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the southern electric system

R. E. Conway
Senior Vice President

October 3, 1984

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30302

File: X7BD102
Log: GN-424

Reference: Readiness Review Program

Attention: Mr. James P. O'Reilly

Gentlemen:

PURPOSE

The purpose of this letter is to propose a pilot program for the systematic and disciplined review of Georgia Power Company's implementation of design, construction, and operational preparation processes to increase the level of assurance that Plant Vogtle's quality programs have been accomplished in accordance with regulatory requirements.

BACKGROUND

Georgia Power Company has long been concerned about the inability of a number of utilities to satisfactorily complete nuclear plants under construction on time, within budget, and in compliance with Nuclear Regulatory Commission requirements. A number of these problems appear to have been the result of major quality-related breakdowns in the management of plant construction or the utilities' inability to demonstrate the requisite quality. In a report to Congress on Improving Quality and the Assurance of Quality in the Design and Construction of Nuclear Power Plants (NUREG-1055), the Nuclear Regulatory Commission addressed these issues. In response to the question, "Why have the Nuclear Regulatory Commission and the utilities failed or been slow to detect and/or respond to these quality-related problems?", the Nuclear Regulatory Commission defined a number of shortcomings and recommended actions. One of the actions recommended for further analysis was the feasibility and benefits of Readiness Reviews which would involve formal assessments by the utility of their readiness to proceed at critical phases of a project and include possible involvement of Nuclear Regulatory Commission staff.

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DISCUSSION

In response to the concerns for past problems and in consideration of the potential benefits of Readiness Reviews addressed in NUREG-1055, Georgia Power Company has developed a proposed Readiness Review Program for Plant Vogtle. Attachment 1 to this letter is a Readiness Review Program plan which includes a discussion of objectives, responsibilities, review process, procedures, organization and schedules for implementing the plan.

The proposed Readiness Review Program does not eliminate or diminish any authorities or regulatory responsibilities now assigned to or exercised by the Nuclear Regulatory Commission or Georgia Power Company. Further, the proposed Readiness Review Program does not fundamentally change the techniques of inspections or assurance of quality program activities. Rather, the Readiness Review Program is a management system which provides for the more orderly planning and predictable execution of existing authorities and responsibilities.

In summary, the proposed Readiness Review Program actions include a clear definition and description of all work activities in terms of governing regulatory commitments, an in-depth Georgia Power Company self-assessment of the work activities, Nuclear Regulatory Commission review and actions on both the programmatic and work implementation aspects of the work activities and a methodology for scheduling the separate Readiness Review Program actions of Georgia Power Company and the Nuclear Regulatory Commission.

The proposed plan incorporates several important features such as a Readiness Review Board, outside technical experts in the various disciplines, and a separate design review group all of which serve to provide independent oversight and review of Readiness Review Program actions and results.

CONCLUSION

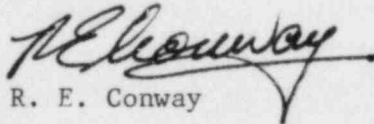
Georgia Power Company considers that the proposed Readiness Review Program including the Nuclear Regulatory Commission's agreement to participate in the program would result in significant benefits. These benefits include improved planning which will enhance the effective use of critical Nuclear Regulatory Commission and Georgia Power Company resources and improved predictability resulting from the early Nuclear Regulatory Commission determination of program adequacy. Other benefits include enhanced assurance of the overall program acceptability resulting from Georgia Power Company's self-assessment combined with the phased independent Nuclear Regulatory Commission reviews, and improved stability by minimizing the potential for last minute identification of major programmatic problems.

In addition, Georgia Power Company considers that the successful demonstration of the proposed pilot Readiness Review Program at Vogtle could be a significant potential benefit to future nuclear projects. Specifically, the application of readiness reviews to individual critical work activities phased over the entire life of a future project would be a straightforward extension of the Readiness Review Program proposed for Vogtle. In this regard, all key plans, procedures and schedules associated with Vogtle pilot program will be available as public information for use as desired by the industry or NRC as a tool for future work.

PROPOSED ACTION

Based on the above, Georgia Power Company requests that the Nuclear Regulatory Commission agree to participate in the proposed pilot Readiness Review Program. Georgia Power Company recommends that the Nuclear Regulatory Commission establish a task group from the Office of Inspection and Enforcement to assist in the development of the Readiness Review Program procedures and schedules. It is further recommended that a task group from the Regional Office of Inspection and Enforcement be established to assist in the development of program procedures and schedules, and actions associated with work activity inspection and acceptance.

Yours very truly,


R. E. Conway

PDR/REC/jcb

Attachment

xc: J. H. Miller, Jr.
R. W. Scherer
R. J. Kelly
B. M. Guthrie
D. O. Foster
J. T. Beckham, Jr.
R. A. Thomas
D. E. Dutton
W. F. Sanders
P. D. Rice
E. L. Blake - Shaw, Pittman, Potts and Trowbridge
D. C. Teper - Georgians Against Nuclear Energy
L. Fowler - Legal Environmental Assistance Foundation
T. Johnson - Education Campaign for a Prosperous Georgia
J. E. Joiner - Troutman, Sanders, Lockerman, & Ashmore

READINESS REVIEW PROGRAM

PURPOSE

The purpose of the Readiness Review Program is to provide a systematic and disciplined review of Georgia Power Company's implementation of design, construction and operational preparation processes to increase the assurance that quality program activities at Plant Vogtle have been accomplished in accordance with regulatory requirements.

OBJECTIVE

The Readiness Review Program is a management system developed to accomplish the following objectives:

- Clearly define the individual work processes involved in the quality program at Plant Vogtle and describe how these processes comply with regulatory commitments.
- Provide a phased in-depth self-assessment of all work processes and a separate management overview of the self-assessment process including an expert evaluation of both the readiness review assessment and its conclusions.
- Enhance the identification of problems or concerns and ensure their correction in a timely manner.
- Provide a mechanism for the early resolution of any differences in the Nuclear Regulatory Commission and Georgia Power Company interpretation of regulatory requirements and the resulting acceptance criteria.
- Provide a system that will facilitate the Nuclear Regulatory Commission's review, inspection, appropriate action and approval of the acceptability of Vogtle work processes on an advanced readiness review basis.
- Provide a planning system, including Georgia Power Company prepared and Nuclear Regulatory Commission accepted milestone schedules, for the orderly conduct of the separate actions of Georgia Power Company and Nuclear Regulatory Commission.

AUTHORITIES AND REGULATORY RESPONSIBILITIES

Nothing in this program eliminates or diminishes any regulatory responsibilities or authorities now assigned to or exercised by the Nuclear Regulatory Commission or Georgia Power Company. Further, the Readiness Review Program does not fundamentally change the techniques of inspection of quality program activities. Rather, the Readiness Review Program provides for the improved planning and execution of existing responsibilities and authorities in a predictable and orderly manner.

READINESS REVIEW PROCESS

The scope of the Readiness Review Program encompasses the implementation of all aspects of design, construction and preparations for operation at Plant Vogtle. The overall scope of the program is divided into five broad generic functions: civil, mechanical, electrical, instrumentation and control, and readiness for plant operations (see enclosure 1). These generic functions are further divided into specific work activities (see enclosure 2 example) and from there into individual work elements (see enclosure 3 example).

The Readiness Review Program actions will generally be conducted at the work element level to review, assess and verify performance. The individual work elements in a specific work activity will be packaged and presented to the Nuclear Regulatory Commission for review and approval. Such a package is defined as a readiness review module. The total scope of work will be divided into approximately 25 readiness review modules (see enclosure 4).

The content of the individual modules is based on considerations such as work process logic, the scheduled sequence of work completion and the time period available for review. The content and structure of these modules will be developed by Georgia Power Company and submitted to the Nuclear Regulatory Commission for comment and acceptance.

READINESS REVIEW PHASES

The basic readiness review actions involve each readiness review module undergoing a four-phase process of Preparation/Evaluation, Presentation/Module Review, Work Review, and Resolution/Approval. The following is a description of each phase of the readiness review module process.

° Preparation/Evaluation Phase - Phase I

This phase of the readiness review process consists of:

- Georgia Power Company preparation of the readiness review modules,
- Georgia Power Company assessment and certification of the adequacy of all work activities covered in the module,
- Readiness Review Board review and concurrence that all work activities covered by a module were performed satisfactorily, and
- Vice President and Project General Manager of the Vogtle Project approval of the module.

Each module will include a definition of the scope of work covered in the module. This scope is broken down by work activities and ultimately into a detailed list of the individual work elements that are involved in the module scope. Each of the work elements or group of work elements will be described in terms of subjects such as the following:

- applicable commitments,
- governing specifications,
- detailed description of the work process,
- timing of work accomplishment,
- criteria for acceptance of work,
- scope and methods of documentation,
- responsible organization and interface activities,
- nonconformance and corrective action processes,
- significant problems,
- reportable events,
- applicable Quality Assurance audits, and
- applicable Nuclear Regulatory Commission inspections.

Matrices will be prepared to identify key review material such as regulatory commitments, specifications and procedures as a function of work element and time.

Having so defined and described each work element or logical group of elements, GPC will formally assess the elements to determine that the quality program and its implementation have complied with Georgia Power Company commitments and Nuclear Regulatory Commission regulatory requirements. Additional reviews, inspections or audits will be conducted wherever necessary to verify proper accomplishment of the work elements. Each assessment of work elements will be signed off by an individual responsible for the assessment certifying that the work elements have been addressed properly and are ready for Nuclear Regulatory Commission review.

In addition to the self-assessment of module work elements discussed above, Georgia Power Company will establish a Design Review Group within the Readiness Review Task Force consisting of three or more senior experienced design engineers who are

independent of those personnel who performed the work. The function of this group will be to conduct a continuing detailed review of the design process to provide added assurance that the design activities defined and described in the readiness review module have been performed in accordance with all commitments. A particular focus of this group will be to examine the interface actions among design disciplines to insure that there are no discontinuities in design work covered by the various readiness review modules.

When all work elements in the readiness review module have been assessed and certified as properly implemented, an independent Georgia Power Company Readiness Review Board will conduct an evaluation of the readiness review module to verify that the overall work activities have been addressed satisfactorily and that all Readiness Review Program actions have been completed properly.

Upon satisfactory completion of the Readiness Review Board evaluation, the Vice President and Project General Manager of the Vogtle Project will make a final determination of acceptability of the readiness review module.

° **Presentation/Module Review Phase - Phase II**

Upon determining that the readiness review module is satisfactory, the Vice President and Project General Manager of the Vogtle Project will formally submit the readiness review module to the Regional Administrator of the Nuclear Regulatory Commission for review and acceptance. The presentation process will include a brief meeting to outline the scope of the readiness review module and identify any particular aspects that Georgia Power Company may want to highlight to the Nuclear Regulatory Commission. It is expected that the readiness review module would thereafter undergo a multi-discipline review by applicable Nuclear Regulatory Commission organizations to verify the effectiveness of the Georgia Power Company quality program for work areas covered in the module. It is expected that this review would examine definition of commitments, adequacy of commitment application and proper interpretation of criteria for work acceptance. Further, it is expected that either a positive finding of program adequacy would be identified to Georgia Power Company or any concerns with the program defined in the readiness review module would be conveyed for action, as appropriate.

° **Work Review Phase - Phase III**

Upon completion of Nuclear Regulatory Commission review of the readiness review module, it is expected that the Nuclear Regulatory Commission would identify selected work activities

covered by the readiness review module for additional Nuclear Regulatory Commission inspection. For these instances, Georgia Power Company would take all necessary actions to support and assist the Nuclear Regulatory Commission inspection including the collection and assembly of documentation, the supply of requested personnel for interviews or inspection assistance and the resolution of all questions or requests for additional information. Georgia Power Company would make every effort to address all inspector requests and questions during the Nuclear Regulatory Commission on-site inspection process.

° **Resolution/Approval Phase - Phase IV**

Upon completion of additional Nuclear Regulatory Commission inspections of the readiness review module work activities, it is expected that the Nuclear Regulatory Commission would identify any significant areas of noncompliance in accordance with existing Nuclear Regulatory Commission inspection and enforcement policies (e.g. 10CFR2, Appendix C). Georgia Power Company will investigate, assess and correct any items so identified in a thorough and rigorously scheduled manner in order to promptly and completely resolve all concerns and to avoid any recurring questions or concerns in subsequently scheduled areas of readiness review.

Upon satisfactory completion of Nuclear Regulatory Commission inspections of readiness review module work activities, including satisfactory resolution of any resulting concerns, it is expected that the Nuclear Regulatory Commission would formally identify to Georgia Power Company that the scope of work covered by the readiness review module had been reviewed programmatically and for implementation and was deemed satisfactory subject to completion of remaining work in full compliance with all commitments. It is further expected that any work covered by the scope of the readiness review module that had not yet been completed due to the project work sequence would be factored into normal Nuclear Regulatory Commission site inspection activities with the Georgia Power Company commitment to assist the Nuclear Regulatory Commission in subsequent inspections in the same manner as during the readiness review module inspection activities. The Nuclear Regulatory Commission would be formally notified of any subsequent significant changes to the quality program that would affect the completed module.

PROCEDURES

Formal procedures will be developed to control the Georgia Power Company actions involved in the Readiness Review Program. These procedures will include requirements and guidance for readiness review organization, readiness review personnel training, module content, module preparation,

module evaluation including specific criteria for performing the evaluation, criteria for evaluation acceptance, criteria for handling concerns identified during readiness review, preparation and issuance of schedules, and handling of changes to the readiness review procedures. These procedures will be approved by the Readiness Review Program Manager, the Quality Assurance Department and the Readiness Review Board. Readiness review procedures and their changes will be submitted to the Nuclear Regulatory Commission for information.

ORGANIZATION

The Georgia Power Company organization for implementing the Readiness Review Program will consist of a Readiness Review Task Force and an independent Readiness Review Board.

The Readiness Review Task Force will consist of engineering and support personnel selected for their expertise from applicable design, construction, operations and quality disciplines. These personnel will report through readiness review discipline managers who report to the Readiness Review Program Manager.

The Readiness Review Board will consist of Georgia Power Company technically experienced senior managers and one or more independent technical experts. These technical experts will be selected based on their broad technical background in a particular discipline and will rotate on the board to serve for module reviews appropriate to their area of expertise.

Personnel on the task force and the Readiness Review Board will be trained on the Readiness Review Program procedures and their qualifications will be documented.

Both the Readiness Review Task Force Manager and the Readiness Review Board Chairman report to the Senior Vice President Nuclear, Georgia Power Company.

READINESS REVIEW SCHEDULES

Readiness review modules will be prepared and submitted to the Nuclear Regulatory Commission at a rate of approximately two modules per month. Enclosure 5 is a preliminary schedule showing the anticipated sequence of module development and issue. Georgia Power Company will develop specific readiness review schedules that will include commitment dates for Georgia Power Company presentation of readiness review modules to the Nuclear Regulatory Commission and agreed upon time frames for subsequent Georgia Power Company and Nuclear Regulatory Commission Readiness Review Program actions. These schedules will be submitted to the Nuclear Regulatory Commission for approval and Georgia Power Company will update schedules at three month intervals or more frequently if required to make any necessary adjustments resulting from work schedule changes or unforeseen problems.

(Enclosure 1)

PLANT VOGTLE GENERIC FUNCTIONS

- I. CIVIL
- II. MECHANICAL
- III. ELECTRICAL
- IV. INSTRUMENTATION AND CONTROLS
- V. PLANT OPERATIONS

(Enclosure 2)

PLANT VOGTLE - WORK ACTIVITIES FOR CIVIL FUNCTIONAL AREA

I. CIVIL

- A. CONCRETE
- B. REBAR AND CADWELDS
- C. STRUCTURAL STEEL, MISCELLANEOUS STEEL AND EMBEDS
- D. WELDING
- E. BACKFILL
- F. COATINGS
- G. POST TENSIONING

PLANT VOGTLE - WORK ELEMENTS FOR CIVIL CONCRETE,
REBAR AND CADWELD WORK ACTIVITIES

I. CIVIL

A. CONCRETE

1. DESIGN

- a. Design criteria
- b. Control procedures
- c. Specifications
- d. Analysis and calculations
- e. Interfaces
- f. Seismic classification
- g. Drawing types
- h. Change control
- i. Problem resolution
- j. Documentation
- k. Verification of as-built condition through FCR's, DR's and NCR's
- l. Mix design
- m. Design evaluation reports (DER's)

2. MATERIALS

- a. Identification and specification of materials
- b. Certification and tests by suppliers
- c. Procurement
- d. Receipt
- e. Storage
- f. Release for use
- g. Vendor control

3. TRAINING AND QUALIFICATION

- a. Receipt and storage inspectors
- b. Batch plant operators and inspectors
- c. Laboratory and fresh testing inspectors
- d. Placement inspectors
- e. Surveyors
- f. Craft personnel

4. FABRICATION AND INSTALLATION

- a. Construction procedures
- b. Formwork, waterstop and waterproofing
- c. Batching
- d. Placing, finishing and curing
- e. Core drilling
- f. Equipment pad grouting and drypacking

5. INSPECTION

- a. Receipt and storage inspection
- b. Preplacement inspection
- c. Placement and post-placement inspection
- d. Lab inspection
- e. Core drill inspection

6. TESTING

- a. Concrete materials receiving (gradation, water, cement, fly ash and admixtures)
- b. In-process materials (slump, air content, compressive strength)

7. MEASURING AND TEST EQUIPMENT

- a. Calibration
- b. Maintenance

8. FIELD DOCUMENT CONTROL

- a. Receipt/control
- b. Issuance
- c. Changes

9. AUDITS

- a. GPC audits and responses
- b. NRC inspections and GPC responses
- c. Special investigations/evaluations and responses
 - o INPO
 - o SIE
 - o Cadweld review
 - o Design control

10. REPORTABLE DEFICIENCIES

B. REBAR AND CADWELD

1. DESIGN

- a. Design criteria
- b. Control procedures
- c. Specifications
- d. Analysis and calculations
- e. Interfaces
- f. Seismic classification
- g. Drawing types
- h. Change control
- i. Problem resolution
- j. Documentation
- k. Verification of as-built condition through FCR's, DR's and NCR's
- l. Design evaluation reports (DER's)

2. MATERIALS
 - a. Identification and specification of materials
 - b. Certification and tests by suppliers
 - c. Procurement
 - d. Receipt
 - e. Storage
 - f. Release for use
 - g. Vendor control
3. TRAINING AND QUALIFICATION
 - a. Receipt and storage inspectors
 - b. Iron worker and cadweld operator training
 - c. Laboratory and rebar inspector training
4. FABRICATION AND INSTALLATION
 - a. Site fabrication of rebar
 - b. Rebar installation
 - c. Cadweld installation
 - d. Repair procedures
5. INSPECTION
 - a. Receipt, storage and inspection
 - b. Rebar and cadweld inspection
6. TESTING
 - a. Cadweld testing
7. MEASURING AND TEST EQUIPMENT
 - a. Calibration
 - b. Maintenance
8. FIELD DOCUMENT CONTROL
 - a. Receipt/control
 - b. Issuance
 - c. Changes
9. AUDITS
 - a. GPC audits and responses
 - b. NRC inspections and GPC responses
 - c. Special investigations/evaluations and responses
 - o INPO
 - o SIE
 - o Cadweld review
 - o Design control
10. REPORTABLE DEFICIENCIES

READINESS REVIEW MODULES

I. CIVIL

- A. CONCRETE
- B. REBAR AND CADWELDS
- C. STRUCTURAL STEEL, MISCELLANEOUS STEEL AND EMBEDS
- D. WELDING
- E. BACKFILL
- F. COATINGS
- G. POST TENSIONING

II. MECHANICAL

- A. NSSS
- B. PIPE HANGERS/SUPPORTS
- C. PIPING/VALVES/PUMPS
- D. HVAC AND EQUIPMENT
- E. FIRE PROTECTION
- F. INSULATION

IV. INSTRUMENTATION AND CONTROLS

- A. PROCESS I & C
- B. ELECTRICAL I & C
- C. HVAC I & C

III. ELECTRICAL

- A. RACEWAYS
- B. CABLE INSTALLATION
- C. EQUIPMENT
- D. HANGERS/SUPPORTS
- E. TERMINATIONS
- F. FIRE BARRIERS

V. PLANT OPERATIONS

- A. OPERATIONS
- B. MAINTENANCE
- C. TECHNICAL SUPPORT
- D. INITIAL TEST PROGRAM
- E. EMERGENCY PREPAREDNESS
- F. QUALITY ASSURANCE
- G. TRAINING
- H. HEALTH PHYSICS/CHEMISTRY

