections 1 through 5 and 7 of the module report.
- Obtaining supplemental documentation copies required for review use.
- Reviewing programmatic and review methodology changes taking place since the review of Unit 1 Modules 17 and 19.
- Assessing the licensee's Module Assessment Plan for adequacy of depth and coverage within the module boundary.

- Performing commitment tracing for commitments that were new or changed since the Unit 1 review.
- Performing a construction program verification review of Module Sections 6 and 8.

The new and the changed commitments were traced into selected first and second order verification documents. They were traced backward through the FSAR, or other commitment sources, to the parent requirements.

Continued office review was made after the inspection trip to evaluate data gathered, draft the module review report, and identify any items that might require further field review and analysis. The review plan, module report, and examination data gathered to date were checked for potential gaps and incomplete work. The results of the office review disclosed that sufficient information had been obtained during the site visit and that the data gathered fully supports the NRC findings presented in this module review.

3. Evaluations

The evaluation of each module section is provided in the remainder of this report using a module section-by-section format. Included are a description of the section, what was reviewed, the basis for acceptance, and a statement of any required followup or evaluation.

a. Section 1 - Introduction

(1) Review Introduction and Section Examination

This section of the module provided a description of the intent and content of Module 17/19. Also provided was a description of the Vogtle Unit 2 hardware covered within the module, an outline of the module organization and an overview of the project status. This section was examined by the inspectors for content, background and accuracy of information. Clarification of information concerning the module boundary and project status was required. This was accomplished during discussion with RRT personnel.

(a) Boundary Definition

The descriptive diagrams used in Subsection 1.2 of the Unit 1 Modules 17 and 19 were not repeated in Module 17/19 for Unit 2. The information given in Module Subsection 1.1 was reviewed in detail with the RRT counterpart to clarify

the boundary definition presented. The information gained during the review did not disclose verification error. The following clarifications were obtained for the boundary:

- Concrete expansion anchor bolts for electrical supports were within Module 17/19 for installation and within the Unit 1 Module 8 for design.
- Bolts that attach conduit and cable trays to electrical supports or to structural steel were within Module 17/19.
- Electrical support anchor welding to embeds and to structural steel was within Module 17/19.
- Conduit junction boxes were within Module 17/19.

(b) Module Organization

The module organization portion of the section was examined by the inspectors and no instance of inaccuracy or need for clarification was found. The differences in module organization as compared with the Unit 1 Modules 17 and 19 have been noted in Section 1 of this report. These are not considered significant since it was not necessary to repeat the design review aspects for Unit 2.

A specific question was asked concerning the existence of significant changes subsequent to the August 1, 1987 cutoff date for Module 17/19 data. The RRT counterpart responded with a statement that there were no changes to the information contained in the module with the exception of an increase in the project status percent complete number for the conduit and conduit supports. Evidence of significant module-basis change since the August 1, 1987 cutoff date was not discovered during the review.

(c) Project Status

The status shown in Subsection 1.3 of the module ranges from 80 percent for conduits and conduit supports to essentially 100 percent for trays and tray supports. The former number was found to be close to 100% due to progress made since August 1987. The latter was found to be slightly less than 100% due to the absence of tray covers pending cable installation completion. Review of the basis for these numbers disclosed that earned value was based on installation completion and satisfactory inspection of each individually numbered hardware item. This information is maintained in the EE-580 Cable and Raceway Tracking and Control System.

(2) Inspection Results

The clarifications provided by the RRT, as noted above, correlated with other information reviewed by the inspectors. The examination did not disclose significant verification errors or a basis for programmatic concern. Followup or additional evaluation of Module Section 1 is not required.

b. Section 2 - Organization

(1) Review Introduction and Section Examination

This section of the module provided a description of the organizations employed for project design and field construction activities. The integration of these into the total project management matrix for the subject of Module 17/19 also was provided. This section was examined by the inspectors for content and background information. The information presented agreed with that obtained by the inspectors during past inspections at both Unit 1 and 2. No instances of variance from the Section 2 information were found during the course of the total module review. Also, the information presented did not differ essentially from that examined during the review of Unit 1 Modules 17 and 19, except for engineering and project management changes occurring subsequent to the Unit 1 review. These primarily were the transfer of Bechtel Home Office Engineering (HOE) functions to the Bechtel Project Field Engineering (PFE) office at the plant site. The transfer was accompanied by some reorganization. These changes were found to have low programmatic impact since PFE originally was an extension of HOE many of the same people were retained and the design was at the nearly-complete stage.

Further evolution of the engineering organization has taken place since the August 1, 1987 module cutoff date. The separate functions of design and installation engineering depicted on Figures 2-2 and 2-3 of the module are undergoing consolidation. This is caused by the decreasing number of personnel required as hardware installation nears completion.

(2) Inspection Results

The examination did not disclose significant verification errors or a basis for programmatic concern. Followup or additional evaluation of Module Section 2 is not required.

c. Section 3 - Commitments

(1) Review Introduction and Section Examination

This section of the module describes the commitment selection and sources along with containing a list of commitments and implementing documents. These are displayed in two matrices. The first is entitled "Commitment Matrix" and lists 68 commitments by the Georgia Power Company for VEGP Unit 2 along with the source document reference for each commitment. The second is entitled "Implementation Matrix" and lists source documents and requirement features referred to within each commitment along with the document reference where the feature has been implemented. An identification review was made to verify if the commitments listed in the Unit 1 Modules 17 and 19 had been accurately carried forward into Module 17/19 for Unit 2. Anomalies were discovered and a sample was selected comprised of the four commitments listed as changed along with the eight not correlating between the Unit 1 and Unit 2 modules. A review of these twelve was made to verify the proper implementation of the listed commitments. This was accomplished by examining the sample to check the commitment source (typically FSAR and referenced standards) for the exact requirement and to verify (within the project documentation) that the requirement had been carried through accurately.

(a) Identification Review

The examination of Section 3 started with a reading of the module for content. The commitment listings of Section 3 of the module were compared with the corresponding listings of Unit 1 Modules 17 and 19. The following anomalies were discovered:

- Four commitments (76, 79, 4973 and 5025) were identified as being changed in the Unit 2 Module. Of these, 76 and 79 had been listed in Unit 1 Module 17 and 19 along with 4973 in Unit 1 Module 19. Further review disclosed that 5025 had been added since the Unit 1 review.
- Seven commitments (1010, 1014, 1017, 1018, 2905, 4688 and 5062) were not identified as new (or changed) in the Unit 2 Module although they had not been listed in the Modules 17 or 19 for Unit 1. Further review disclosed that 1010, 1014, 1017 and 1018 had been included in other modules in the Unit 1 review but were considered by the RRT as being appropriate to Module 17/19. Commitment 2905 was generally covered but not specifically identified in the Unit 1 General Appendix I. Commitment 4688 was found to be essentially identical to 1018. Commitment 5061 was found to be essentially identical to Commitment 160 of the Unit 1 Module 17.

- One commitment (2360) listed in the Unit 1 Module 17 did not appear in the commitment matrix for Unit 2 Module 17/19. Review also disclosed that it was essentially identical to Commitment 4115.

(b) Implementation Review

The 12 commitments listed above in Subsection 3.c.1.(a) were selected for verification. The examination of this sample consisted of:

- Verifying correspondence between the Module Commitment Matrix and the Module Implementation Matrix for each commitment.
- Reviewing the referenced commitment-source documentation for a clear statement of requirement for each commitment within the sample.
- Checking the document listed in the Module Implementation Matrix for proper first and second order implementation of the requirements embraced by the commitment.

The commitments listed in the Unit 1 Modules 17 and 19 had been examined by NRC during the review of those modules. Accordingly, examination of commitments carried forward (without anomaly) from those modules into the Unit 2 Module 17/19 was not made.

The individual commitments reviewed along with the review results are listed in Table 1 of this report. Several anomalies were discovered and are outlined in that table. Additional discussion concerning the licensee's commitment review also is included in Subsection 3.f(2)(a) of this report.

(2) Inspection Results

The examination of Module Section 3 did not disclose substantial verification errors, other than noted above, or programmatic concerns. Followup or additional evaluation of Module Section 3 is not required.

d. Section 4 - Program Description

(1) Review Introduction and Section Examination

This section of the Module describes work process and control for the design and construction of hardware covered by the module. This is supplemented by documentation listings, flow charts, and an outline of program changes. The section was examined by the inspectors for content, background for the

review of later sections (especially Section 6, Program Assessment) and for the veracity of the information presented. A detailed examination of the section was not made by the inspectors since the material contained was largely descriptive and not in the nature of an assessment. Credit was taken for the examination of similar material during the Unit 1 review.

(a) Design

Subsection 4.1 was examined for content and general agreement with information developed during past NRC inspections. In addition, the flow chart referenced in this subsection was reviewed for logic and accuracy. The foregoing provided general agreement between commitments and the activities covered by the Design Program.

(b) Construction

Subsection 4.2 was examined for content and general agreement with information developed during past NRC inspections. The flow charts referenced in this subsection were reviewed for general logic and compared with programmatic documents for accuracy. Several anomalies were apparent in the flow charts (Figures 4-2 and 4-3). These anomalies were explainable as simplifications of more complex processes detailed in the documents along with incomplete editing.

(c) Program Changes. Subsection 4.3 outlined program changes involving activities directly related to raceways and supports that had occurred since the Unit 1 Readiness Review. Three out of the four changes affected procedures and personnel. The changes were directed at strengthening existing practices. The fourth involved allowing an increased conduit support spacing for nonsafety related conduits in Category 1 areas. The four changes were listed in the module without significant description or detail. Accordingly, the basic documentation, covering the changed programs, was reviewed for content and potential ambiguity. The latter was not found during the review.

(d) Materials and Training. Specific descriptive detail was provided in Section 4 of the Unit 1 Modules 17 and 19 relative to Materials and Training. Comparable activities were not described in Section 4 of Unit 2 Module 17/19. The review made of the Unit 1 Modules relative to these activities and the licensee's programmatic continuity from Unit 1 to Unit 2 is considered adequate. Further review in these areas was not made.

(2) Inspection Results

The Section 4 examination did not disclose verification errors or further basis for programmatic concerns. Followup or additional evaluation is not required.

e. Section 5 - Audits and Inspections

(1) Review Introduction and Section Examination.

This section provides a discussion of the audits of Module 17/19 related activities and documents made by GPC and Bechtel Power Corporation (BPC) along with the inspections made by NRC. The audits and inspections performed subsequent to the Readiness Review, of Unit 1 Modules 17 and 19, were those reported. Also included was a discussion of the Unit 1 Readiness Review findings and certain conditions discovered, since the Unit 1 Readiness Review, that were reportable or potentially reportable under 10 CFR 50.55(e) or 10 CFR 21.

It was noted that Unit 1 General Appendix I entitled "Project Quality Assurance Organization" provided the description and validation of the various audit programs used at the VEGP. Individual audits of design and construction activities occurring since the Unit 1 review had been screened by the RRT for items applicable to Module 17/19. Section 5.0 of Module 17/19 provided specific information relative to these. Module Tables 5-2, 5-3 and 5-4 were selected for specific review in order to assess the thoroughness and accuracy of the section preparation.

(a) NRC Inspections

Table 5-2 presented the results of the RRT selection of NRC Inspection findings relative to Module 17/19. This was checked against the current NRC Region II Open Items List (OIL) dated May 2, 1988. One Module 17/19 related item was found on the OIL which was not listed in Table 5-9. That was 425/88-10-01, Failure to Issue Field Change Requests for Addition of Fire Protection Piping to Cable Tray Supports. This had been opened during the February 22 - 25, 1988 NRC Inspection which had occurred after the August 1, 1987 cutoff date for the module. Omission from the module was appropriate.

(b) Reportability Evaluations

Table 5-3 presented a list of seven 10 CFR 50.55(e) or 10 CFR 21 evaluations made relative to Module 17/19 related hardware problems. Five of these were listed as "Not

Reportable." The licensee's files for these five were examined to determine if appropriate documentation and rationales existed to support the licensee's findings. Verification error was not found in this examination.

(c) Unit 1 Findings Followup

Table 5-4 listed 48 findings taken from various modules of the Unit 1 Readiness Review. Paragraph 6.4.1 of the module reported that 29 of these had been sampled by the RRT. NRC review disclosed that all of the 48 had been reviewed by the licensee's Project Engineering Office and that the RRT had performed verification of 29 of these. The Inspectors examined the reports of the Project Engineering Office, the data collected by the RRT and the various modules of the Unit 1 review. Verification error was not found except for Finding RRF-12-023 (conduit spacing to avoid cable ampacity derating). This was not found among the 48 listed in Table 5-4 of Module 17/19. Response by the RRT was that this was being included in Module 12 (Cables and Terminations) on the basis that ampacity, and not conduit spacing, was the more critical characteristic. The finding, thus, would be addressed as part of the Module 12 review. It was also noted that Paragraph 5.5 of the module indicated that 49 findings were applicable to Module 17/19 while Table 5-4 listed only 48. This discrepancy was explained by the transfer of Finding 12-023 to Module 12. Transfer of the finding to Module 12 was verified by examination of the Module 12 data base since Module 12 was incomplete as of the Module 17/19 site visit.

(2) Inspection Results

The examination did not disclose significant verification errors or a basis for programmatic concern. Followup or additional evaluation of Section 5 is not required.

f. Section 6 - Program Assessment

(1) Review Introduction and Section Examination

This section of the module describes the program developed and actions performed to ascertain whether the design and construction activities related to Electrical Raceways and Supports for the VEGP Unit 2 have been adequately controlled in the manner that implemented licensing commitments. In addition, it describes the program used to ascertain whether the corrective actions resulting from the Unit 1 Readiness Review were applied to Unit 2, and to verify that design and construction activities conformed to project procedures and design requirements.

Subsections were provided for Program Description, Summary and Conclusions, Assessment Activities and Results, along with Findings. The licensee's review specifically was intended to assure that:

- Project procedures implemented licensing commitments.
- Actions taken to resolve problems identified during the Unit 1 Readiness Review have been effective in preventing recurrence in Unit 2.
- Program and organizational enhancements made for Unit 2 have maintained the quality of the design and construction effort.
- Installed hardware complies with engineering requirements.

This section of the module presented most of the new material (Unit 2 specific) and reflected that portion of the licensee's review of matters not covered by the earlier review of Unit 1. Accordingly, this section received a detailed examination by the inspectors.

- (a) Introduction and Program Description. Subsections 6.1 and 6.2 were read for content and to assure that they were in consonance with material presented earlier in the module. These subsections are largely descriptive and were found to agree with information presented in other sections of the module. Subsection 6.3 summarized later portions of the module, viz. Sections 6.4, 6.5, and 8. Error in the summary was not found. The penultimate paragraph of module Subsection 6.3 contained the following licensee conclusion:

Based on Readiness Review assessment activities and Project responses to findings, Readiness Review has concluded that all Module 17/19 findings represent isolated cases of failure to meet design or procedural requirements or procedural inadequacies and do not identify any safety or generic program concerns. In addition, completion of the corrective action committed to by the Project concerning the Module 6 Finding 2RRF-006-011 will ensure compliance with related Module 17/19 licensing commitments.

The verification of this represented a considerable portion of the NRC review, however. The results of the verification are detailed in the following part of report Section 3.

(b) Assessment Activities and Results. The licensee's assessment activities were divided into three parts as follows:

- Part 1 - Commitment Implementation and Unit 1 Finding followup.
- Part 2 - Programs and Activities.
- Part 3 - Completion.

The licensee reviewed the information presented in Section 5 of the module (Audits and Inspections) along with NRC reports of inspections at four non-GPC owned plants to identify new areas of industry concern that might have been overlooked. The result of the foregoing was an assessment plan detailed in Section 8 of the module and reported on in Subsections 6.4 and 6.5 of the module. The NRC Inspectors examined a sample of the licensee's verifications, in each of the three assessment activity parts, along with selecting an independent sample of examination items in assessment parts 1 and 3.

(2) Part 1 Examination

Part 1 of the licensee's assessment was divided into verification of (1) the commitments listed in Section 3 of the module and (2) followup of the Unit 1 Readiness Review Findings.

- (a) Commitment Verification. The examination of commitments started with an NRC selection of a sample of 12 commitments from the 68 listed in Subsection 3.4 of the Module. The selection was comprised of eight of those found to represent anomalies as reported in Subsection 3.c(1)(a) of this report. That is, they appeared to be different from those listed in or had not been carried forward from the Unit 1 Modules 17 and 19. The remaining four of the NRC sample were those identified by the licensee as new within the 68 listed in Section 3 of the module. The NRC sample included seven design commitments, one construction commitment, and four listed as both design and construction commitments. The remaining 56 commitments were found to have been included in Modules 17 and/or 19 of the Unit 1 Readiness Review. Credit was taken for the NRC review of the commitment sections of those modules and further examination of the 56 was not made.
- (b) Train Separation Criteria. The licensee referred to a Module 6 Finding (2RRF-006-011) in the Design Commitment paragraph of module Subsection 6.4.1. This came from an investigation by the RRT of train separation criteria differences between the Final Safety Analysis Report (FSAR)

Subsection 8.3.1 (commitments 76 and 79) and those listed in Construction Specification X3AR01-E8, Attachment B. The problem previously had been addressed by the licensee pursuant Deficiency Evaluation Report (DER) 186. It had been reported to the NRC as a Reportable Item under the 10 CFR 50.55(e)/10 CFR 21 procedures on February 24, 1988.

Action had been taken by the licensee during the construction of Unit 1 to reduce the need for Fire Separation Barriers otherwise required by NRC Regulatory Guide (RG) 1.75 where appropriate separation distances between train cabling was not provided during installation. This was based on actual tests conducted by a certified laboratory in accord with Institute of Electrical and Electronic Engineers (IEEE) Standard 384-75 as allowed by RG 1.75. The test results had been incorporated into an FSAR amendment approved by the NRC. The results also had been incorporated by various revisions to the following:

- Design Criteria (DC) 1810--Raceway Systems
- Construction Specification X3AR01-E8--Raceway Systems
- Field Procedure ED-T-02--Raceway Installation.

The deficiency noted in the Module 6 Finding 2RRF-006-011 was that document revisions did not result in a consistent set of criteria for judging the acceptable reductions from the train separation distances otherwise required by RG 1.75.

The licensee's action to resolve the condition reported in 2RRF-006-011 included the following:

- Commissioned a second and supplementary series of laboratory tests to provide data for additional separation conditions not contemplated by the first series of tests.
- Develop a FSAR amendment to incorporate the analysis made pursuant to the second laboratory test series. This was forwarded to the NRC for approval on March 14, 1988 but had not been approved at the time of the NRC site visit for Module 17/19.
- Revised DC-1810 to incorporate the FSAR revisions that had been forwarded to the NRC for approval.
- Decided not to provide further revision to either Construction Specification X3AR01-E8 or Field Procedure ED-T-02 to bring them into substantial alignment with the pending FSAR change.

- Developed a walkdown guideline to be used during the Finalization Walkdown inspections (retrofit requirements identification) referred to in Subparagraph 6.4.1 of the Module. This guideline was reported as being in general alignment with X3AR01-E8 and ED-T-02 but also not reflecting the changes in DC-1810 that had been made pursuant to the second series of laboratory tests.

Discussion with licensee personnel and inspection of the various documents provided the following additional information:

- The proposed FSAR change and the changes made to DC-1810 are in full alignment with each other for safety train separation criteria.
- X3AR01-E8, ED-T-02, and the walkdown guideline are in close but not total alignment with each other for safety train separation criteria.
- The two foregoing sets of documents are not in close alignment with each other.

Licensee personnel asserted that the differences in the five prescriptive documents represented a conservative (safe) situation. This is because the documents are employed in a manner that results in field inspection activities using the most restrictive two documents, i.e., ED-T-02 and the walkdown guideline. These do not reflect the reduced train separation criteria supported by the second series of laboratory tests. Hardware situations noted as deficient using these are referred to Engineering for analysis. This analysis can use the more liberal criteria (less separation distances) supported by the second series of laboratory tests. Any distances remaining in violation, after the application of this criteria, are to be resolved by hardware relocation or by the installation of an appropriate fire separation barrier.

Preliminary review of the five safety train separation criteria documents disclosed that the criteria were complex since they were structured to recognize a large variety of hardware situations. In addition, only two of the five documents (proposed FSAR change and the DC-1810) used a similar format and presentation style. No document was offered by the licensee that described differences in the criteria as reflected by the documents. The difficulty noted in recognizing the differences, in verifying the correctness and in proving the ascription of conservative "safe" program operation together resulted in a contribution to Unresolved Item 425/81-26-01 detailed in Subsection 3.f.(4) and listed in Section 4 of this report.

(c) Unit 1 Findings Followup

The NRC examination of the RRT's review of the Unit 1 Readiness Review Findings (as listed in Section 5 of the module) is noted within Subsection 3.e.(1)(c) of this report. The inspectors verified the incorporation of appropriate Unit 1 findings by examining the applicable Unit 1 Readiness Review Modules. In addition, the licensee's determinations relative to each finding were examined. Error was not found in this examination other than the absence of Unit 1 Finding RRF-12-023 (Conduit Spacing to Avoid Cable Ampacity Reduction). This had been transferred to the Unit 2 data base for Module 12.

The RRT finding followup investigation resulted in one Unit 2 finding. This was Finding 2RRF-17/19-005 (Level II - Violation of licensing commitments or engineering requirements with no safety concerns). The finding involved the apparent lack of a program to seal conduits in a manner that would prevent water entry into electrical equipment. Conduit sealing had been accomplished for Unit 1 pursuant to Finding RRF-17-003 under a procedure controlled by the Civil Discipline. This responsibility was transferred to the Electrical Discipline for Unit 2 but was not incorporated into the electrical practices. The licensee's response to this finding was to revise Procedure ED-T-33 (Electrical Facility Completion and Turnover) to incorporate provisions for conduit sealing, where needed. The NRC Inspectors reviewed Finding 2RRF-17/19-005 and the licensee's response to it. Appropriate changes to incorporate conduit sealing requirements were found in ED-T-33 along with the actual installation requirements being described in Construction Specification X3AR01-E8.

(3) Part 2 Examination

Part 2 of the RRT assessment activities (Program and Activities) involved a review of the cable tray cover activities and the fire/separation barrier request program. These had been identified as changed since the Unit 1 Readiness Review.

- (a) Cable Tray Cover Installation. The module Subsection 6.4.2 reported that the RRT did not assess cable tray installation activities. This was because most tray covers were not installed due to cable pulling operations in progress at the time of the module preparation. This same condition was noted by the inspectors at the time of the site visit. Review did disclose that the licensee had set up a practice for verifying tray cover installation in Procedure GD-A-50 (Nuclear Construction Area Turnover). Also, specific

checks for this are included in the Field Procedure ED-T-02 checklists which are used during the area turnover walk-downs to verify installation completion. The inspectors were unable to verify the program effectiveness since area turnover is at an early stage for areas containing Class 1E electrical raceways. This contributes to Unresolved Item 425/88-26-01 detailed in Subsection 3.f.(5) and listed in Section 4 of this report.

(b) Fire Separation Barrier Request Program

The Fire Separation Barrier Request (FSBR) Program was examined due to the changes made since the Unit 1 review. Field Procedure ED-T-32 (Fire/Separation Barrier Request) was examined for evidence of the program changes and for general coordination with other program activities. Verification error was not found. It was noted that the FSBR Program was closely associated with the Safety Train Separation Program and problems discussed previously in Section 3.f.(2)(b) of this report. This is because train separation distances, not acceptable under the reduced distance criteria resulting from and supported by approved FSAR changes (laboratory data implementation), must be resolved by separation barrier installation or by hardware relocation. Thus, the full verification of the program could not be made pending the outcome of Unresolved Item 425/88-26-01 detailed in Subsection 3.f.(5) and presented in Section 4 of this report.

(4) Part 3 Examination

The licensee's objective for Part 3 (Completion) of the assessment was to evaluate the conformance of installed raceways and supports to licensing commitments and design requirements along with evaluating quality documentation. Five categories of hardware had been reviewed by means of the sampling check-lists included in Section 8 of the module. The review included both documentation and associated hardware located within Unit 2. The NRC examination involved:

- Inspecting samples selected from the samples assessed by the RRT.
- Performing an examination of samples of hardware (and supporting documentation) independent of those checked by the RRT.

- (a) RRT Assessment. The RRT hardware verification using Module Section 8 checklists is summarized as follows:

<u>Item</u>	<u>Number</u>	<u>Checklist</u>
Trays	39 locations	17/19-301
Conduits	25 each	17/19-302
Raceway Documentation	64 sets	17/19/303
Tray Support & Doc.	16 each	17/19-304
Conduit Support & Doc.	25 each	17/19-305

The NRC examination of the foregoing RRT verification sample involved spot checking the actual check lists filled in by the RRT and inspecting selected hardware from the RRT sample. A minimally sized hardware sample was used as the objective was to assure that the RRT had performed the assessments as described in Module Subsection 6.4.3. Verification error was not found in these examinations.

The RRT hardware assessment resulted in four findings classified within the following Readiness Review System for impact:

- Level I - Violation of licensing commitments, project procedures, or engineering requirements with indication of safety concern.
- Level II - Violation of licensing commitments or engineering requirements with no safety concerns.
- Level III - Violation of project procedures with no safety concerns.

The four RRT hardware findings were:

17/19-001 (Level II) Tray support not in accord with installation drawings.

17/19-002 (Level II) Inadequately torqued bolts.

17/19-003 (Level II) Inadequate thermal separation from hot pipe.

17/19-006 (Level II) Tray size difference between installation drawings and EE-580 raceway installation card.

The foregoing findings were analyzed by the inspectors for attributes that included:

- Problem statement clarity
- Backup documentation completeness

- Response statement adequacy
- RRT conclusion logic
- Finding conflict with other NRC information.

The examination of the four RRT findings did not disclose verification error.

(b) NRC Independent Sample Verification. An independent sample of 14 individual raceways and associated supports was selected for field walkdown. The sample was selected to provide a broad range of hardware types and Category I locations. The sample was outside of that selected by the RRT and was intended to be a further verification of design conformance. Documentation was assembled relative to both the prescribed requirements and the actual Quality Control inspection. The hardware was inspected for attributes including:

- Design conformance
- Support location
- Identification marking
- Bolt torque
- Welding (if not concealed by subsequent painting)
- Separation criteria
- Foreign commodities on electrical supports
- EE-580 Card correlation
- Tray cover installation
- Deviation report documentation
- Quality Control inspection evidence.

The results of this examination are listed in Table 2 of this report.

Two verification errors were found in the foregoing. These were:

- Tray Covers - The current missing-tray-covers situation is detailed in Report Section 3.f.(2)(a) and covered by Unresolved Item 425/88-26-01 detailed in Subsection 3.f.(5) and listed in Section 4 of this report.

- Thermal Separation - Conduit (jacketed flexible conduit) was found to be in contact with its associated SOLA regulating transformer 2-1807-43-RX7 in Room 47, Level 1, Auxiliary Building. Transformer heat was melting the outer jacket of the conduit. A check for thermal separation criteria in field procedure ED-T-02, Exhibit 18 (Q.C. Inspection Checklist) and Exhibit 13 (Hot Pipe Separation Criteria) failed to disclose a requirement to apply the same criteria to hardware other than piping. This contributes to Unresolved Item 425/88-26-01 detailed in Subsection 3.f.(5) and listed in Section 4 of this report.

(5) Inspection Results

The examination of the Program Assessment section of the Module resulted in one Unresolved Item as follows:

425/88-26-01 - Incomplete verification of safety train separation criteria application, thermal separation criteria and tray cover installation.

This is summarized as follows:

- (a) Safety Train Separation Criteria Application. The licensee does not have a ready means of demonstrating process conservatism in the current application of electrical raceway train separation criteria. The existing criteria vary in the prescriptive documents that reflect implementation of the Wyle Laboratories test data used as the bases for not installing fire separation barriers otherwise required by NRC Regulatory Guide 1.75. This is covered in Subsections 3.f.(2)(b) and 3.f.(3)(b) of this report.
- (b) Thermal Separation Criteria. The licensee did not have or show the use of appropriate thermal separation criteria for space between electrical raceways and thermally hot equipment other than piping. This is covered in Subsection 3.f.(4)(b) of this report.
- (c) Cable Tray Cover Installation. The licensee readiness review did not carry out the planned review element of cable tray cover installation activities due to cable pulling operations then in progress. This is covered in Subsection 3.f.(3)(a) of this report.

g. Section 7 - Assessment of Module Adequacy

(1) Review Introduction and Section Examination

Section 7 of the module contains certifications by the following:

- Project Engineering Manager
- Vice President Vogtle Construction
- Project Quality Assurance Manager
- Readiness Review Board Chairman.

These certifications reflected review by upper management of the module and assurance that it accurately reflected both the review made and the plant/programs reviewed by the RRT. The Readiness Review Board certification added assurance that corrective actions, then proposed, were acceptable and would bring Electrical Raceways and Supports into full FSAR compliance upon implementation.

The Inspectors examined the certifications and considered them to reflect the actions of appropriate managers who had the responsibility to closely monitor the Readiness Review and to assure its quality.

(2) Inspection Results

The examination did not disclose error or perfunctory certification. The certifications given are supported by the results found in the NRC examination of the other sections of the module. Followup or additional evaluation of Module Section 7 is not required.

h. Section 8 - Assessment Plans and Checklists

(1) Review Introduction and Section Examination

This section of the module provides the licensee's formal plan for the documentation and hardware to be reviewed for Module 17/19. The plan details the review approach including objectives, scope, assessment, and general instructions. An extensive set of checklists covering nine designated review areas included:

- FSAR Design Commitment Implementation
- FSAR Construction Commitment Implementation
- Fire/Separation Barrier Control Number

- Tray Cover Installation
- Construction Completion of Tray Installation
- Construction Completion of Conduit Installation
- Raceway Final Documentation
- Tray Support Documentation
- Conduit Support Documentation.

Section 8 of the module was read for content. The check lists were examined for relevancy to the objective and scope of the assessment plan. Section 6 of the module was checked to verify that all aspects of the Section 8 assessment plan were followed in the execution of the Readiness Review. The completed Section 8 check lists were spot checked in the RRT review files to assure that the check lists were used, that relevant information was obtained/analyzed/entered and that all cases of deviation were pursued to an adequate resolution/reporting.

It was noted that check lists 101 and 102 pertained to licensee commitments. The specific commitments that the check list items pertained to were not noted in either the module or the lists. This was clarified by the RRT as follows:

<u>Check List 101</u>		<u>Check List 102</u>	
<u>Item</u>	<u>Commitment</u>	<u>Item</u>	<u>Commitment</u>
1	32	1	35
2	27	2	*
3	29	3	76
4	79	4	84
5	84	5	18
6	20	6	74
7	35	7	4973
8	22	8	4973
9	131		
10	18 & 160		
11	4116		
12	4114		
13	133		
14	126		
15	4273		
16	1013		
17	1497		
18	2188		

*Commitment moved to Module 12.

Verification error was not found in the foregoing.

(2) Inspection Results

The Section 8 examination did not disclose verification error or the basis for programmatic concern. Followup or additional evaluation of Module Section 8 is not required.

4. Review Findings

One finding was identified during the NRC evaluation of the module. This is detailed in Section 3.f.(5) of this report. All of the deficiencies noted within this finding are considered to have minimal safety significance at this point of review but should be evaluated further to preclude safety problems. This has been identified as an Unresolved Item (URI) based on the nature of the followup action required. It will be addressed by the NRC during the routine inspection program unless designated as closed in the finding.

5. Conclusions

The NRC has reached the following conclusions for Electrical Raceways and Supports at VEGP Unit 2 based on the review of Module 17/19.

a. Summary of Specific Conclusions

The following Module sections have been determined to be acceptable with the exception of items and areas discussed earlier in this report. A summary of the report comments for each section is as follows.

(1) Section 1 - Introduction

The boundary between Module 19 and the related Modules is generally clear as defined in Section 1. Minor clarification of the data presented was required for definition completeness. The Module Organization and Project Status were correct as of the date of Module publication. Electrical raceways and supports were essentially complete as of the site visit with the exception of tray covers. These generally haven't been installed due to uncompleted cable pulling and testing.

(2) Section 2 - Organization and Division of Responsibilities

The organization description and responsibility presented in Section 2 of the Module were reviewed and verified as being correct as of the time of Module preparation. Some minor changes have taken place during the interim to consolidate design and installation functions within the site engineering office. This is an adaptation to the reduced staffing requirements as construction nears completion.

(3) Section 3 - Commitments

The commitments listed in Section 3 were reviewed to determine changes from those listed in the Unit 1 Modules 17 and 19. Twelve of 68 gave evidence of change or difference from the Unit 1 review. Examination of these was made to assure correct identification and implementation.

(4) Section 4 - Program Description

The design program description presented in Section 4 was reviewed and verified as being correct

(5) Section 5 - Audits and Special Investigations

The audits and special investigations information presented in Section 5 was reviewed and verified as being correct.

(6) Section 6 - Program Verification

The program assessment reported in Section 6 of the Module was verified as being generally adequate. The NRC review disclosed three areas of incomplete verification which resulted in URI 88-26-01. This involved thermal separation criteria, safety train separation criteria application and tray cover installation. The five findings by the RRT were found to be clearly stated, adequately documented, properly recognized by management.

(7) Section 7 - Assessment of Module Adequacy

The certifications presented in Section 7 of the module were found to reflect action on the part of the cognizant managers having responsibility to assure the adequacy of the Readiness Review.

(8) Section 8 - Assessment Plan and Checklist

The assessment plan presented in Section 8 of the module was verified as being adequate for the purpose and being followed substantially during the Readiness Review. Clarification was required to relate two of the check lists to module Section 3 commitments.

b. General Conclusions

The examination performed by the NRC indicated that GPC management supported the Readiness Review by active participation and adequate resources. No evidence of coercion, or attempt to dilute either the effort or the findings, was disclosed. The RRT displayed the

requisite competence and professionalism for a review of this nature. The licensee's program was comprehensive and provided adequate assurance that the plant Electrical Raceways and Supports will perform in accord with NRC requirements and FSAR commitments. Possible exception to this is the open Unresolved Item (URI-425/88-26-01) resulting from the NRC examination and which is listed in Section 4 of this report.

It does not appear that the foregoing represent significant programmatic weakness provided that additional licensee response is sufficient to enable closure for currently open NRC item for VEGP Unit 2. Pending resolution of the open item identified above, the NRC concludes that the GPC program for Electrical Raceways and Supports complies with NRC requirements and FSAR commitments. This conclusion is based on information currently available to the inspectors and reviewers. Should subsequent contradictory information become available, it will be evaluated to determine what effect it may have on the above conclusion.

6. Exit Interview

The review scope and findings were summarized on May 26, 1988, with those persons indicated in Section 1 of this report. The inspectors described the areas inspected and discussed in detail the inspection findings listed below. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection.

<u>Item Number</u>	<u>Description and Reference</u>
425/88-26-01	URI - Incomplete verification of Thermal Separation Criteria, Safety Train Separation Criteria Application and Tray Cover Installation.

Dissenting comments were not received from the licensee.

7. Acronyms and Abbreviations

DC	-	Design Criteria
DER	-	Deficiency Evaluation Report
FCR	-	Field Change Request
FSAR	-	Final Safety Analysis Report
GDC	-	General Design Criteria
GPC	-	Georgia Power Company
HOE	-	Home Office Engineering

IEEE	-	Institute of Electrical and Electronic Engineers
NRC	-	Nuclear Regulatory Commission
OIL	-	Open Items Listing
PFE	-	Project Field Office
QA	-	Quality Assurance
QC	-	Quality Control
RG	-	Regulatory Guide
RGS	-	Rigid Galvanized Steel
RRT	-	Readiness Review Team
URI	-	Unresolved Item
VEGP	-	Vogtle Electric Generating Plant

TABLE 1. COMMITMENT SAMPLE VERIFICATION BY NRC REGION 11 INSPECTORS

Reference Number	Commitment Source	Commitment Section	Commitment Subject	Document Feature	Verification Document	Remarks
76 Unit 2 Change	FSAR	8.3.1.4.3	Cable routing - minimum separation spreading, control and shut down rooms	Five feet vert., three feet horz.	DC-1810	FSAR change pending to implement laboratory test-data-supported separation reduction.
79 Unit 2 Change	FSAR	8.3.1.4.3	Cable routing - minimum separation general plant areas	Five feet vert., three feet horz.	DC-1810	FSAR change pending to implement laboratory test-data-supported separation reductions.
1010	FSAR	3.7.B.3.1.2	Seismic subsystem analysis - Category 1 cable trays	Model response spectrum or equivalent static load method	DC-1810 DC-2166 DC-1000-C	Not in Unit 1 Module 19 but was Reference No. 1010 in Unit 1 Module 18A.
1014	FSAR	3.7.B.3.5	Seismic subsystem analysis - acceleration factor for equivalent static load analysis	Peak accelerations value multiplied by 1.5 unless lower factor justified	DC-1000-C	Was Reference No. 1014 in Unit 1 Module 21J.
1017	FSAR	3.7.B.3.7	Seismic subsystem analysis - comb. of modal responses	Square root of sum of squares mathematical method for combining values	DC-1810 DC-2166 DC-1000-C Bechtel TOP-4A	Was Reference 1017 in Unit 1 Module 18A.
1018	FSAR	3.7.B.3.7	Seismic subsystem analysis - comb. of modal responses	Regulatory Guide 1.92 requirements for square root of sum of squares	DC-1000-C	Was Reference 1018 in Unit 1 Module 18A.
2360	FSAR	8.1.1	Electric power system - environmental and missile design bases	10 CFR 50 Appendix A General Design Criterion No. 4	High Energy Line Break Program (HELBA)	Same requirement as Reference No. 4115 of Unit 1 Module 19. Not in Module 17/19 commitment matrix.
2905	FSAR	17.1.2	QA program requirements	Regulatory Guide 1.30	QA manual	Not in Module 17/19 imp. matrix. Similar to Ref. No. 686 in Module 6.
4688	FSAR	3.7.B.3.6	Seismic subsystem analysis - comb. of earthquake motion components	Square root of sum of squares mathematical method for combining	DC-1000-C Specification app. QG	Similar to Reference No. 1018 requirement.
4973 Unit 2 Change	FSAR	1.9.94.2.9	Welding visual acceptance criteria	Welding in accord with AWS D1.1 prior to 12/2/85	Specification app. VC	Identified as changed commitment in Module 17/19. Was in Unit 1 Module 19.
5025 Unit 2 Change	FSAR	3.8.4.5	Welding of raceway supports	Welding in accord with AWS D1.1-1975 or later edition	DC-1000-C	Identified as changed commitment in Module 17/19.
5062	FSAR	8.3.1.4.2	Cable derating and fill - separation measurement when cables are above tray sidewalls	RG 1.75 separation measurement 15 from upper most cable	Spec. X3AR01-EB	Generally covered by Reference No. 160 of Unit 1 Module 17.

TABLE 2. ELECTRICAL RACEWAYS AND SUPPORTS -- INDEPENDENT SAMPLE WALKDOWN RESULTS

Location	Item	Designation	Type	Mounting	Inspection	Results
Containment Level A	Cable tray	2AE53A1QAB	6" x 24" punched bottom	Bolted to support	20 feet horz. run	Passed
	Support	TS-004-65	Cantilever arm	Bolted to embedded strut	Arm	Passed
	Support	TS-004-67	Cantilever arm	Bolted to embedded strut	Arm	Passed
	Support	TS-004-70	Cantilever arm	Welded to embedded plate	Arm	Passed
Containment Level A	Cable tray	2AE523THBB	4" x 18" punched bottom	Bolted to support	30 feet horz. run	Passed
	Support	TS-005-73	Push brace vertical and arm	Welded to structural steel	Tee and arm	Passed
Containment Level A	Conduit	2AE53ARW214	1-1/2" RGS stub	Conduit strap	3 feet long stub	Passed
	Support (1)	--	Strap	Bolted to structural steel	Strap	
Containment Level B	Conduit	2BE523RX133	3" RGS	Conduit straps	Total run	Passed
	Supports (2)	--	Strap	Bolted-strut welded to embed	Straps	Passed
	Support (1)	--	Strap	Drilled in anchor	Strap	Passed
Control Bldg. Level A	Conduit	2CE340RS131	3" RGS	Conduit straps	20 feet horz. run	Passed
	Supports (4)	--	Strap	Bolted to embedded strut	Straps	Passed
Control Bldg. Level A	Conduit	2AE341RS008	2" RGS	Conduit strap	14 feet horz. run	Passed
	Supports (3)	--	Strap	Bolted to embedded strut	Straps	Passed
Control Bldg. Level A	Cable tray	2AE341IUBG	6" x 24" punched bottom	Bolted to support	18 feet horz. run	Passed
	Support	TS-154-21	Cantilever arm	Welded to embedded plate	Arm	Passed
	Support	TS-154-22	Cantilever arm	Welded to embedded plate	Arm	Passed
	Support	TS-154-23	Cantilever arm	Welded to embedded plate	Arm	Passed
Auxiliary Bldg. Level 1	Cable tray	2BE445IWCL	6" x 24" solid bottom	Bolted	2 feet vert. run and tee	Passed
	Support	TS-130-94	Cantilever arm	Bolted to embedded strut	Arm	Passed
Auxiliary Bldg. Level 1	Conduit	2-1807-Y3-RX2 ^a	1-1/4" jacketed flexible	None	Total run	Not passed ^b
Auxiliary Bldg. Level 1	Support	Not identified	10" square tubular steel N-frame (also supporting tray 2BE445IWCL vertical run)	Not inspected	Foreign commodities	Passed ^c
Auxiliary Bldg. Level B	Cable tray	2BE453110VA	6" x 6" punched bottom	Bolted	6 feet horz. run	Passed
	Support	TS-453-267	Cantilever arm	Drilled in anchors	Arm	Passed
	Support	TS-453-268	Cantilever arm	Welded to 1/5" welded to embedded plate	Arm and support extension	Passed
Auxiliary Bldg. Level 1	Conduit	2AE435RX135	3" RGS	Strap	50 feet horz. and vert.	Passed
	Supports		Straps (3)	Drilled in anchors	Straps	Passed

TABLE 2. (continued)

Location	Item	Designation	Type	Mounting	Inspection	Results
Aux. Feed Water Level 1	Conduit Support	2CE8C7RS802	4" RGS Strap	Strap and concrete encasement Drilled in anchor	6 feet vert. run Strap	Passed Passed
NSCW Valve Hse. A Main Level	Cable tray Support	2AE83ILBF TS-32	Not inspected Tree	Not inspected Welded to embedded plate	Not inspected Tree	Not inspected Passed ^d

a. Transformer designation.

b. Conduit touching hot SOLA regulating transformer -- see report Subsection 3.f(4)(b) and DRI 425/88-26-01.

c. Pipe supports V2-1204-169-H004 and V2-1214-032-H655 welded to electrical cable tray supports are covered by Field Change Request E-FCRB-8504f.

d. 7/32" spacing with pipe support V2-1202-009-H-002 questioned. Seismic separation criteria in Table 1 of Appendix SC, Seismic Criteria for VEGP, allows separation as small as contact.

cc w/encl:

- ✓ P. W. Howe, Vice President
Brunswick Nuclear Project
- ✓ R. Dietz, Plant General Manager
- ✓ P. Beatty, Jr., Vice President
Robinson Nuclear Project Department
- ✓ E. Morgan, Plant General Manager

bcc w/encl:

- ✓ NRC Resident Inspectors
- DRS, Technical Assistant
- Document Control Desk
- State of North Carolina
- State of South Carolina

RII

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8/24/88

RII

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8/24/88

RII

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8/24/88

ENCLOSURE

Document

ALARA Committee Meeting Minutes (Corporate and Station)

ALARA Program Procedures (Corporate and Station)

Past and Present ALARA Initiatives (Cobalt Reduction, Chemical Decon, Fuel Integrity, Submicron Filtration, etc) (Corporate and Station)

ALARA Training Courses (lesson plans, etc, other than that provided in general employee training) (Corporate and Station)

ALARA Program Assessments/Audits (Corporate and Station)

RWP Implementation Procedures

Post Outage Reports

Outage and Annual Collective Dose Goals and Actual Exposures (by tasks)

Number of People Badged Annually

Exposure Breakdown by Department and the Tasks Annually