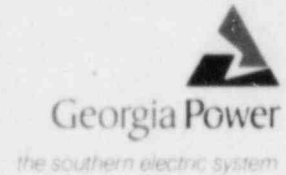


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D. O. Foster
Vice President and Project
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Vogtle Project

04 APR 4 A 8: 56



March 29, 1984

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

File: X7BG03-M53
Log: GN-334

Reference: Vogtle Electric Generating Plant-Units 1 and 2, 50-424, 50-425;
Control Level Electrical Penetration Protection; also GN-305,
dated 1/18/84.

Attention: Mr. James P. O'Reilly

Gentlemen:

In our previous correspondence to the NRC on this subject, Georgia Power Company indicated that the NRC would be notified by March 30, 1984, of the results of our evaluation of inadequate backup electrical protection of some control level electrical penetration assembly circuits. Georgia Power Company has completed its review and evaluation of this event and has concluded that it is reportable as a significant deficiency and a substantial safety hazard.

The engineering evaluation concluded that this condition, if it had remained uncorrected, may have caused structural failure of electrical feed-through parts and the subsequent loss of containment pressure boundary integrity. As a result, post-accident leakage rates from the containment could result in the exceeding of the offsite dose guidelines of 10 CFR 100. The evaluation also determined that there was an apparent breakdown in the quality assurance program of the Architect/Engineer, Bechtel Power Corporation. A copy of the evaluation report is attached for your information.

Bechtel Power Corporation has previously reported this event for another project pursuant to the reporting requirements of 10 CFR 21. Based upon guidance issued by the NRC in NUREG-0302, Revision 1, Georgia Power Company has considered the reporting requirements of 10 CFR 21 in its evaluation and is reporting this condition as a significant deficiency pursuant to the requirements of 10 CFR 50.55(e).

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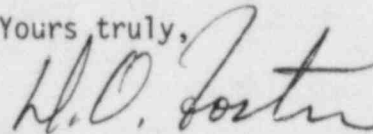
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Control Level Electrical Penetration
Protection
Page Two

This response contains no proprietary information and may be placed
in the NRC Public Document Room upon receipt.

Yours truly,



D. O. Foster

REF/DOF/tdm

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EVALUATION FOR A SUBSTANTIAL SAFETY HAZARD
EVALUATION FOR A SIGNIFICANT DEFICIENCY

Control Level Electrical Penetration Protection

Initial Report:

On December 19, 1983, Mr. E. D. Groover of Georgia Power Company reported a potential deficiency to Mr. John Rogge of the USNRC. This potential deficiency concerned control level electrical penetrations. In a subsequent letter to the NRC, Georgia Power Company committed to advise the NRC of the results of their evaluation by March 30, 1984.

Background Information:

Regulatory Guide 1.63 requires that electrical protection be provided to limit the maximum short circuit current versus time conditions in such a manner that the electrical penetration assemblies (EPAs) can withstand the short circuit conditions without the loss of integrity of the containment pressure boundary. As a result of an analysis of the fault current levels and the current versus time characteristics for control level electrical penetration conductors, it was found that although most control level circuits were adequately protected, some 125VDC, 120VAC, and telephone page communication system circuits did not have the necessary backup electrical protection.

Existing Bechtel procedures include an information distribution system; Problem Investigation Requests (PIRs), which inform all projects of potential problems affecting safety. The PIR makes other Bechtel nuclear projects aware of significant deficiencies or substantial safety hazards discovered on Bechtel nuclear projects. LAPD PIR LA-83-34 dated July 29, 1984, identified inadequate control level backup electrical protection for EPAs as a potential problem. Additionally, Bechtel has previously reported this condition to the Nuclear Regulatory Commission on August 24, 1984, as a Part 10 CFR 21 (substantial safety hazard) for another project.

When this PIR was issued, the Vogtle Project was in the process of reviewing and updating the calculation associated with containment penetration electrical protection to reflect current design conditions and to incorporate newly added or changed vendor information. This calculation was scheduled for routine review on an annual basis and, as such, this update was identified in the project design control calculation logging system. During this routine review of the design, the inadequate electrical protection for EPAs was discovered. The inadequacy was developed due to a general assumption that control level circuits do not have sufficient energy available to affect associated EPAs. The assumption was based on an engineering assessment of typical control level circuit applications. At the time the original design was issued, the electrical protection of EPAs was considered adequate.

Engineering Evaluation:

For control level circuits connected to electrical penetrations, adequate backup electrical protection should be provided to limit the maximum short circuit current versus time conditions so that electrical feed-through parts in the EPAs can withstand the current without loss of containment pressure boundary integrity. After reviewing the existing control level circuits connected to electrical penetrations, twenty-two nonsafety-related circuits per unit were found to require backup electrical protection. These circuits affect six (6) EPAs per unit and are indicated in Attachment 1.

This condition, if it had remained uncorrected, may have caused the structural failure of the electrical feed-through parts and the subsequent loss of containment pressure boundary integrity. Structural failure of the feed-through parts could allow post-accident leakage rates from the containment that could result in the exceeding of the offsite dose guidelines of Part 10 CFR 100.

Conclusion:

This concern represents a deficiency which, were it to have remained uncorrected, could have affected adversely the safety of operations of the nuclear power plant at any time throughout the expected lifetime of the plant.

This also represents a significant breakdown in the quality assurance program of Bechtel Power Corporation in accordance with the requirements of Appendix B. Although regularly scheduled reviews and updates of the calculations are made to incorporate newly added or changed vendor information, there was no requirement or assurance that the original assumption that most control level circuits were adequately protected would have been properly reviewed. This concern also represents a significant deficiency in the final design as approved and released for construction such that the design does not conform to the criteria and bases of the FSAR.

It has been concluded that this concern constitutes a reportable deficiency as defined by the criteria given in Part 10 CFR 50.55(e). Since the health and safety of the public could also have been affected due to the potential to exceed Part 10 CFR 100 guidelines, this concern also constitutes a reportable defect and substantial safety hazard per the guidance of Part 10 CFR 21. Bechtel Power Corporation has already reported a similar event on another project under Part 10 CFR 21 to the NRC. Based upon guidance given in NUREG-0302, Revision 1 and other correspondence to utilities, Georgia Power Company included a review of 10 CFR 21 considerations and is reporting this event under 10 CFR 50.55(e) to avoid duplicate reporting.

Corrective Action:

The following corrective actions will be taken to provide adequate electrical protection for those circuits impacted by design evolution since the issuance of the original design and calculation.

1. Appropriate Bechtel drawings will be revised to show additional backup electrical protection as field changes for the twenty-two affected circuits per unit.
2. The additional protection will be supplied through issuing Field Engineering Change Order (FECO) packages and installing necessary hardware based on the revised drawings. The FECOs will be issued by Bechtel and hardware installations will be completed by Georgia Power Company.
3. Action has been taken to initiate necessary revisions to all appropriate documents to reflect these corrective actions.

Additionally, the Bechtel calculation has been revised to remove the statement regarding the original assumption that all control level circuits are low energy. An instruction has been added to the calculation such that the Responsible Engineers performing the regularly scheduled calculation reviews and updates will also verify the adequacy of electrical protection of control level circuits and provide protection if required.

Control Level Electrical
Penetration Protection
Attachment

<u>EPA Number</u>	<u>Bechtel Drawing Showing Circuit</u>	<u>Number of Circuits/Unit</u>	<u>Circuit System Number</u>
1/2-1818-H3-P12	1/2X3D-BD-P01D	1	1214
	1/2X3D-BG-B03P	1	1512
	1/2X3D-BG-B03R	1	1512
	1/2X3D-BG-B02Q	1	1511
	1/2X3D-BG-B03T	1	1515
	1/2X3D-BD-P02N	2	1604
1/2-1818-H3-P15	1/2X3D-BD-G01A	1	1901
	1/2X3D-BG-B04J	1	1504
	1/2X3D-BG-B02P	1	1511
	1/2X3D-BG-B06A	2	1500
1/2-1818-H3-P28			
	1X3DGC33	2	1701
1/2-1818-H3-P49	1/2X3D-BG-B03U	1	1515
1/2-1818-H3-P59	1/2X3D-BD-G01B	1	1901
	1/2X3D-BG-B03Q	1	1512
1/2-1818-H3-P69			
	1/2X3D-BD-P01D	1	1214
	1/2X3D-BG-B03S	1	1512
	1/2X3D-BG-B04K	1	1504
	1/2X3D-BG-B06B	2	1500