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United States Nuclear Regulatory Commission
Region II
Suite 2900
101 Marietta Street, Northwest
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Reference: Vogtle Electric Generating Plant-Units 1 and 2; 50-424, 50-425;
Diesel Generator Breaker Trip Circuit;
Letter GN-917 dated May 23, 1986

Attention: Mr. J. Nelson Grace

In previous correspondence on the above referenced subject, Georgia Power Company indicated the NRC would be informed of the results of the evaluation of this condition by June 27, 1986. Georgia Power Company has completed its evaluation and determined that a reportable condition as defined by the reporting criteria of Parts 10 CFR 50.55(e) and Part 10 CFR 21 does exist. Based upon guidance in NUREG-0302 Revision 1 and other NRC correspondence, Georgia Power Company is reporting this condition per the reporting criteria of Part 10 CFR 50.55(e). A summary of our evaluation is enclosed.

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

Yours truly,

D. O. Foster

Enclosure

xc: U. S. Nuclear Regulatory Commission
Document Control Desk
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EVALUATION OF A POTENTIALLY REPORTABLE CONDITION
DIESEL GENERATOR BREAKER TRIP CIRCUIT

Initial Report: On April 25, 1986, Mr. R. E. Folker, Vogtle Project Quality Assurance Engineer, informed Mr. E. F. Christnot of the USNRC-Region II of a potentially reportable condition concerning the diesel generator breaker trip circuit. In letter GN-917 dated May 23, 1986, Georgia Power Company indicated that the NRC could expect to be informed of the results of the evaluation of this condition by June 27, 1986.

Background Information: A review of the circuit breaker trip circuit indicated a design condition existed that could prevent power from the diesel generator from reaching the emergency buses. This condition was reported on Operational Deficiency Report T-1-85-1810. Bechtel Power Corporation designed the diesel generator trip circuit.

The Class 1E diesel generator is the emergency onsite AC power source and provides power to Class 1E equipment in the event of loss of the preferred power sources (offsite power). Protective devices are provided to protect the diesel generator when abnormal operating conditions occur. To ensure that the diesel generators will be available to continuously provide standby power when needed, as required by Regulatory Guide 1.9, not all protective devices are allowed to trip the diesel generator when abnormal operating conditions occur. During a loss-of-coolant accident (LOCA) concurrent with loss-of-offsite power, (LOSP) all the diesel generator protective trip devices are bypassed except for the following trips:

- Engine overspeed
- Generator differential
- Low lube oil pressure
- High jacket water temperature

The bypassing of all other diesel generator protective trips is accomplished through a safety injection actuation signal (SIAS) permissive relay contact from relay K609, which is connected in series with two parallel connected relay contacts from lockout relays 186C-DG1A and 186B-DG1A, (please refer to attachment 1).

Each of the lock-out relays referred to above are actuated by protective devices which need to protect the diesel generators for other than a SIAS condition. Once actuated the lock-out relay contacts remain closed until reset for the next operation. During a SIAS, the parallel-connected lockout relay contacts are blocked by an open contact from relay K609. During normal operation or test (no SIAS signal present), the K609 contact is closed enabling the protective relay trips which actuate relays 186C-DG1A and 186B-DG1A described above.

Engineering Evaluation: In the event, during a LOCA condition, the diesel generator unit experiences multiple abnormal operating conditions, multiple protective trip devices may be actuated. This could close both the parallel-connected lockout relay contacts. Under this condition, a "sneak circuit" is created which will allow the actuation of the diesel generator circuit breaker trip coil, tripping the circuit breaker open. The "sneak circuit" is the close circuit loop through contacts 186B-DG1A, 186C-DG1A, 152/a, K609 and another 152/a connected in series with the trip coil (TC).

Tripping the diesel generator circuit breaker will result in the loss of the emergency onsite AC power source to the safety related loads which will prevent the loads of one safety train from performing their safety related functions.

As required in R. G. 1.9, all protective relay trips, are bypassed except those previously discussed, during a LOCA. With the "sneak circuit", these requirements will not be met if multiple protective trips are actuated. The "sneak circuit" will trip the diesel generator resulting in the loss of the standby source of power to the safety related circuit or load breaker. This condition will prevent the performance of safety related functions. An assumed single failure in the opposite train coincident with a loss of offsite power, could cause the station to be without electrical power.

Review of Quality Assurance Program Breakdown: A review of the quality assurance program at Bechtel Power Corporation has concluded that there was not a significant breakdown of their quality assurance program.

Conclusion: Georgia Power Company has concluded that this condition is reportable per the reporting criteria of Parts 10CFR21 and 10CFR50.55(e). This condition represents a deficiency in the final design such that the design of the system does not conform to the FSAR and could have, if uncorrected, affected adversely the future operation of the Unit. Based upon guidance in NUREG-0302 Revision 1 and other NRC correspondence concerning duplicate reporting, Georgia Power Company is reporting this condition per the criteria of Part 10CFR50.55(e).

Corrective Action: The "sneak circuit" was discovered during a review of the diesel generator system. Field Change Request EFCRB-14691, dated March 13, 1986, was issued to modify the breaker trip circuit. A safety injection relay K649 contact was placed in series with a lockout relay contact as shown in EFCRB-14691.