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DEC 2 3 1974

Docket No. 50-321

Georgia Power Company
ATTN: I. S. Mitchell, III
Vice President and Secretary
P. O. Box 4545
Atlanta, Georgia 30302

Gentlemen:

The Commission has issued the enclosed Amendment No. 6 to Facility Operating License No. DPR-57 for the Edwin I. Hatch Nuclear Plant Unit 1. This amendment includes Change No. 7 to the Technical Specifications and is in response to your requests dated November 1, 1974 and December 19, 1974.

The amendment permits a modification to the limits and surveillance of reactor coolant chemistry.

Copies of the related Safety Evaluation and the Federal Register Notice are also enclosed.

Sincerely,

/S/

George Lear, Chief
Operating Reactors Branch #3
Directorate of Licensing

Enclosures:
1. Amendment No. 6
2. Safety Evaluation
3. Federal Register Notice

cc: See next page

OFFICE	ORB #3	ORB #3	ORB #3	OGC (Fred Gray)	L:AD/ORS	
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DATE	12/23/74	12/23/74	12/23/74	12/23/74	12/23/74	

Form AEC-318 (Rev. 9-53) AECM 0240

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cc: w/enclosures

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OFFICE ➤						
SURNAME ➤						
DATE ➤						

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

GEORGIA POWER COMPANY

DOCKET NO. 50-321

EDWIN I. HATCH NUCLEAR PLANT UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 6
License No. DPR-57

1. The Atomic Energy Commission (the Commission) having found that:

   A. The applications for amendment by Georgia Power Company (the licensee) dated November 1, 1974, and December 19, 1974, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.

2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility License No. DPR-57 is hereby amended to read as follows:

"(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 7."

3. This license amendment is effective as of the date of its issuance.

FOR THE ATOMIC ENERGY COMMISSION

George Lear

for Karl R. Goller, Assistant Director
for Operating Reactors
Directorate of Licensing

Attachment:
Change No. 7 to the
Technical Specifications

Date of Issuance: DEC 2 3 1974

ATTACHMENT TO AMENDMENT NO. 6

CHANGE NO. 7 TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-57

DOCKET NO. 50-321

Replace pages 3.6-6, 3.6-7 and 3.6-19 with the attached revised pages. Changed areas on the revised pages are indicated by marginal lines.

LIMITING CONDITIONS FOR OPERATIONS	SURVEILLANCE REQUIREMENTS
3.6.F.2. Conductivity and Chloride	4.6.F.2. Conductivity and Chloride
a. During reactor operation when the reactor is pressurized, or above 212°F, and at less than 1% of rated steam flow, including hot standby, the reactor coolant shall not exceed the following limits: Conductivity - 5 umho/cm at 25°C Chloride - 0.1 ppm	a. Reactor coolant shall be continuously monitored for conductivity. 1. Whenever the continuous conductivity monitor is inoperable, an inline conductivity measurement shall be obtained at least once every four hours. 2. Once a week the continuous conductivity monitor shall be checked with an inline flow cell. This inline conductivity calibration shall be performed every 24 hours whenever the reactor coolant conductivity is >2.0 umho/cm at 25°C.
b. During reactor operation in excess of 1% of rated steam flow, the reactor coolant shall not exceed the following limits: Conductivity - 2 umho/cm at 25°C Chloride - 0.2 ppm	b. During startup prior to pressurizing the reactor above atmospheric pressure, measurements shall be performed to show conformance with section a. of limiting conditions. 7
c. The reactor coolant may exceed the limits of Paragraphs a and b, only for the time limits specified here. Exceeding these time limits or the following maximum limits shall be cause for immediately shutting down and placing the reactor in the cold shutdown condition. 7 Conductivity - Time above the conductivity limits in paragraphs a and b at 25°C, 2 weeks/year. Maximum limit - 10 umho/cm at 25°C. Chloride - Time above 0.2 ppm 2 weeks/year. Maximum limit - 0.5 ppm. The reactor shall be shut down if pH is <5.2 or >9.0 for a 24-hour period.	c. Whenever the reactor is operating (including hot standby conditions), measurements of reactor water quality shall be performed according to the following schedule: 1. Chloride ion content shall be measured at least once every 96 hours. 2. Chloride ion content shall be measured at least once every 8 hours whenever reactor coolant conductivity is >2.0 umho/cm at 25°C.
d. When the reactor is not pressurized (i.e., at or below 212°F), reactor coolant shall be maintained below the following limits: Conductivity - 10 umho/cm at 25°C Chloride - 0.5 ppm and pH shall be between 5.3 and 8.6.	

3.6.F.2.e. When the time limits or maximum conductivity or chloride concentration limits are exceeded, an orderly shutdown shall be initiated and the reactor shall be in the Cold Shutdown condition within 24 hours.

7

4.6.F.2.c. 3. Primary coolant pH shall be measured at least once every 8 hrs. whenever reactor coolant conductivity is >2.0 umho/cm at 25°C.

d. Whenever the reactor is not pressurized, a sample of the reactor coolant shall be analyzed at least every 96 hours for chloride ion content and pH.

7

G. Reactor Coolant Leakage

1. Unidentified and Total

Any time irradiated fuel is in the reactor vessel and reactor coolant temperature is above 212°F, reactor coolant leakage into the primary containment from unidentified sources shall not exceed 5 gpm as averaged over a 24-hour period. In addition, the total reactor coolant system leakage into the primary containment shall not exceed 25 gpm as averaged over a 24-hour period.

2. Leakage Detection System

The drywell floor drain sump and equipment drain sump system shall be operable during reactor power operation. From and after the

G. Reactor Coolant Leakage

Reactor coolant system leakage shall be checked by the drywell floor drain sump and equipment drain sump system and recorded at least once per day.

3.6.F. Reactor Coolant Chemistry (continued)

When conductivity is in its proper normal range, pH and chloride and other impurities affecting conductivity must also be within their normal range. When conductivity becomes abnormal, then chloride measurements are made to determine whether or not they are also out of their normal operating values. This should not necessarily be the case. Conductivity could be high due to the presence of a neutral salt which would not have an effect on pH or chloride. In such a case, high conductivity alone is not a cause for shutdown. In some types of water cooled reactors, conductivities are in fact due to purposeful addition of additives. In the case of BWR's, however, where no additives are used and where neutral pH is maintained, conductivity provides a very good measure of the quality of the reactor water. Significant changes therein provide the operator with a warning mechanism so he can investigate and remedy the condition causing the change before limiting conditions, with respect to variables affecting the boundaries of the reactor coolant, are exceeded.

The required action of placing the reactor in the Cold Shutdown Condition in the event that the operational limits cannot be met is established to reduce the temperature dependent corrosion rates, thereby providing time for the cleanup system to re-establish proper water quality.

7 The conductivity of the reactor coolant is continuously monitored. The conductivity monitor is calibrated weekly with an inline flow conductivity cell and such is considered adequate to assure accurate readings of the monitor. If conductivity is within its normal range, chlorides and other impurities will also be within their normal ranges. Reactor coolant samples will be used to determine the chlorides; the sampling frequency is considered adequate to detect long-term changes in the chloride ion content.

Air saturated water is pumped into the reactor as a result of operation of the control rod drive system. Therefore, the oxygen level in the reactor water may be higher during startups or during periods of hot standby when the reactor is not steaming at significant powers. More stringent surveillance frequencies have been established for these periods to ensure that the combination of chloride and oxygen will always be well below stress corrosion failure limits.

G. Reactor Coolant Leakage

Allowable leakage rates of coolant from the reactor coolant system have been based on the predicted and experimentally observed behavior of cracks in pipes and on the ability to compensate for coolant system leakage in the event of loss of off-site a-c power. The normally expected background leakage due to equipment design and the detection capability for determining coolant system leakage were also considered in establishing the limits. The behavior of cracks in piping systems has been experimentally and analytically investigated as part of the USAEC sponsored Reactor Primary Coolant System Rupture Study (the Pipe Rupture Study). Work utilizing the data obtained in this study indicates that leakage from a crack can be detected before the crack grows to a dangerous or critical size by mechanically or thermally induced cyclic loading, or stress corrosion cracking, or some other mechanism characterized by gradual crack growth. This evidence suggests that for leakage somewhat greater than the limit specified for unidentified leakage, the probability is small that imperfections or cracks associated with such leakage

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

SAFETY EVALUATION BY THE DIRECTORATE OF LICENSING

SUPPORTING AMENDMENT NO. 6 TO LICENSE NO. DPR-57

(CHANGE NO. 7 TO THE TECHNICAL SPECIFICATIONS)

GEORGIA POWER COMPANY

EDWIN I. HATCH NUCLEAR PLANT UNIT I

DOCKET NO. 50-321

Introduction

By correspondence dated November 1, 1974, and December 19, 1974, Georgia Power Company (licensee) requested changes to the Technical Specifications appended to Facility Operating License No. DPR-57 for the Edwin I. Hatch Nuclear Plant Unit 1 (Hatch 1). The change involves a modification to the limits and surveillance of reactor coolant chemistry.

Discussion

A. Water Chemistry Limits

Present technical specifications limit reactor coolant conductivity, prior to steaming rates above 1% rated steam flow, to 1.0 micromho/cm and the chloride limit to 0.2 ppm. This conductivity limit restricts operation during cold conditions. During shut-down periods, the conductivity has approached and exceeded 2 micromho/cm and has caused some delay in nuclear startup pending the reduction of the coolant conductivity, by the system demineralizers, to the present technical specification limit of 1.0 micromho/cm.

At steaming rates above 1% rated steam flow, present technical specifications limit reactor coolant conductivity to 1.0 umho/cm. This conductivity has proven to be restrictive and may eventually reduce plant operational flexibility. Conductivity values during plant operation have approached the technical specification limit of 1.0 umho/cm.

The licensee has proposed raising the conductivity limits, lowering the chloride content limits, and instituting pH limits in the following manner:

Case	Proposed Limit Modification
1. Less than 1% rated steam flow	(a) Increase the conductivity limit from 1.0 to 5.0 umho/cm at 25°C.
	(b) Decrease the chloride limit from 0.2 ppm to 0.1 ppm.
2. Greated than 1% rated steam flow	(a) Increase the conductivity limit from 1.0 to 2.0 umho/cm at 25°C.
	(b) Restrict the reactor coolant pH to the range 5.2 to 9.0
3. Unpressurized Reactor Case	(a) Restrict the reactor coolant pH to the range 5.3 to 8.6.

In addition, the licensee proposed that the conductivity and chloride content values be allowed to exceed the limits indicated above for 2 weeks/yr up to a maximum conductivity value of 10 umho/cm at 25° and a maximum chloride ion content of 0.5 ppm.

B. Surveillance of Reactor Coolant Water Chemistry

The licensee has also proposed changes to the chemistry surveillance requirements. Reactor coolant conductivity will be measured continuously as before; however, when the continuous conductivity monitor is inoperable the licensee proposes increasing the frequency of coolant conductivity measurements from once every 8 hours to once every 4 hours. The licensee also proposes specifications for calibration of the continuous conductivity monitor (once a week or once daily when coolant conductivity exceeds 2 umho/cm). Prior technical specifications did not address this point but did require coolant samples analyzed every 4 days.

The applicant also proposed changes to the chloride ion content measurements. Reactor coolant samples will be analyzed once every 4 days as before; however, the licensee proposed chloride ion content measurements every 8 hours when the conductivity exceeds 2 umho/cm rather than chloride measurements every 8 hours when the continuous conductivity meter is inoperable (or chloride measurements every 24 hours for reactor pressures below 1000 psig). The licensee also proposed establishing a pH measurement requirement (once every 8 hours) when the conductivity exceed 2.0 umho/cm; no such requirement now exists in the present technical specifications.

Evaluation

A. Water Chemistry Limits

We find that the proposed chemistry control specifications will limit potential corrosion rates to acceptably low values. The conductivity limits requested for cases with less than 1% rated steam flow, greater than 1% rated steam flow, and also the temporary maximum limit are all within the provisions of Regulatory Guide 1.56. For the case with greater than 1% rated steam flow, the limit requested is more conservative than representative values in Regulatory Guide 1.56 by over a factor of 2

The basis for the conductivity limitations are discussed in Regulatory Guide 1.56.

The chloride limits requested require chloride content reductions which tend to reduce corrosion and make the limit more conservative. The chloride content limits are also within the provisions of Regulatory Guide 1.56.

The request to establish pH limits is also a conservative measure. Since the pH value is a good indication of conductivity, the requirement for pH limit values will serve to reinforce the conductivity limits. In both cases where pH limits are requested the values requested are consistent with, or more conservative than the corresponding conductivity limits. Hence the pH limits requested will then restrict conductivity to the prescribed limits or smaller (and more conservative) conductivity values.

B. Surveillance of Reactor Coolant Water Chemistry

We find that the proposed surveillance program is sufficient to adequately monitor the reactor coolant conductivity and chloride ion content. The licensee has proposed a more rigorous surveillance program for conductivity measurements than previously existed. With the increased emphasis on conductivity measurements, the licensee has proposed to decrease the emphasis slightly on chloride measurements except for conductivity measurements in excess of 2 umho/cm. This approach is acceptable since increased chloride content will cause increased conductivity values; these higher chloride contents can be adequately noted and measurements appropriately taken as the conductivity values indicate the need. Hence, chloride measurement program proposed is more rigorous than presently exists for conditions where significant chlorides are present.

The emphasis for chloride surveillance is reduced for smaller chloride content values (as it should be) and increased (beyond present requirements) when the chloride content becomes significant. In addition to the shift in emphasis as

indicated, the licensee has proposed requirements for pH measurement in addition to the conductivity and chloride ion surveillance program. This further serves to increase his proposed surveillance program over existing requirements.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Donald N. Bridges
Operating Reactors Branch #3
Directorate of Licensing

George Lear
George Lear, Chief
Operating Reactors Branch #3
Directorate of Licensing

DEC 2 3 1974

UNITED STATES ATOMIC ENERGY COMMISSION

DOCKET NO. 50-321

GEORGIA POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY

OPERATING LICENSE

Notice is hereby given that the U. S. Atomic Energy Commission (the Commission) has issued Amendment No. 6 to Facility Operating License No. DPR-57 issued to the Georgia Power Company which revised Technical Specifications for operation of the Edwin I. Hatch Nuclear Plant Unit 1, located in Appling County, Georgia. The amendment is effective as of its date of issuance.

The amendment permits a modification to the limits and surveillance of reactor coolant chemistry.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment.

For further details with respect to this action, see (1) the application for amendment dated November 1, 1974, and December 19, 1974 (2) Amendment no. 6 to License No. DPR-57, with Change No. 7, and (30 the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C., and at the Appling County Library, Parker Street, Baxley, Goergia.

A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Atomic Energy Commission, Washington, D. C. 20545, Attention: Deputy Director for Reactor Projects, Directorate of Licensing - Regulation.

Dated at Bethesda, Maryland, this 23rd day of December, 1974..

FOR THE ATOMIC ENERGY COMMISSION

George Lear

George Lear, Chief
Operating Reactors Branch #3
Directorate of Licensing