

January 2, 1987

Dockets Nos.: 50-321/366

Mr. James P. O'Reilly
Senior Vice President - Nuclear Operations
Georgia Power Company
P.O. Box 4545
Atlanta, Georgia 30302

Dear Mr. O'Reilly

The Commission has issued the enclosed Exemption from the requirements of Appendix R to 10 CFR Part 50 for Hatch Units 1 and 2 in response to your letter of May 16, 1986. A copy of the Safety Evaluation supporting the Exemption is also enclosed.

The Commission has previously, by letter dated April 18, 1984, granted requests for technical exemptions to the requirements of Section III.G.2 of Appendix R to 10 CFR Part 50 in 26 specific plant areas of Hatch Units 1 and 2. Your May 16, 1986 letter requested new and additional exemptions. It requested technical exemptions to the requirements of Sections III.G.1, III.G.2, and III. J of Appendix R in 27 specific plant areas of Hatch Units 1 and 2 and 2 generic technical exemptions to Section III.G.2 of Appendix R and to 10 CFR 50.48 that apply to all areas of Hatch Units 1 and 2. It also requested schedular exemptions to the requirements of 10 CFR 50.48, one concerning circuit breakers and fuses for both Hatch Units 1 and 2 and one concerning a control power transfer switch for Unit 1 only.

Fifteen of the requested specific plant area exemptions and both of the requested generic exemptions were found by the staff not to be required. The other exemptions requested in two specific plant areas were found by the staff to be unacceptable and were not granted. One of the specific plant area exemption requests was withdrawn by your letter dated November 14, 1986. It was learned by telephone conversation on November 24, 1986, with your representatives that the control power transfer switch has been installed and that the schedular exemption for this item is no longer required.

The remaining 10 requested specific plant area exemptions have been granted, one with conditions, as discussed in the enclosed Exemption. The remaining requested schedular exemption has also been granted, with interim compensatory measures as discussed in the enclosed Exemption.

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The exemption is being forwarded to the Office of the Federal Register for publication. A copy of an Environmental Assessment and Finding of No Significant Impact which has been published in the Federal Register is enclosed for your information.

Sincerely,

Original signed by

George Rivenbark, Project Manager
BWR Project Directorate #2
Division of BWR Licensing

Enclosures:

- 1. Exemption
- 2. Safety Evaluation
- 3. Environmental Assessment

cc w/enclosures:
See next page

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Mr. J. P. O'Reilly
Georgia Power Company

Edwin I. Hatch Nuclear Plant,
Units Nos. 1 and 2

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In The Matter of

GEORGIA POWER COMPANY, ET AL

(Edwin I. Hatch Nuclear Plant,
Units Nos. 1 and 2)

}
} Dockets Nos. 50-321
} and 50-366
}

EXEMPTION

I.

The Georgia Power Company (the licensee) and three other co-owners are the holders of Facility Operating Licenses Nos. DPR-57 and NPF-5 which authorize operation of the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch or the facilities) at steady state reactor power levels not in excess of 2436 megawatts thermal for each unit. The facilities are boiling water reactors located at the licensee's site in Appling County, Georgia. The licenses are subject to all rules, regulations and Orders of the Commission now or hereafter in effect.

II.

On November 19, 1980, the Commission published a revised Section 10 CFR 50.48 and a new Appendix R to 10 CFR 50 regarding fire protection features of nuclear power plants (45 FR 76602). The revised Section 50.48 and Appendix R became effective on February 17, 1981. Section III of Appendix R contains fifteen subsections, lettered A through O, each of which specifies requirements for a particular aspect of the fire protection features at a nuclear power plant. One of these fifteen subsections, III.G, is the primary subject of this Exemption. Specifically, Subsection III.G.2 requires that one train of cables and equipment necessary to achieve and maintain safe shutdown be maintained free of fire damage by one of the following means:

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- a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier;
- b. Separation of cables and equipment and associated non-safety circuits or redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or
- c. Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

A related subsection, III.G.1.a, also requires that one train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control stations be free of fire damage. This means that repairs to damaged systems should not be made to reach or maintain hot shutdown.

The final subsection which is a subject of this Exemption is III.J. This subsection specifically requires that "emergency lighting units with at least an 8-hour battery power supply shall be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto."

III.

The Commission previously, by letter dated April 18, 1984, granted requests for technical exemptions to the requirements of Subsection III.G.2 of Appendix R to 10 CFR Part 50 in 26 specific plant areas of Hatch Units 1 and 2. The licensee requested, by letter dated May 16, 1986, new and additional exemptions. It requested technical exemptions in 27 specific plant areas of Hatch Units 1 and 2 and 2 generic technical exemptions that apply to all areas of Hatch Units 1 and 2. It also requested schedular exemptions to the requirements of 10 CFR 50.48, one concerning circuit breakers and fuses for both Hatch Units 1 and 2 and one concerning a control power transfer switch for Unit 1 only.

Fifteen of the items for which the licensee requested specific plant area exemptions and both of the items for which it requested generic exemptions were found by the staff, based on Generic Letter 86-10, not to require exemptions or staff approval. Exemptions requested in two specific plant areas were found by the staff to be unacceptable. One of the specific plant area exemption requests was withdrawn by the licensee in its letter dated November 14, 1986. It was learned by telephone conversation with licensee representatives on November 24, 1986, that the control power transfer switch has been installed and that the schedular exemption for this item is no longer required.

The acceptability of the remaining exemption requests is addressed below. More details are contained in the Commission's related Safety Evaluation (SE) (concurrently issued with this Exemption).

IV.

By letter dated December 9, 1986, the licensee provided information relevant to the "special circumstances" finding required by 10 CFR 50.12(a) for the licensee's May 16, 1986 request. For the requested exemptions, the licensee stated that application of the specific requirements of the regulation is not necessary to achieve the underlying purpose of the rule. The licensee stated that the cost of implementing additional modifications to relocate components, upgrade yard lighting, provide additional fire barriers and provide additional diesel generator control panel switches would result in undue hardship and an unwarranted burden on its available resources. The licensee described the costs to be incurred as follows:

- ° Extensive engineering and installation to upgrade the yard lighting.
- ° Design studies, engineering and installation of new piping and supports and new electrical raceways and supports to relocate valves, motor control centers, instrumentation and control panels.
- ° Extensive application of additional raceway fire barrier material and associated engineering analysis of seismic loads, installation of additional supports and relocation of raceways and supports due to interferences.
- ° Installation of switches on the diesel generator instrument panel and engineering analysis to requalify the panel.
- ° Increased congestion in the reactor building that complicates operations and future plant modifications.
- ° Implementation of new plant operating and maintenance procedures.

The staff concludes that "special circumstances" exist for the exemptions that are being granted in that application of the regulation in these particular circumstances is not necessary to achieve the underlying purpose of Appendix R to 10 CFR 50. See 10 CFR 50.12(a)(2)(ii).

SPECIFIC PLANT AREA EXEMPTIONS:

AREAS: Control Room

Yard

The licensee requested exemption from Subsection III.J of Appendix R in these areas to the extent that 8-hour battery powered emergency lighting is required.

In the control room, the emergency lights are designed to be powered from the station batteries for a minimum of 2 hours. Power from the emergency diesel generators is also available once they are started. The control room lights are designed so that a fire in any area outside of the control room would not result in the loss of both divisions of emergency lighting. According to the licensee, any action required in the yard area requires only minimal light which is provided by the existing yard security lights. In addition, the licensee has provided dedicated engine-driven portable light units for the location in the yard area requiring operator action in the event of loss of offsite power which could result in loss of the yard security lights. The licensee has chained and locked these dedicated engine-driven units in all the required locations and has adequate procedures to assure proper maintenance and operability of them.

Based on the discussions above, the licensee's request for exemptions from the requirements of paragraph III.J for the Control Room and the yard area are granted.

AREAS: Unit 1 Reactor Building North of Column Line R7
Unit 1 Reactor Building South of Column Line R7
Unit 2 Reactor Building North of Column Line R19
Unit 2 Reactor Building South of Column Line R19

The licensee has requested an exemption from the 1 hour barrier requirements of Subsection III.G.2.c for equipment within the suppression system water curtain boundary within these areas. The licensee listed 15 components, primarily motor operated valves, as items which could not be wrapped because complete enclosure could jeopardize the operability of the component. Other components listed include components of the Unit 1 torus water temperature instruments, the Unit 2 remote shutdown panel, HPCI steam line leak resistance temperature detectors, and three motor control centers. Upon further review, the licensee concluded that the Unit 1 torus water temperature instrument components were not out of compliance with Appendix R and the request for an exemption was withdrawn.

The staff reviewed the remaining components and determined that in all instances the items were within the water curtain, the fuel loading in the fire

zone in which the item was located was low, and fire detection was provided in the vicinity of each of the items. In addition, the licensee has adequate administrative procedures governing introduction and care of transient combustibles (including combustible and flammable liquids) in these areas to provide reasonable assurance that such transient combustibles will not damage the safe shutdown components. For these reasons the licensee's request for exemption from the requirements of Subsection III.G.2.c for the areas listed is granted.

AREA: Control Room

The licensee requested an exemption from the requirements of Subsection III.G.1.a of Appendix R to the extent that repairs should not be used to maintain hot shutdown.

The potential repairs required for hot shutdown after a fire involve opening links (disconnecting faulted circuits) and installing jumpers in order to assure the operation of the following equipment:

- 1) Residual Heat Removal (RHR) Pump Room Cooler
- 2) Reactor Core Isolation Cooling (RCIC) Pump and Room Cooler
- 3) Diesel Generator Voltage Regulator

The staff evaluated the time available to make the necessary repairs. For the RHR and RCIC pump room coolers, the operator can start the coolers in 20 minutes by opening links and installing jumpers. The minimum time required for the pump room temperatures to reach their design limitations is 4 hours. In the case of the voltage regulator for the diesel generator, its function can be restored in 15 minutes by opening links and installing jumpers. The time

available to perform this action is 1/2 hour. In order to perform this task, a dedicated operator will be immediately dispatched to the Diesel Generator Building upon the loss of offsite power. The licensee has also committed to store the tools necessary for the repairs in locked boxes and cabinets.

For these reasons, the licensee's request for an exemption from the requirements of Subsection III.G.1.a is granted.

AREA: Unit 1 Reactor Building North of Column Line R7
Unit 2 Reactor Building South of Column Line R19

The licensee requested an exemption from the requirements of Subsection III.G.2 (a & b) of Appendix R regarding barriers to the extent that barriers are required between redundant pathways so that a fire will not lead to loss of control of the HPCI system.

The staff evaluated the physical spacing and existing barriers between the various pathways which would be used to secure the HPCI system in each building. In the Unit 1 Reactor Building, the separation distance (at least 50 feet) is considered to be sufficient. Also, the detection and suppression systems around the torus are considered sufficient to prevent fires from crossing from one side of the Unit 1 Reactor Building to the other. For the Unit 2 Reactor Building, the staff determined that two of the three pathways available to secure the HPCI system are always separated by either a fire area boundary, a 3 hour protective wrapping, or a 2 foot non-rated floor slab.

For these reasons, the licensee's request for an exemption from the requirements of Subsection III.G.2. (a & b) regarding barriers between pathways which could be used to secure the HPCI system is granted for the Unit 1 and Unit 2 Reactor Buildings.

AREA: Intake Structure

The licensee has requested an exemption from the requirements of Subsection III.G.2.b to the extent that a 20-foot separation distance is required between redundant cables. An exemption has already been granted to the requirement for the installation of an automatic fire suppression system.

Almost all of the non-transient fire load in the intake structure is oil and grease located around the pump motors which are protected by a wet pipe automatic sprinkler system. All cable trays and exposed cable within the intake structure are wrapped with Kaowool (1-hour protection), or enclosed in conduit or other metal enclosures. Outside the suppression areas, unwrapped Unit 2 redundant conduit is separated by a minimum of 8 feet. The staff considers this separation distance to be sufficient because of the near zero fire load outside of the fire suppression areas. The only exception to this near zero fuel load would be transient combustibles likely to be present during maintenance or repair activities.

For these reasons, the licensee's request for an exemption from the requirements of Subsection III.G.2.b to the extent that a 20-foot separation distance is required between redundant cables, is granted for the Intake Structure outside of the automatic suppression areas. As a condition for granting of this exemption, however, the licensee will be required to augment its administrative procedures to include a requirement to maintain a continuous fire watch during repair and maintenance activities whenever combustible materials are stored in or are moved through the non-sprinkled area.

SCHEDULAR EXEMPTION:

An exemption from the schedular requirements of 10 CFR 50.48 is requested by the licensee under 10 CFR 50.12 for Hatch Units 1 and 2. This exemption is for the installation in Hatch Units 1 and 2 of new circuit breakers and fuses identified as necessary to ensure coordinated circuits from the standpoint of Enclosure 2 to Generic Letter 81-12. Enclosure 2 to Generic Letter 81-12 identifies circuits which are not isolated from the shutdown circuit of concern by coordinated circuit breakers, fuses, or similar devices, as associated circuits and requires special provisions for such circuits. The licensee requests a schedular extension for each unit until the end of its next scheduled refueling outage commencing after November 30, 1986.

From Generic Letter 86-10, there are four criteria to be used to evaluate schedular exemptions. These criteria and the staff's evaluation are as follows:

- 1) The utility has proceeded expeditiously to meet the Commission's requirements.

The licensee stated in its May 16, 1986 request that all work required for Appendix R was scheduled and was anticipated to be completed before November 30, 1986. The staff has recently discussed the current status of Appendix R implementation with the licensee and it has informed the staff that it has completed all its Hatch Unit 1 and 2 Appendix R work except installation of the circuit breakers and fuses for which it has requested the current scheduler exemption. The licensee informed the staff that it was processing a work request to install these circuit breakers and fuses but that it did not have all of the materials for installation of these components available for installation in Hatch Unit 2 prior to its restart.

On the basis of the licensee's completion of all of the Appendix R work except for the above discussed circuit breakers and fuses, the staff concludes that the licensee has proceeded expeditiously to meet the Commission's requirements.

- 2) The delay is caused by circumstances beyond the utility's control.

The detailed coordinated circuit breaker analysis could not be started until virtually all other design and analysis work required for Appendix R was essentially complete. This analysis was completed in September 1985. It was through this analysis that the licensee determined that it needed to replace low-voltage circuit breakers and fuses. Following determination that these items should be replaced, the licensee proceeded on an expedited basis to procure the new circuit breakers and fuses. The delay in installing these circuit breakers and fuses is being caused by difficulties with the selection, qualification, and delivery of these components. Many of the original Hatch equipment suppliers no longer supply Nuclear Class 1E-qualified equipment. The licensee had to identify other vendors with qualified equipment and add them to the list of qualified suppliers for the Hatch Nuclear Plant. On the basis of this information, the staff concludes that the delay is caused by circumstances beyond the licensee's control.

- 3) The proposed schedule for completion represents a best effort under the circumstances.

The licensee has stated that, for the reasons discussed above, it has not been able to assure delivery of these circuit breakers and fuses in time for installation prior to November 30, 1986. Further, it does not

believe that a special outage to replace the circuit breakers and fuses would be justified. It has proposed to install these components at the first refueling outage scheduled to commence after November 30, 1986. It also stated that if the breakers and fuses arrived in time to allow their installation during the recent Hatch Unit 2 refueling outage it would do so prior to November 30, 1986. However, it stated that the marginal increase in safety gained by installing the breakers and fuses does not warrant the minor risk involved in installing them while the plant is operating and that it does not warrant a special plant outage for the purpose of installing time. The licensee stated that considering these points, it considers its proposed schedular extension represents a best effort.

The staff informed the licensee that it does not agree that the increase in safety from the installation of these new circuit breakers and fuses is marginal. In response, the licensee has prepared a procedure that it will implement as an interim compensatory measure until the new circuit breakers and fuses are installed. With this procedure in place, the staff agrees with the licensee that a special plant outage for the purpose of installing these breakers and fuses is not warranted and conclude that the proposal to install the circuit breakers and fuses at the next scheduled refueling outage after November 30, 1986 represents the best effort under the circumstances.

- 4) Adequate interim compensatory measures will be taken until compliance is achieved.

An interim compensatory measure as discussed above under criterion 3 was developed by the licensee in cooperation with the staff. For the interim until compliance is achieved, the licensee will implement a procedure that directs the operator to reestablish power to the Appendix R component that is tripped as a result of the fire. This procedure directs the operator to reestablish power that is lost due to loss of d.c. buses, loss of instrument buses, loss of vital a.c. buses, or loss of essential a.c. distribution buses. The staff concludes that adequate interim measures will be taken.

On the basis of the above information, the staff concludes that the licensee has demonstrated conformance acceptable with the four criteria and, therefore, the licensee's request for a schedular exemption regarding installation of new circuit breakers and fuses is granted.

V.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, (1) these exemptions as described in Section IV are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security, and 2) special circumstances are present for the exemptions in that application of the regulation in these particular circumstances is not necessary to achieve the underlying purposes of Appendix R to 10 CFR 50. Therefore, the Commission hereby grants the exemptions as identified above in Section IV.

Pursuant to 10 CFR 51.32, the Commission has determined that the issuance of the exemptions will have no significant impact on the environment (51 FR 43693).

A copy of the Commission's concurrently issued Safety Evaluation related to this action is available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., and at the Appling County Public Library, 301 City Hall Drive, Baxley, Georgia.

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Richard H. Vollmer, Acting Director
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 2nd day of January 1987.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATIVE TO APPENDIX R EXEMPTION REQUESTS

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

EDWIN I. HATCH NUCLEAR PLANT, UNITS NOS. 1 AND 2

DOCKETS NOS. 50-321 AND 50-366

1.0 INTRODUCTION

By letter to Georgia Power Company (the licensee) dated April 18, 1984 the staff granted requests for exemptions to the requirements of Section III.G.2 of Appendix R to 10 CFR 50 in 26 specific plant areas of Hatch Units 1 and 2. In a subsequent letter dated May 16, 1986, the licensee requested additional exemptions to the Appendix R requirements. These requested exemptions are both technical and schedular in nature. The technical exemption requests include new exemption requests and clarifications of previously granted exemptions. The schedular exemption is requested under 10 CFR 50.12 and is specifically for the installation of circuit breakers and fuses and a control power transfer switch in the Diesel Building switchgear room. In addition to the technical and schedular exemption requests, the May 16, 1986 submittal also included revisions to previous statements made by the licensee. Additional information supplementing or revising the May 16, 1986 submittal was provided in letters dated July 22, September 23, October 31, November 14, November 21, December 9, and December 11, 1986.

The staff has reviewed the licensee's submittals with respect to the following requirements for both fire protection and safe shutdown. Section III.G.2 of Appendix R requires that one train of cables and equipment necessary to achieve and maintain safe shutdown be maintained free of fire damage by one of the following means:

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- a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier;
- b. Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or
- c. Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

If these conditions are not met, Section III.G.3 requires alternative shutdown capability independent of the fire area of concern. It also requires a fixed suppression system to be installed in the fire area of concern if it contains a large concentration of cables or other combustibles. These alternative requirements are not deemed to be equivalent; however, they provide equivalent protection for those configurations in which they are accepted.

Because it is not possible to predict the specific conditions under which fires may occur and propagate, the design basis protective features are specified in the rule rather than the design basis fire. Plant specific features may require protection different than the measures specified in Section III.G. In such a case, the licensee must demonstrate, by means of a detailed fire hazards analysis, that existing protection or existing protection in conjunction with proposed modifications will provide a level of safety equivalent to the technical requirements of Section III.G of Appendix R.

In summary, Section III.G is related to fire protection features for ensuring that systems and associated circuits used to achieve and maintain safe shutdown are free of fire damage. Fire protection configurations must either meet the specific requirements of Section III.G or an alternative fire protection configuration must be justified by a fire hazards analysis.

Our general criteria for accepting an alternative fire protection configuration are the following:

- o The alternative assures that one train of equipment necessary to achieve hot shutdown from either the control room or emergency control stations is free of fire damage.

- The alternative assures that fire damage to at least one train of equipment necessary to achieve cold shutdown is limited such that it can be repaired within a reasonable time (minor repairs with components stored on-site).
- Modifications required to meet Section III.G would not enhance fire protection safety above that provided by either existing or proposed alternatives.
- Modifications required to meet Section III.G would be detrimental to overall facility safety.

Another subsection which is a subject of this exemption request is III.J. Subsection III.J. specifically requires that "emergency lighting units with at least an 8-hour battery power supply shall be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto."

2.0 FIRE AREA BOUNDARIES: UNIT 1, UNIT 2 AND COMMON

2.1 Exemption Requested

A generic exemption was requested from the requirements of Section III.G.2.a of Appendix R to the extent that separation of redundant cable and equipment must be accomplished by 3-hour-rated barriers. The generic exemption was limited to fire area boundaries, such as penetrations, floors, walls, and ceilings which are unrated or rated less than 3 hours.

Also under fire area boundaries, specific exemptions were requested for the following areas:

- 1) Units 1 and 2 Oil Conditioner Room
- 2) Control Room Roof
- 3) Units 1 and 2 Refueling Floors
- 4) Units 1 and 2 LPCI Inverter Room
- 5) Yard area, and
- 6) Control Complex

2.2 Discussion

The staff concludes that the generic exemption request is a request for relief from the requirements of Section III.G.2.a of Appendix R to 10 CFR 50 equivalent to that already granted by Generic Letter 86-10, Interpretation of Appendix R, Part 4. Generic Letter 86-10, Part 4 states that: "Where fire area boundaries are not wall-to-wall, floor-to-ceiling boundaries with all penetrations sealed to the fire rating required of the boundaries, licensees must perform an evaluation to assess the adequacy of fire

boundaries in their plants to determine if the boundaries will withstand the hazards associated with the area." The generic letter stipulates that the licensee is to retain the analyses for subsequent NRC audits.

Furthermore, in accordance with the generic letter, the staff does not consider NRC approval of the specific area boundary exemption requests to be required. As a general rule, the staff expects all barriers in a fire area to be rated, or to be equivalent to a barrier rated at twice the fire severity as determined from the fuel loading. The staff also expects account to be taken of the type and location of fuel contained in the fire area, and the existence of detection and automatic suppression.

One area was assessed by the licensee as part of the Fire Hazards Analysis (FHA) in sufficient detail to allow for a staff review. This licensee evaluation relates to heat transfer to the service water valve pit as a result of a fire in the auxiliary boiler fuel tank enclosure. This analysis was to support the absence of barriers in the yard areas.

2.3 Evaluations

Because of the guidance in Part 4 of Generic Letter 86-10, no evaluation of the licensee's request for a generic exemption from Section III.G.2.a of Appendix R to 10 CFR 50 has been undertaken. The staff has evaluated the licensee's calculations of radiant heat transfer to the plant service water (PSW) valve pit. The staff notes that the radiant heat calculated by the licensee was only 14% less than that required for damage to the valves. In addition, the licensee's calculation did not contain any significant conservatisms that would justify such a small margin. It is the staff's position that the evaluation in the FHA is, by itself, insufficient justification for no protection to the PSW valve pits. The staff recommends a more complete evaluation including a discussion of the functions of the valves in the pits and how the fire brigade may alleviate the effects of the fire.

2.4 Conclusions

For the reasons stated above, the generic exemption request with regard to 3-hour barriers has not been considered. The specific exemption requests are not being reviewed at this time with the exception of the PSW valve pit where supporting calculations were supplied.

3.0 DIESEL GENERATOR BUILDING SWITCHGEAR ROOMS NOS. 1E AND 1F

3.1 Exemption Requested

An exemption from the requirements of Sections III.G.2.b. & c. of Appendix R is requested to the extent that an automatic fire suppression system is required in these areas.

3.2 Discussion

Both of these rooms have low combustibile loadings; about 55,000 BTU/square foot for room 1E and 48,000 BTU/square foot for room 1F. The combustibile loadings consist primarily of cable insulation in each room.

The three interior walls bordering each area are 3-hour rated reinforced concrete. The diesel generator building exterior wall to the west of each room is reinforced concrete, and is not fire rated. Each room has two UL class A doors in the east wall (entering to the diesel generator room and battery room for each generator) and a non-rated double door in the west wall.

Each area is equipped with full area coverage smoke detection which provides an alarm locally and in the control room. The area is also provided with a CO₂ hose reel and a CO₂ portable fire extinguisher. Hydrants are located immediately outside of the Diesel Generator Building.

The licensee has provided a 1-hour protective wrap on all pathway 2 circuits passing through the switchgear rooms. Pathway 2 is the diesel generator circuit that is protected from shutdown under the provisions of Appendix R.

The licensee has justified the exemption request on the basis of existing fire protection, the low fire load and the 1-hour protective wrap described above.

3.3 Evaluation

In response to staff inquiries, the licensee provided drawings showing the layout of the pathway 2 circuits relative to other circuits in the switchgear rooms. The drawings provided by the licensee showed combustibile material to be concentrated and in close proximity to pathway 2 circuits in area 1408 and even more concentrated in area 1412.

The technical requirements of Sections III.G.2.b. & c. are not met in the area because of the absence of an area wide automatic suppression system. Without such suppression, the staff cannot conclude that the pathway 2 cables can survive a fire.

3.4 Conclusion

Based on our evaluation, we conclude that the existing fire protection, even with the modifications having been completed, will not achieve an acceptable level of safety equivalent to that provided by Sections III.G.2 b or c of Appendix R to 10 CFR 50 in switchgear room 1E and 1F. Therefore, the exemption request should be denied and automatic fire suppression or 3-hour protective wrap on the pathway 2 cables should be provided in diesel generator switchgear rooms 1E and 1F.

4.0 CONTROL ROOM AND YARD

4.1 Exemption Requested

An exemption is requested from the requirements of Section III.J of Appendix R for these areas to the extent that 8-hour battery-powered emergency lighting is required.

4.2 Discussion

4.2.1 Control Room

The emergency lights in the control room are designed to be powered from the station batteries. The station batteries have the capability to power the control room emergency lights and other required loads for a minimum of 120 minutes. After the emergency diesel generators start, the station battery chargers can maintain the required 125-V-dc load. The emergency lights are designed so that a fire in any area outside of the control room or cable spreading room would not result in the loss of both divisions of emergency lighting. The divisional separation of the feeder circuits is equivalent with the separation requirements of Section III.G.2 of Appendix R. For these reasons the licensee requests an exemption from the requirements of Section III.J of Appendix R for the control room.

4.2.2 Yard

Appendix R requires emergency lighting in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto. Safe shutdown procedures sometimes require traversing the yard between buildings, and a manual action to close a valve located in the PSW valve pits has been identified for alternate shutdown. Hence the yard is required by Appendix R to have emergency lighting. According to the licensee, these types of actions do not require more than minimal lighting levels which will be available from the security lighting. However, the licensee has dedicated four engine-driven portable lighting units for use at the service water valve pits. These lighting units will be chained in place so that they will not be inadvertently moved and not returned. These designated units will be maintained in accordance with a written security surveillance procedure. This procedure requires that each unit be functionally tested once per week.

4.3 Evaluation

For the control room, the staff considers lighting powered initially by batteries and then by the emergency diesel generators to be equivalent to 8-hour battery powered lights based on the licensee's description.

With regard to the yard lighting, the staff agrees that movement between buildings requires little lighting and that the security lighting will be sufficient. The staff also agrees that the dedicated engine-driven portable light units at the PSW valve pits will be sufficient for necessary changing of the valve positions.

4.4 Conclusion

Based on the above evaluation, the staff has concluded that an exemption from the requirements of Section III.J of Appendix R for the control room and the yard should be granted.

5.0 UNIT 1 REACTOR BUILDING NORTH OF COLUMN LINE R7

UNIT 1 REACTOR BUILDING SOUTH OF COLUMN LINE R7

UNIT 2 REACTOR BUILDING NORTH OF COLUMN LINE R19

UNIT 2 REACTOR BUILDING SOUTH OF COLUMN LINE R19

5.1 Exemption Requested

An exemption from the 1-hour barrier requirements of Section III.G.2 of Appendix R 10 CFR 50 is requested by the licensee for equipment within the suppression system/water curtain boundary.

5.2 Discussion

5.2.1 Unit 1 Pathway 1, RHR Inboard Valves E11-F015A, E11-F017A

Valves E11-F015A and E11-F017A are motor operated residual heat removal isolation valves. The location of these valves is approximately 13 feet south of the column line R7 on elevation 130 feet of the Unit 1 Reactor Building inside the piping penetration room in Fire Zone 1203F. This room is located totally within the east water curtain zone on elevation 130 feet. (wet pipe automatic sprinkler system) and is also covered by a linear thermal heat detection system. Cables for the valves will be protected with a 1-hour fire protective wrapping within the suppression system boundary. The valve operators, however, are not protected since complete enclosure could jeopardize their operability according to the licensee. Also, there are no unprotected pathway 2 components located within 20 feet of the valves. Fire Zone 1203F has a fire loading of about 105,000 BTU's/square foot over an area of 8172 square feet.

5.2.2 Unit 1, Pathway 2, RHR Suppression Pool Suction Valve E11-F0650

Valve E11-F0650 is an air operated suppression pool suction valve located approximately 15½ feet north of column line R7 on elevation 87 feet in the Unit 1 Reactor Building in Fire Zone 1205A. This valve is located within the east torus water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal heat detection system. Cables for the valve will be protected by 1-hour fire protective wrapping. The valve operator, however, is not covered since complete enclosure could jeopardize its operability according to the licensee. There are four torus water temperature instruments located on this same elevation at 90-degree intervals around the torus, one of which is located approximately 12½ feet from this valve. Fire loading within Fire Zone 1205A is about 13,000 BTUs/square foot over an area of 6620 square feet.

5.2.3 Unit 1 Pathway 2, HPCI Pump Discharge Valve E41-F006

Valve E41-F006 is a motor operated HPCI pump discharge valve located approximately 17 feet north of column line R7 at elevation 87 feet on the west side of the Unit 1 Reactor Building in Fire Zone 1205A. This valve is located within the west torus water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal heat detection system. Cables for the valve will be protected with 1-hour fire protective wrapping. However, no protection is proposed for the valve operator since complete enclosure could jeopardize the operability of the valve, according to the licensee.

5.2.4 Unit 1 Pathway 1, RCIC Pump Discharge Valve E51-F013

Valve E51-F013 is a motor operated RCIC pump discharge valve located about 4 feet south of column line R7 at elevation 87 feet on the west side of the Unit 1 Reactor Building in Fire Zone 1203A. This valve is located within the west torus water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal detection system. Cables for the valve will be protected with 1-hour fire protective wrapping. However, no protection is proposed for the valve operator since complete enclosure could jeopardize the operability of the valve, according to the licensee. Fire loading within Fire Zone 1203A is 8352 BTU's/square foot over 6680 square feet.

5.2.5 Unit 1 Torus Water Temperature Instruments T-48-N009A and T-48-N009C

Torus water temperature instruments T-48-N009A and T-48-N009C are located opposite each other on the west and east sides of the torus, respectively, at elevation 87 feet in the Unit 1 Reactor Building in Fire Zones 1203A and 1205A. Two other water temperature instruments are located 90° apart from these.

In response to a staff question, the licensee reevaluated the instrument location and circuit routing (letter of 10/31/86 L. T. Gucwa to D. Muller). The licensee found that the circuit routing is such that for a fire occurring anywhere within the torus room (fire areas 2203 and 2205) at least one instrument will always be available. Thus, protection of these instruments is not required by Appendix R.

5.2.6 Unit 1 Pathway 1, Motor Control Center R24-S018A and Pathway 2, Motor Control Center R24-S028B

Motor control centers (MCC's) R24-S018A and R24-S028B are located in the southside along the east wall between column lines R7 and R9 of the Unit 1 Reactor Building at elevation 130 feet in Fire Zone 1203F. Both MCC's are located in the east water curtain zone on elevation 130 feet (wet pipe sprinkler system) which is covered by a linear thermal detection system. No protection is proposed for the cables and components within each MCC. The cables leading to the MCC are covered by a 1-hour fire protective covering. There are no required unprotected pathway 2 components within 20 feet of either of these MCCs. Also the loss of R24-S018B does not impact shutdown pathway 2.

5.2.7 Unit 2, Pathway 2, Remote Shutdown Panel 2H21-P173

Remote shutdown panel 2H21-P173 is located approximately 12 feet east of column line RA and 12 feet north of column line R17 in the Unit 2 Reactor Building at elevation 130 feet in Fire Zone 2203F. A control cable for the pathway 2 plant service water pump is routed through the area and panel. All raceways in this area containing this cable will be protected with 1-hour fire protective wrapping up to this panel. For a fire inside the panel, pathway 1 will be available for shutdown. The panel is located in the northwest water curtain zone (wet pipe sprinkler system) which is also covered by a linear thermal detection system. However, the water curtain does not meet the 20 foot extension criteria stated in Section 4.2.1 of the April 18, 1984 SER. This criteria required the water curtain to extend at least 20 feet beyond the protected component. The fire loading within Fire Area Zone F is about 111,422 BTU's/square foot over 7438 square feet.

5.2.8 Unit 2, Pathway 1 RCIC Pump Discharge Valve 2E51-F013

Valve 2E51-F013 is a motor operated RCIC pump discharge valve. The location of this valve is about 8 feet north of column line R19 and 20 feet east of column line RA at elevation 87 feet in the west side of the torus area in the Unit 2 Reactor Building in Fire Zone 2203A. The valve is located in the west torus water curtain zone (wet pipe sprinkler system) which is covered by a linear thermal detection system. Cables for the valve are protected with 1-hour fire protective wrapping. However, no protection is provided for the valve operator, since complete enclosure could jeopardize the operability of the valve, according to the licensee. There are no unprotected pathway 2 components located within 20 feet of the valve operator. Fire loading in Fire Zone 2203A is about 25,000 BTU's/square foot over 6427 square feet.

5.2.9 Unit 2, Pathway 1, Plant Service Water Inlet Valve No. 2P41-F066

Valve 2P41-F066 is a solenoid-operated valve located about 8 feet north of column line R19 and 6 feet west of column line RL in the torus area on the east side of the Unit 2 Reactor Building in Fire Zone 2203A. The valve is located in the east torus water curtain zone (wet pipe sprinkler system) which is covered by a linear thermal detection system. All cables for the valve will be protected by 1-hour fire protective wrapping. However, no protection is proposed for the valve operator because complete enclosure could jeopardize its operability, according to the licensee. There are no unprotected pathway 2 components within 20 feet of the valve operator.

5.2.10 Unit 2, Pathway 1, RHR Inboard Valve and RHR Outboard Valves 2E11-F015A and 2E11-F017A

Valves 2E11-F015A and 2E11-F017A are motor operated isolation valves located about 16 feet north of column line R19 and about 29 feet (2E11-F015A) and 24 feet (2E11-F017A) west of column line RL on

elevation 130 feet of the Unit 2 Reactor Building. The valves are located in Fire Zone 2203F and in the East Water Curtain Zone on elevation 130 feet which is also covered by a linear thermal detection system. Cables for these valves will be protected with 1-hour fire protective wrapping. However, no protection is proposed for the valve operators because complete enclosure could jeopardize their operability, according to the licensee. There are no unprotected pathway 2 components within 20 feet of the valve operator.

5.2.11 Unit 2, Pathway 2, HPCI Pump Discharge Valve 2E41-F006

Valve 2E41-F006 is a motor operated HPCI pump discharge valve located about 15 feet south of column line R19 and 25 feet east of column line RA at elevation 87 feet in the torus area on the west side of the Unit 2 Reactor Building. The valve is located in Fire Zone 2205A and the west torus water curtain zone which is covered by a linear thermal detection system. The cables to the valve will be protected with 1-hour protective wrapping. However, no protection is proposed for the valve operator because complete enclosure could jeopardize its operability, according to the licensee. There are no unprotected pathway 2 components located within 20 feet of the valve operator. The combustible loading in Fire Zone 2205A is about 23,000 BTU/square foot over 6727 square feet.

5.2.12 RCIC Steam Supply Valve MCC, Unit 2 Pathway 1 2R24-S012B

MCC 2R24-S012B contains the valve motor starter for the RCIC steam supply valve 2E51-F007. It is located about 6 feet west of column line RB and 2 feet north of column line R21 on elevation 164 feet in the chiller room in the Unit 2 Reactor Building. The chiller room is in Fire Zone 2205N and is protected by a preaction sprinkler system which is activated by ionization type smoke detectors. Cables for the valve starter will be protected with 1-hour fire protective wrapping. However, the control cables and starter for the valve are inside the MCC and further protection is not proposed. Valve 2E51-F007 is considered a passive component required to remain open. Safe shutdown does not require operability of the valve. The fire loading in Fire Zone 2205N is about 83,000 BTU/square foot over 4204 square feet.

5.2.13 HPCI Steam Line Leak RTD's Unit 1 Pathway 2 (E41-N071) and Unit 2 Pathway 2 (2E41-N071)

The HPCI Line Leak resistance temperature detectors (RTD's) are the pipe penetration room high ambient temperature detectors. These will be located in both the Unit 1 and Unit 2 Reactor Buildings on elevation 130 feet in Fire Zone 1203F and 2203F. The RTD's are designed to sense a HPCI steam line break but could respond to the heat of a fire and cause isolation of the HPCI system which is assumed lost for a fire on this side of the Reactor Building. Once the RTD's are installed, the cables to the RTD's will be protected with a 1-hour fire protective coating. However, the RTD's will not be protected. The pipe penetration rooms are located within water curtain zones covered with a fire detection system. There are no unprotected pathway 1 components within 20 feet of the RTD's.

5.2.14 RHR Outboard Valve - Unit 2, Pathway 2 2E11-F017B

Valve 2E11-F017B is an RHR motor operated isolation valve located about 2 feet west of column line RJ and 14 feet south of column line R19 on elevation 130 feet in the Unit 2 Reactor Building piping penetration room. This room is located entirely within Fire Zone 2205F and the east water curtain zone on elevation 130 feet (wet pipe sprinkler system) which is covered by a linear thermal detection system. Cables for the valve operator will be covered with 1-hour fire barrier. However, no protection is proposed for the valve operator because complete enclosure could jeopardize its operability according to the licensee. There are no unprotected pathway 1 components located within 20 feet of this valve. The fire loading in fire zone 2205F is less than 84,000 BTU's/square foot.

5.2.15 RHR Minimum Flow Bypass Valve (MCC) - Unit 2, Pathway 2 2R24-S018B

MCC 2R24-S018B contains the motor starter for the pathway 2 RHR minimum flow bypass valve 2E11-F007B. The MCC is located on column lines R17 and RJ in the Unit 2 Reactor Building. The MCC is located in Fire Zone 2203F and the east water curtain zone on elevation 130 feet which is also covered by a linear thermal detection system. The water curtain, however, does not extend 20 feet beyond the MCC in all directions because of an open hatchway to the north. All cables to the MCC will be protected with 1-hour fire protective wrapping. Cables and the starter inside the MCC are not protected except by the MCC itself. However, loss of operability of the valve will be compensated for by a manual operator action. The licensee has stated that for a fire in the vicinity of the MCC, all pathway 2 required circuits are protected with a 1-hour barrier (pathway 1 circuits are assumed lost).

5.3 Evaluation

The technical requirements of Section III.G.2 are not met in each of these areas because:

- 1) redundant shutdown divisions in either half of the Reactor Building are not separated from each other by continuous 3-hour fire rated barriers; and
- 2) redundant divisions are not separated by continuous 1-hour fire barriers and protected by area-wide automatic fire suppression and detection systems.

The 15 exemptions requested are contained in 9 fire zones in the Unit 1 and Unit 2 Reactor Buildings: 1203A, 1203F, 1205A, 1205F, 2203A, 2203F, 2205A, 2205F, and 2205N. The fire loading in these zones varies from a little over 8000 BTUs/square foot to almost 112,000 BTUs/square foot. Hence the fire loading may be considered very low to low. All of the exemption request items are located at least 20 feet within a wet pipe sprinklered area except for Unit 2 remote shutdown panel 2H21-P173 (item 7), Unit 2 RCIC steam supply valve MCC 2R24-S012B (item 12), and Unit 2

RHR minimum flow bypass valve MCC 2R24-S108B, (item 15). The Unit 2 RCIC steam supply valve MCC is protected by a preaction sprinkler system which affords the same degree of protection as the water curtain zones. The Unit 2 remote shutdown panel and the RHR minimum flow bypass valve MCC both are beyond the 20 feet margin on at least one side but are still inside the sprinklered area. In addition, the likelihood of the conductor to conductor fault which could cause spurious operation of valves controlled by the cables passing through these panels is extremely remote.

With regard to an increase in fire hazard due to transient combustibles, the licensee has administrative procedures in place to control the introduction, storage, handling, and removal of combustible materials. These procedures apply to solid combustibles, flammable liquids, combustible liquids and hazardous compressed gases. Similiar procedures control ignition sources throughout the plant. These procedures were reviewed by the staff and are considered to be sufficiently adequate to insure that no extra hazard is introduced to these unprotected components due to transient combustibles.

The staff concludes that fire damage to the unprotected equipment is not likely as a result of normal operation or during maintenance and similar operations involving transient combustibles.

5.4 Conclusions

Based on the above evaluation, the staff has concluded that an exemption from the requirements of III.G.2 of Appendix R 10 CFR 50 should be granted for all of the above items. As a part of this exemption, however, the licensee must have available for audit, an analysis demonstrating the adequacy of the existing fire detection and suppression system to prevent damage to safety related components.

6.0 UNIT 1 REACTOR BUILDING NORTH OF COLUMN LINE R7

UNIT 2 REACTOR BUILDING SOUTH OF COLUMN LINE R19

UNIT 2 TURBINE BUILDING EAST CABLEWAY

6.1 Exemption Requested

An exemption was requested from the requirements of Sections III.G.2.a & b Appendix R 10 CFR 50 regarding barriers to the extent that a fire may lead to loss of control of the HPCI system using pathway 1 or pathway 2.

6.2 Discussion

6.2.1 Unit 1 Reactor Building

In the Unit 1 Reactor Building, cables for two of the three methods available to shut down HPCI are separated by 50 feet at their closest point. These are the cables for the inboard isolation valve and the HPCI turbine trip valve (TTV). Other components and power supplies for all

three methods which are not separated by the drywell are separated by at least 90 feet. The combustible loading in the torus area is limited. Also there is area wide fire detection on elevation 130 feet and there are water curtain zones on the east and west sides of the torus area.

6.2.2 Unit 2 Reactor Building

In the Unit 2 Reactor Building the equipment and cable routing for two of the three methods to secure the HPCI are separated by either a fire area boundary, a 3-hour protective wrapping, or a non-rated floor slab. The control cable from the main control room for the HPCI inboard steam isolation valve, the power cable and control cable for the HPCI outboard isolation valve, and the control cable to the HPCI trip solenoid valve enter the south fire area of Unit 2 Reactor Building on elevation 130 feet.

The conduit containing the control cable to the HPCI inboard steam isolation valve is contained in a conduit which will be protected by a 3-hour fire protective barrier in the south fire area. From the south fire area, the control cable to the HPCI inboard steam isolation valve goes upward through the elevation 164 feet floor slab to the MCC for the valve. The control and power cables for the HPCI outboard steam isolation valve stays on elevation 130 feet to the MCC on the east portion of the south wall. Hence, the elevation 164 feet floor slab which varies from 2 to 4 feet of reinforced concrete separates the control and power cables for the HPCI outboard valve from the control cables for the HPCI inboard valve. The power cable for the HPCI inboard valve enters the Reactor Building on elevation 130 feet in the north fire area and is separated from the other cables by a horizontal distance of at least 50 feet.

6.2.3 Unit 2 Turbine Building East Cableway

In the Unit 2 Turbine Building east cableway, the power and control cables for the three methods of securing HPCI are routed in separate raceway with minimal horizontal separation. Vertical separation between opposite divisions of cables used for securing HPCI is at least three feet. Power cables for the inboard and outboard isolation valves are enclosed in armored jacket material and routed in separate runs of 4-inch aluminum channel. The control cable for the inboard isolation valve is routed in conduit. All raceways containing power and control cables for the three methods are located at least 9 feet above the floor.

The east cableway is protected by ionization smoke detectors and a wet pipe sprinkler system.

6.3 Evaluation

The technical requirements of Section III.G.2 are not met in each of these areas because:

- (1) Redundant shutdown divisions in either half of the Reactor Building are not separated from each other by continuous 3-hour fire rated barriers; and

- (2) redundant divisions are not separated by continuous 1-hour fire barriers and protected by area-wide automatic fire suppression and detection systems.

The three exemptions requested apply to significantly different physical situations according to the description provided by the licensee.

For the Unit 1 Reactor Building, the separation distances are considered to be sufficient. Also the detection and suppression system around the torus are considered sufficient to prevent fires from crossing from one side of the Unit 1 Reactor Building to the other.

For the Unit 2 Reactor Building, the licensee provided a detailed description of the routes of the various pathways and the separation between any two of them. The 50 feet separation distance, the 2 feet thick reinforced concrete floor, and the 3-hour barrier are all considered adequate protection to ensure that at least one complete pathway is available to secure the HPCI system.

In the East Cableway of the Turbine Building, the cable jacketing and support described by the licensee, is not considered capable of protecting the cable for a significant time during a fire. However, upon further analysis the licensee determined that an exemption is not required for the East Cableway of the Turbine Building and withdrew the exemption.

6.4 Conclusion

Based on the above evaluation, the staff concludes that the licensee's request for an exemption from the barrier requirements of Section III.G.2 in regard to the HPCI system should be granted for the Unit 1 Reactor Building and the Unit 2 Reactor Building.

7.0 UNIT 1, UNIT 2, AND COMMON

7.1 Exemption Requested

A generic exemption is requested from the implied requirements of Section III.G.2 of Appendix R 10 CFR 50 to the extent that when one pathway of redundant safe shutdown raceway is protected with a fire protective barrier, the cable tray supports and conduit supports are also required to be enclosed within a 1-hour protective barrier. The requested exemption is to exclude the wrapping of these supports in areas protected by automatic fire suppression systems.

7.2 Discussion and Evaluation

Section 3.3.4 of the enclosure to Generic Letter 86-10 states that an exemption is not required for unprotected cable tray supports in areas protected by a sprinkler system. In addition, the licensee has stated that all supports are wrapped for at least 18 inches beyond the tray to minimize heat conduction to the cables (letter of October 31, 1986, L. T. Gucwa to D. Muller). The licensee has also committed to perform an

analysis to verify that, during a fire, the suppression system will actuate before the yield strength of the cable supports is significantly reduced. According to the licensee, the calculation will consider one or more worst-case areas in question based upon the quantity of exposed cables located near the supports, the size of the supports, and the yield strength of steel at elevated temperatures.

7.3 Conclusions

Although an exemption request was not required, the staff considers the licensee's proposed approach to be in accordance with Generic Letter 86-10.

8.0 CONTROL ROOM

8.1 Exemption Requested

An exemption from the requirements of Section III.G.1.a of Appendix R is requested to the extent that repairs should not be used to maintain hot shutdown.

8.2 Discussion

The potential repairs required for hot shutdown after a fire involve opening links and installing jumpers in order to assure the operation of the following equipment:

1. Residual Heat Removal (RHR) Pump Room Cooler;
2. Reactor Core Isolation Cooling (RCIC) Pump Room Cooler;
3. Diesel Generator Voltage Regulator; and
4. Diesel Generator Local Ammeters.

The RHR and RCIC room coolers are required to maintain the proper room temperature for the RHR and RCIC pumps to operate. The licensee has determined that it would require 4 hours after the pumps are started for the pump room temperature to reach the design limitations of the RHR and RCIC pumps. The plant operating procedures require the operator to verify the room coolers are operating when the respective pump is started. In the event the coolers are not operating, the operator can start the coolers in 20 minutes by opening links and installing jumpers. Since the operating actions necessary to restore the coolers to operating status can be accomplished in ample time to maintain the RHR and RCIC pumps below the design temperature, we concur with the licensee that the operator can easily perform the actions necessary to maintain the room temperatures within the design limits of the RHR and RCIC pumps.

In order to assure the availability of onsite emergency power, the voltage regulators and the local ammeters for the diesel generator must be functional. If the voltage regulator is incapacitated because of fire induced circuitry damage, the operator can restore its function in 15 minutes by opening links and installing jumpers. The license has provided procedures that require a dedicated operator be immediately dispatched to the Diesel Generator Building to ensure operation of the voltage regulator upon the loss of offsite power. We concur with the licensee that the operator has sufficient time to perform this action and maintain the plant in a safe shutdown condition.

Originally the licensee requested an exemption to allow repairs to ensure the functional capability of the local ammeters which are required for loading the emergency electrical loads on the diesel generator. Since the licensee is installing a switch that eliminates the need for this repair, the licensee has withdrawn this exemption request.

The licensee has committed to store the tools necessary for the repairs in locked boxes and cabinets.

8.3 Conclusion

Based on our review of the licensee's submittal, we conclude that the licensee has verified that the operator has sufficient time to complete repairs and restore the functional capability of the diesel generator voltage regulator, RHR pump room coolers and the RCIC pump room coolers. Therefore, we approve the licensee's exemption request involving repairs to this equipment. Furthermore, the licensee has withdrawn the exemption request that involved repairs to the diesel generator local ammeters.

9.0 INTAKE STRUCTURE

9.1 Exemption Requested

An exemption is requested from the requirements of Section III.G.2.b to the extent that it requires a 20-foot separation requirement for cable in conduit and cable wrapped in cable trays. An exemption has already been granted to the requirement for the installation of a complete area-wide automatic fire suppression system.

9.2 Discussion

The intake structure is constructed of nonrated reinforced concrete and contains 16 residual heat removal service water and plant service water pumps. Each of these pumps is protected with two wet pipe fusible sprinkler nozzles rated at 135°F. Almost the entire nontransient fire load is oil and grease located around the pump motors.

All cable trays and exposed cable are wrapped with Koawool providing a 1-hour fire barrier. All other cable is routed in conduit or other metal enclosures. Outside of the suppression areas, unwrapped Unit 2 redundant conduit is separated by a minimum of 8 feet.

The entire structure is protected by ionization type smoke detectors.

9.3 Evaluation

When transient combustibles are not present, the 8 feet minimum separation distance is sufficient protection because of the near zero fire load away from the pumps. Near the pumps, the 135°F rated sprinkler heads may be expected to fuse quick enough to suppress any fire that might result from leaking grease or oil.

During maintenance and repair activities, however, transient combustibles may present a hazard to the unprotected conduits. Therefore, the staff will require that a fire watch be maintained during maintenance and repair activities or whenever combustibles are stored in the intake structure.

9.4 Conclusion

Based on the above evaluation, the staff recommends that the exemption from the 20-foot requirement of Section III.G.2 be granted with the condition that the licensee augment its administrative procedures such that movement of significant quantities of transient combustibles into the intake structure will require notification of the fire brigade and the initiation of a fire watch.

10.0 ADDITIONAL CLARIFICATION REGARDING THE EXISTING 3-HOUR BARRIER REQUIREMENT EXEMPTION

10.1 Areas Affected

- Unit 2 - Turbine Building East Cableway elevation 130 feet.
- Control Building East Corridor, elevation 112 feet.
- Control Building Working Floor, elevation 112 feet
- Unit 1 Turbine Building East Cableway elevation 130 feet.
- Unit 2 Switch Gear Hallway.

The above areas refer to items 2.2 - 2.6 in the licensee's May 16, 1986 exemption request letter providing clarification of previously granted exemptions.

10.2 Information Submitted

All of the above items are in the form of clarifications to and interpretations of exemptions which were granted in the staff SER dated April 18, 1984. All of the above deal with the adequacy of existing fire barriers within the plant. The submittal also provides justification (evaluation) for the clarification and interpretation.

10.3 Discussion and Evaluation

From the information submitted by the licensee, the staff considers these clarifications to be equivalent to a request for exemption from the 3 hour boundary requirement of Appendix R (III.G.2.a) addressed in Part 4 of Generic Letter 86-10. Generic Letter 86-10, Interpretations of Appendix R, part 4, states that: "Where fire area boundaries are not wall-to-wall, floor-to-ceiling boundaries with all penetrations sealed to the fire rating required of the boundaries, licensees must perform an evaluation to assess the adequacy of fire boundaries in their plants to determine if the boundaries will withstand the hazards associated with the area." The generic letter does not require the licensee to submit the evaluations for staff review but does require the licensee to retain the analyses for subsequent NRC audits.

The staff concludes that clarifications to existing exemptions with regard to the 3 hour barrier requirement will not require the granting of new exemptions to Appendix R for each specific request under the conditions described by the licensee. The staff will, however, require the licensee to follow the guidance in Generic Letter 86-10 in assessing each of these barriers. (See also the discussion under Section 2.0 of this evaluation).

11.0 FIRE AREAS IN THE UNIT 1 AND UNIT 2 REACTOR BUILDING

11.1 Clarification

The clarification concerning existing exemption provided in section 2.7 of the licensee's May 16, 1986 exemption request letter are all in regard to minor changes in the licensee's fire area boundaries. These are due to installation of the automatic fire suppression systems, primarily the wet pipe sprinkler water curtain zones in the Unit 1 and Unit 2 Reactor Buildings.

11.2 Discussion and Evaluation

In accordance with generic letter 86-10, the staff does not consider NRC approval of the specific changes in the location of fire area boundaries to be required. In addition, the staff has reviewed these changes and has determined that they will have no effect on previous exemptions or approvals granted by the staff.

12.0 SCHEDULAR EXEMPTIONS

12.1 New Circuit Breakers and Fuses

12.1.1 Requested Exemption

An exemption from the schedular requirements of 10 CFR 50.48 and Appendix R is requested by the licensee under 10 CFR 50.12 for Hatch Units 1 and 2. This exemption is for the installation in Hatch Units 1 and 2 of new circuit breakers and fuses identified as necessary to ensure coordinated circuits from the standpoint of Enclosure 2 to Generic Letter 81-12. Enclosure 2 to Generic Letter 81-12 identifies circuits which are not isolated from the shutdown circuit of concern by coordinated circuit breakers, fuses, or similar devices, as associated circuits and requires special provisions for such circuits. The licensee requests a schedular extension for each unit until the end of its next scheduled refueling outage commencing after November 30, 1986.

12.1.2 Discussion

From Generic Letter 86-10, there are four criteria to be used to evaluate schedular exemptions. These criteria and the staff's evaluation response are as follows:

- 1) The utility has proceeded expeditiously to meet the Commission's requirements.

The licensee stated in its May 16, 1986 request that all work required for Appendix R was scheduled and was anticipated to be completed before November 30, 1986. The staff has recently discussed the current status of Appendix R implementation with the licensee and it has informed the staff that it has completed all its Hatch Unit 1 and 2 Appendix R work except installation of the circuit breakers and fuses for which it has requested the current scheduler exemption. The licensee informed the staff that it was processing a work request to install these circuit breakers and fuses but that it did not have all of the materials for installation of these components available for installation in Hatch Unit 2 prior to its restart.

On the basis of the licensee's completion of all of the Appendix R work except for the above discussed circuit breakers and fuses, the staff concludes that the licensee has proceeded expeditiously to meet the Commission's requirements.

- 2) The delay is caused by circumstances beyond the utility's control.

The detailed coordinated circuit breaker analysis could not be started until virtually all other design and analysis work required for Appendix R was essentially complete. This analysis was completed in September 1985. It was through this analysis that the licensee determined that it needed to replace low-voltage circuit breakers and fuses. Following determination that these items should be replaced, the licensee proceeded on an expedited basis to procure the new circuit breakers and fuses. The delay in installing these circuit breakers and fuses is being caused by difficulties with the selection,

qualification, and delivery of these components. Many of the original Hatch equipment suppliers no longer supply Nuclear Class 1E-qualified equipment. The licensee had to identify other vendors with qualified equipment and add them to the list of qualified suppliers for the Hatch Nuclear Plant. On the basis of this information, the staff concludes that the delay is caused by circumstances beyond the licensee's control.

- 3) The proposed schedule for completion represents a best effort under the circumstances.

The licensee has stated that, for the reasons discussed above, it has not been able to assure delivery of these circuit breakers and fuses in time for installation prior to November 30, 1986. Further, it does not believe that a special outage to replace the circuit breakers and fuses would be justified. It has proposed to install these components at the first refueling outage scheduled to commence after November 30, 1986. It also stated that if the breakers and fuses arrived in time to allow their installation during the recent Hatch Unit 2 refueling outage it would do so prior to November 30, 1986. However, it stated that the marginal increase in safety gained by installing the breakers and fuses does not warrant the minor risk involved in installing them while the plant is operating and that it does not warrant a special plant outage for the purpose of installing time. The licensee stated that considering these points, it considers its proposed schedular extension represents a best effort.

The staff informed the licensee that it does not agree that the increase in safety from the installation of these new circuit breakers and fuses is marginal. In response, the licensee has prepared a procedure that it will implement as an interim compensatory measure until the new circuit breakers and fuses are installed. With this procedure in place, the staff agrees with the licensee that a special plant outage for the purpose of installing these breakers and fuses is not warranted and concludes that the proposal to install the circuit breakers and fuses at the next scheduled refueling outage after November 30, 1986 represents the best effort under the circumstances.

- 4) Adequate interim compensatory measures will be taken until compliance is achieved.

An interim compensatory measure as discussed above under criterion 3 was developed by the licensee in cooperation with the staff. For the interim until compliance is achieved, the licensee will implement a procedure that directs the operator to reestablish power to the Appendix R component that is tripped as a result of the fire. This procedure directs the operator to reestablish power that is lost due to loss of d.c. buses, loss of instrument buses, loss of vital a.c. buses, or loss of essential a.c. distribution buses. The staff concludes that adequate interim measures will be taken.

12.1.3 Evaluation

On the basis of the above information, the staff concludes that the licensee has demonstrated acceptable conformance with the four criteria and therefore, the licensee's request for a schedular exemption regarding installation of new circuit breakers and fuses should be granted.

12.2 Control Power Transfer Switch

12.2.1 Requested Exemption

An exemption from the schedular requirements of 10 CFR 50.48 was requested by the licensee under 10 CFR 50.12 for Hatch Unit 1. This requested exemption was for the installation of a control power transfer switch in the Diesel Building switchgear room 1F. A schedular extension was requested for Unit 1 until the end of its next scheduled refueling outage after November 30, 1986, for this specific piece of equipment.

The licensee has informed us orally on November 24, 1986, that this control power switch has been installed and the exemption is no longer needed.

Principal Contributors: R. Wescott and G. Rivenbark

Dated: January 2, 1987

UNITED STATES NUCLEAR REGULATORY COMMISSION
ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

GEORGIA POWER COMPANY
OGLETHORPE POWER CORPORATION
MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA
CITY OF DALTON, GEORGIA

DOCKET NOS. 50-321 and 50-366

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an exemption from the requirements of 10 CFR 50.48(c) and Appendix R to 10 CFR 50 to the Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and the City of Dalton, Georgia (the licensees), for the Edwin I. Hatch Nuclear Plant, Units 1 and 2 located in Appling County, Georgia.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action: The licensee would be exempted from the requirements of Section III.G.1. Appendix R to 10 CFR 50 to the extent that repairs would be permitted to maintain hot shutdown for a fire in the Unit 1 and Unit 2 control room area.

The licensee would be exempted from the requirements of Section III.G.2. of Appendix R to 10 CFR 50 as follows:

1) to the extent that certain components within the suppression system/water curtain boundary within the following areas would not be required to be wrapped

Unit 1 Reactor Building North of Column Line R7

Unit 1 Reactor Building South of Column Line R7

Unit 2 Reactor Building North of Column Line R19

Unit 2 Reactor Building South of Column Line R19

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2) to the extent that barriers would not be required between redundant pathways in the following areas so that a fire in these areas will not lead to loss of control of the high pressure coolant injection (HPCI) system:

Unit 1 Reactor Building North of Column Line R7

Unit 2 Reactor Building South of Column Line R19

3) to the extent that a 20-foot separation distance would not be required between redundant cables in the Intake Structure, outside of the automatic suppression areas.

The licensee would be exempted from the requirements of Section III.1. of Appendix R to 10 CFR 50 to the extent that 8-hour battery powered emergency lighting would not be required in the control room and in the yard.

The licensee would be exempted from the schedular requirements of 10 CFR 50.48 and Appendix R to 10 CFR 50 to the extent that installation of new circuit breakers and fuses identified as necessary to ensure electrically coordinated circuits would not be required to be completed in Units 1 and 2 prior to the licensee's current implementation schedule November 30, 1986 but instead would be required to be completed by the end of the next scheduled refueling outage for each of these Units commencing after November 30, 1986.

As an interim compensatory measure, until these circuit breakers and fuses are installed, the licensee is required to provide procedures that direct the operator to reestablish power to the Appendix R components that are tripped as a result of the fire.

The exemption is responsive to the licensee's application for exemption dated May 16, 1986 as supplemented by letters dated July 22, September 23, October 31, November 14, and November 21, 1986.

The Need for the Proposed Action: The exemption to Section III.G.1. to allow repairs to be made in order to maintain hot shutdown of the reactor is needed to allow greater flexibility and ensure reliable, long-term maintainability of hot shutdown conditions.

The exemption to Section III.G.2. to allow certain components within suppression system/water curtain boundary to not be wrapped is necessary because enclosure of these components would jeopardize their operability and would therefore be detrimental to overall plant safety. Since the existing separation distances and barriers provides adequate protection to assure that the complete pathway is available to secure the HPCI system, the exemption to Section III.G.2. to eliminate the requirement that barriers be provided between redundant pathways to prevent loss of control of the HPCI system in the event of a fire in specified areas is needed to avoid unnecessary modifications and their associated costs.

The Commission issued an exemption to the requirements of 10 CFR 50.48 dated May 14, 1985 extending the deadline for completion of fire protection modifications requiring plant shutdown until November 30, 1986 for both Hatch Units. The licensee has been unable to procure a few of the components required to complete these modifications by November 30, 1986, specifically the new circuit breakers and fuses identified as necessary to ensure required electrically coordinated circuits. In order to avoid shutting down the two Units until the parts are available or shutting down the two Units specifically for the purpose of installing these breakers and fuses the licensee needs an exemption to allow it to extend the installation completion schedule for these specific components until the end of the next scheduled refueling outage commencing after November 30, 1986 for each Unit.

Environmental Impact of the Proposed Action: The proposed action with respect to the exemptions from Sections III.G. and III.J. would not impact the ability to effect safe shutdown of the plant in the event of a fire and would provide an acceptable level of safety, equivalent to that attained by compliance with these Sections of Appendix R to 10 CFR 50. By using reasonable interim compensatory measures, the proposed exemption to the schedular requirements of 10 CFR 50.48 will provide a degree of fire protection such that there is no significant increase in the risk of fire at this facility.

The probability of fires has not been increased and the post-fire radiological releases will not be greater than previously determined nor does the proposed exemption otherwise affect radiological plant effluents. Therefore, the Commission concludes that there are no significant radiological environmental impacts associated with this proposed exemption.

With regard to potential nonradiological impacts, the proposed exemption involves features located entirely within the restricted area as defined in 10 CFR 20. It does not affect nonradiological plant effluents and has not other environmental impact. Therefore, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed exemption.

Alternative Use of Resources: This action does not involve the use of resources not considered previously in connection with the Final Environmental Statements (FES) relating to this facility, FES for Hatch Units 1 and 2, USAEC (October 1972) and FES for Hatch Unit 2, NUREG-0417 (March 1978).

Agencies and Persons Consulted: The Commission's staff reviewed the licensees' request and did not consult other agencies or persons.

FINDING OF NO SIGNIFICANT IMPACT

The Commission has determined not to prepare an environmental impact statement for the proposed exemption.

Based upon the foregoing environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this action, see the application for exemption dated May 16, 1986 as supplemented by letters dated September 23, October 31, November 14, and November 21, 1986, which is available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., and at the Appling County Public Library, 301 City Hall Drive, Baxley, Georgia.

Dated at Bethesda, Maryland, this 28th day of November, 1986.

FOR THE NUCLEAR REGULATORY COMMISSION



George W. Rivenbark, Acting Director
Project Directorate #2
Division of BWR Licensing