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Georgia Power
the southern electric system

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Docket No. 50-366 HL-4832

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Edwin I. Hatch Nuclear Plant - Unit 2
Request for Exemption from Testing
Criteria of 10 CFR 50, Appendix J

Gentlemen:

Section 3.6.1.2.c of the current Plant Hatch, Unit 2 Technical Specifications contains a double asterisk with an accompanying footnote which reads, "Exemption to Appendix J of 10 CFR 50." The footnote indicates that MSIV leakage is not required to be included in the leak rate acceptance criteria for the integrated leak rate test (ILRT) (Type A) and Section 3.6.1.2.b indicates that MSIV leakage is not required to be included in the acceptance criteria for the containment isolation valve tests (Type C). This exemption has been held since Unit 2 was licensed, and MSIV leakage has been excluded from the local leak rate test which includes the combined leakage rate for all penetrations and isolation valves. However, Georgia Power Company (GPC) has not previously excluded the MSIV leakage from ILRT leakage in satisfying the ILRT acceptance criteria.

By letter dated March 17, 1994, the Nuclear Regulatory Commission (NRC) issued Unit 2 Technical Specifications, Amendment No. 132 which increased the allowable MSIV leakage rate from 11.5 scfh for any one MSIV to 100 scfh for any one MSIV, with a total maximum pathway leakage of 250 scfh through all four steam lines. With the increased allowable MSIV leakage, a possibility exists that the ILRT acceptance criteria could be unnecessarily exceeded if MSIV leakage is included in the ILRT acceptance criteria. For this reason and in response to NRC communications relative to the need for a new exemption request considering the increased allowable MSIV leakage, GPC is hereby requesting that MSIV leakage be exempt from the ILRT (Type A) and containment isolation valve (Type C) testing acceptance criteria of 10 CFR 50, Appendix J during containment leak rate testing at the Edwin I. Hatch Nuclear Plant, Unit 2, pursuant to 10 CFR 50.12(a).

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The application for the exemption, along with supporting information and justification for the exemption request, is contained in the enclosure of this letter. As verified in the enclosure, the request demonstrates that it is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Furthermore, the request shows that special circumstances warranting issuance of the request exemption are present. To support the Unit 2 September 1995 refueling outage, GPC requests the NRC approve the exemption request prior to August 10, 1995. Inclusion of MSIV leakage in the 10 CFR 50, Appendix J acceptance criteria constitutes double counting of the MSIV leakage in the radiological analysis of the design basis loss of coolant accident analysis. Therefore, without NRC approval of the exemption, the 10 CFR 50, Appendix J acceptance criteria for containment leak rate testing may be unnecessarily exceeded. As detailed in the enclosure, MSIV leakage should not be included in the integrated containment leak rate or local leak rate testing because MSIV leakage has separate criteria as assigned in the Technical Specifications and is treated by a different method than other types of containment leakage.

In accordance with the requirements of 10 CFR 50.91, a copy of this letter and the enclosure will be sent to Mr. J. D. Tanner of the Environmental Protection Division of the Georgia Department of Natural Resources.

Mr. J. T. Beckham, Jr. states that he is a Vice President of Georgia Power Company and is authorized to execute this oath on behalf of Georgia Power Company, and to the best of his knowledge and belief, the facts set forth in this letter are true.

Sincerely,

J. T. Beckham, Jr.

Sworn to and subscribed before me this 20th day of June 1995.

Doris Deline Brown
Notary Public

My Commission Expires 11/3/97

JKB/ld

Enclosure: Application for Exemption

cc: Georgia Power Company
Mr. H. L. Sumner, Nuclear Plant General Manager
NORMS

U. S. Nuclear Regulatory Commission, Washington, D. C.
Mr. K. N. Jabbour, Licensing Project Manager - Hatch

U. S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebneter, Regional Administrator
Mr. B. L. Holbrook, Senior Resident Inspector - Hatch

State of Georgia
Mr. J. D. Tanner, Commissioner - Department of Natural Resources

Enclosure

Edwin I. Hatch Nuclear Plant - Unit 2
Request for Exemption to 10 CFR 50, Appendix J

Application for Exemption

A. Basis for Exemption Request

Pursuant to 10 CFR 50.12(a), Georgia Power Company (GPC), holder of Facility Operating License No. NPF-5, hereby requests specific exemptions from 10 CFR 50, Appendix J "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors." Specifically, GPC requests that leakages from the main steam isolation valves (MSIVs) on Unit 2 be exempted from the acceptance criteria for:

1. The overall integrated leak rate test (Type A), as defined in the regulations of 10 CFR 50, Appendix J, Paragraphs III.A.5(b)(1) and III.A.5.(b)(2).

2. The combined local leak rate tests (Type B and Type C), as defined in the regulations of 10 CFR 50, Appendix J, Paragraphs III.B.3 and III.C.3.

The purpose of the test acceptance criteria is to ensure that the measured leak rate from the containment volume will not exceed the designed containment leak rate assumed in the safety analysis for a postulated design basis loss of coolant accident (LOCA).

GPC has previously requested, and the Nuclear Regulatory Commission (NRC) has approved, a change to the Unit 2 Technical Specifications to increase the allowable MSIV leakage from 11.5 scfh per MSIV to 100 scfh per MSIV, with a maximum total leakage of 250 scfh for all four main steam lines. The safety analysis has been revised to assess the radiological effects of the increased MSIV leakage following the postulated design basis LOCA. GPC has demonstrated that the proposed change does not involve a significant hazards consideration.

This proposed exemption request is based on the extensive work performed by the BWR Owners' Group (BWROG) in support of the resolution of Generic Issue C-8, "MSIV Leakage and LCS Failure." The following discussion provides a detailed justification for and evaluation of the proposed exemption. The proposed exemption is demonstrated to be authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Furthermore, special circumstances that warrant the granting of this exemption are present.

The proposed exemption will not introduce any additional operational activities that may significantly affect the environment. It does not result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental

Impact Statement–Operating License Stage, result in a significant change in effluents or power levels, or affect any matter not previously reviewed by the NRC that may have a significant adverse environmental impact.

B. Justification for Exemption Request

Paragraphs III.A.5.(b)(1) and III.A.5.(b)(2) of 10 CFR 50, Appendix J, require the overall integrated leakage rate, as measured during containment pressure tests (Type A), to meet the acceptance criterion of less than or equal to 0.75 of the maximum allowable containment leak rate. Paragraphs III.B.3 and III.C.3 of the regulation require that the combined leakage rate for all penetrations and isolation valves, as measured during local leak rate tests (Type B and Type C), meet the acceptance criterion of less than or equal to 0.60 of the maximum allowable containment leak rate. Paragraphs III.C.3.(a) and III.C.3(b) specify conditions under which certain isolation valves may be excluded from the acceptance criteria for Type B and C tests.

As described in the Bases for the Plant Hatch, Unit 2 Improved Technical Specifications (ITS) Surveillance Requirement (SR) 3.6.1.3.11, the limitations on primary containment leakage rates ensure that total containment leakage volume at peak accident pressure will not exceed the value assumed in the accident analyses. As an added conservatism, the measured leak rate is further limited to less than or equal to 0.75 of the maximum allowable leak rate during the performance of the periodic tests to account for possible degradation of the containment leakage barrier between leakage tests.

The maximum containment leakage rate was included in the radiological analysis of a postulated design basis LOCA as documented in Section 15.1.39 of the Unit 2 FSAR. The radiological analysis calculated the effect of the maximum leakage rate from the containment volume in terms of onsite and offsite doses, which were evaluated against the dose guidelines of 10 CFR 50, Appendix A, General Design Criterion (GDC) 19 and 10 CFR 100, respectively. The dose calculations considered the leakage from the containment that was contained in the reactor building, filtered by the standby gas treatment (SBGT) system, and released to the environment through the elevated release stack, as well as the leakage that was assumed to bypass the SGBT system. The maximum containment leakage rate, including leakage through structures, all penetrations identified as Type B, and all containment isolation valves identified as Type C, was considered.

The safety analysis accounted for the radiological effect from MSIV leakage and other containment leakages following a postulated design basis LOCA. The doses that could be received by personnel in the technical support center (TSC), and the main

control room (MCR), and at the site boundary due to MSIV leakage were calculated independently of all other types of leakage. The doses due to MSIV leakage were added to the doses due to all other types of containment leakage. The doses due to all types of containment leakage, including MSIV leakage, remained within the regulatory limits of 10 CFR 100 for the offsite doses and GDC 19 for the MCR and TSC. Unlike the treatment path for other containment leakages, the treatment of MSIV leakage utilizes the main steam drain piping and the condenser. Fission products are removed by plate-out and hold-up in the relatively large volumes of the main steam piping and condenser.

In support of the resolution of Generic Issue C-8, the BWROG recommended this treatment method for MSIV leakage. The BWROG evaluated the availability of main steam system piping and condenser alternate treatment pathways for processing MSIV leakage and determined that the probability of a near coincident LOCA and a seismic event is much smaller than for other plant safety risks. The BWROG also determined that main steam piping and condenser designs are extremely rugged, and that the ANSI-B31.1 design requirements typically used for balance of plant system design, contain an adequate margin. In addition, the main steam piping between the outboard MSIV and the turbine stop valves is Seismic Category I.

To further justify the capability of the main steam piping and condenser treatment pathway to process MSIV leakage, the BWROG reviewed limited earthquake experience data on the performance of non-seismically designed piping and condensers. The study concluded that the possibility of a failure, which could cause a loss of steam or condensate in BWR main steam piping or condensers in the event of a design basis earthquake, is highly unlikely, and that such a failure would be contrary to a large body of historical earthquake experience data and thus, unprecedented. The NRC accepted this position when the technical specification amendment request to increase MSIV leakage was approved on March 17, 1994.

Leakage from the MSIVs should not be included in the Type A acceptance criteria, because the treatment path for MSIV leakage is different from that of containment leakage. Potential leakage from the containment is contained in the reactor building, treated by the SBGT system, and released via the main stack. MSIV leakage is contained, plated-out, and delayed in the main steam piping and the condenser, and released via the turbine building. Furthermore, leakage from the MSIVs should not be included in the combined local leak rate test (Type B and Type C) acceptance criteria because Unit 2 ITS SR 3.6.1.3.11 specifies an allowable leak rate for the MSIVs.

As discussed earlier, the basis for the containment leakage tests and the acceptance criteria is to ensure that the measured leak rate will not result in radiological doses that exceed regulatory limits. The safety analysis for a design basis LOCA includes the

maximum MSIV leak rate separately from the maximum containment leak rate. In accordance with ITS SR 3.6.1.3.11, MSIV leakage will be measured as part of the local leak rate test to ensure that the measured MSIV leak rate will not exceed the allowable leak rate assumed in the safety analysis.

There is sufficient conservatism in the allowable MSIV leak rate to account for possible degradation of the MSIV leakage barrier between leakage tests. The radiological dose analysis demonstrates that the doses resulting from the total maximum containment leakage, including an MSIV allowable leak rate of 250 scfh, remain within the limits of GDC 19 of 10 CFR 50, Appendix A and 10 CFR 100. Thus, a safety margin exists. Furthermore, any MSIV exceeding the 100 scfh limit is required to be repaired and retested to meet a leakage rate of less than or equal to 11.5 scfh. Also, if one or more MSIVs must be required to maintain the total MSIV pathway leakage equal to or below 250 scfh, the MSIV(s) requiring repair are to be restored to a leakage rate equal to or less than 11.5 scfh. This assures continuation of high quality repair and refurbishment efforts to improve the overall performance and reliability of the MSIVs.

Based on the above discussion, therefore, the proposed exemption from the acceptance criteria of 10 CFR 50, Appendix J will not defeat the underlying purpose of the regulation, and is consistent with the safety analysis.

1. Authorized by Law

   The proposed exemption is consistent with Section 3.6.1.2 of the Standard Technical Specifications and the Bases for Unit 2 ITS, SR 3.6.1.3.11.

   The containment isolates and contains fission products released from the reactor coolant system following a design basis accident and confines the postulated release of radioactive material. 10 CFR 50, Appendix J, testing criteria limit the integrated containment leakage rate to 0.75 La. Plant Hatch, Unit 2 Technical Specifications establishes La as 1.2 % of containment volume per day. Leakage via penetrations and isolation valves cannot exceed 0.60 La. The basis for the leak rate criteria is to limit the radiological doses to the public to the doses specified by GDC 19 and 10 CFR 100. Radiological doses due to a postulated LOCA, which is the bounding design basis accident, have been calculated assuming the total allowable containment leakage of 1.2 % per day, excluding the MSIV leakage. The dose due to MSIV leakage is added to the dose due to containment leakage from all other leakage paths. The total dose due to containment leakage, plus Technical Specifications allowable MSIV leakage remains within the limits of 10 CFR 100 and GDC 19. MSIV leakage is combined with other sources of containment leakage to demonstrate that total dose due to all containment leakage

remains within regulatory limits. Not exempting MSIV leakage from the 10 CFR 50, Appendix J, testing would result in double counting that portion of the leakage.

Since 10 CFR 50.12(a) states that the Commission may grant exemptions from the requirements of Part 50, and the NRC has granted exemptions of MSIV leakage from 10 CFR 50, Appendix J to other plants, the proposed exemption is authorized by law.

2. No Undue Risk to Public Health and Safety

The proposed exemption presents no undue risk to public health and safety. The revised MSIV leakage rate has been incorporated in the radiological analysis for a postulated LOCA as an addition to the designed containment leak rate. The analysis indicates that the MCR, TSC, and offsite doses due to the total allowable containment leakage, including the increased MSIV leakage, remains within the limits of the applicable regulations. In addition, ITS SR 3.6.1.3.11 provides for allowable MSIV leak rates which assure that the isolation function of the MSIVs will not be compromised. Finally, potential MSIV leakage is subject to plate out and hold-up in the main steam piping and condenser, thus minimizing the total dose released. As discussed in Section B.5 of this application, the proposed change will not adversely affect the conclusions of the previously issued Facility Environmental Impact Statement - Operating License Phase. Utilization of the main steam drain lines and the condenser as an alternate treatment method for MSIV leakage has been demonstrated to be more reliable than the previous leakage control system. In addition, this treatment method is able to handle larger leakage rates which could not be handled at all by the previous leakage control system due to design limitations. Therefore, the proposed exemption presents no undue risk to public health and safety. Furthermore, the risk to the public health and safety has been reduced by implementation of the proposed MSIV leakage treatment method.

3. Consistent with Common Defense and Security

With regard to the "Common Defense and Security" standard, granting the requested exemption is consistent with the common defense and security of the United States. The Commission's Statement of Considerations in support of the exemption rule notes with approval the explanation of the standard as set forth in Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), LBP-84-45, 20 NRC 1343, 1400 (October 29, 1984). Therein, the term "common defense and security" refers principally to the safeguarding of special nuclear material, the absence of foreign control over the applicant, the protection of

Restricted Data, and the availability of special nuclear material for defense needs. The granting of the requested exemption will not affect any of the matters; thus, granting the exemption is consistent with the common defense and security.

4. Presence of Special Circumstances

Special circumstances which warrant issuance of this requested exemption are present. The special circumstances are discussed below in accordance with the classification contained in 10 CFR 50.12(a)(2):

(ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.

The underlying purpose of the rule is to limit releases to within the offsite dose guidelines of 10 CFR 100, and MCR and TSC dose to within the guidelines of 10 CFR 50, Appendix A (GDC 19). MSIV leakage is directed through the main steam drain piping into the condenser. Since Type A tests are intended to measure the primary containment overall integrated leak rate (ILRT), the MSIV leakage rate should not be included in the measurement of the ILRT. Compliance with Appendix J of 10 CFR 50 Type C test acceptance criteria is not necessary since a specific MSIV leak rate limit is already specified in Unit 2 ITS SR 3.6.1.3.11.

The safety analysis assesses the radiological consequences of MSIV leakage following a design basis LOCA. The analysis demonstrates that the LOCA doses due to all containment leakage sources remain within the offsite, MCR, and TSC dose guidelines of the applicable regulations.

(iii) Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated.

Compliance with Appendix J of 10 CFR 50 Type A and Type C test acceptance criteria results in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted. The approved increased, allowable leak rate is not possible unless the MSIV leak rate results are excluded from the 10 CFR 50, Appendix J Type A and Type C test acceptance criteria.

Compliance with the lower leak rates would require unnecessary repair and retesting of the MSIVs, significantly impact the maintenance workload during plant outages, and contribute to outage extensions. The frequent MSIV

disassembly and refurbishing, which is required to meet the low leakage limits, would contribute to repeated failures.

Examples of maintenance-induced defects include machining-induced seat cracking, machining of guide ribs, excessive pilot valve seat machining, and mechanical defects caused by assembly and disassembly. By not having to disassemble the valves and refurbish them for minor leakage, Plant Hatch avoids introducing one of the root causes of recurring leakage. Industrial experience suggests that, by attempting to correct non-existing or minimal defects in the valves, defects that would lead to later leak test failures may be introduced. In addition, the increased, frequent maintenance work results in needless dose exposures to maintenance personnel, thereby incurring economical burdens and are inconsistent with as low as reasonably achievable (ALARA) principals.

(iv) The exemption would result in benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption.

By letter dated March 17, 1994, the NRC issued a license Amendment No. 132 to the Unit 2 Technical Specifications to increase the allowable MSIV leak rate from 11.5 scfh per MSIV to 100 scfh per MSIV, with a total maximum MSIV pathway leakage of 250 scfh for all four main steam lines. The amendment is based, in part, on the fact that the previous limit was too restrictive, resulting in excessive MSIV maintenance and repair, which lead to additional MSIV failures, and resulted in higher leakage rates. The approved leakage limit, which is not possible without the proposed exemption, will benefit the public health and safety by reducing the potential for MSIV failures, and thus, keeping the MSIV leakage within the radiological analysis values.

GPC has implemented the reliable and effective main steam piping and condenser leakage treatment method for MSIV leakage on Unit 2. This treatment method is effective to treat MSIV leakage over an expanded operating range without exceeding the offsite, MCR, and TSC dose limits. Except for the requirement to establish a proper flow path from the MSIVs to the condenser, the proposed method is passive and does not require any logic controls and interlocks. The method is consistent with the philosophy of protection by multiple leaktight barriers used in containment design for limiting fission product release to the environment. The system provides Plant Hatch, Unit 2 with the capability to process MSIV leakage and a basis for establishing a plant specific MSIV leakage rate limit. From a safety perspective, the exemption allows an increase in allowable MSIV leakage that is processed by an improved leakage treatment system which, in turn, provides for an increase in protection to the public. This

benefit will compensate for any decrease in safety that may result from granting the exemption. Thus, special circumstances that warrant the granting of the exemption exist.

5. Environmental Impact

The proposed exemption has been analyzed and determined not to cause additional construction or operational activities which may significantly affect the environment. The proposed exemption does not result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Impact Statement - Operating License Stage. Additionally, the proposed exemption does not result in a significant change in effluents or power levels or affect any matter not previously reviewed by the NRC which may have a significant adverse environmental impact.

The proposed exemption does not alter the land use for the plant, any water uses or impact on water quality, air, or ambient air quality. The proposed action does not affect the ecology of the site and vicinity, and does not affect the noise emitted by the plant. Therefore, the proposed exemption does not affect the analysis of environmental impacts described in the environmental report.