

December 30, 1987

Docket No. 50-416

Mr. Oliver D. Kingsley, Jr.
Vice President, Nuclear Operations
System Energy Resources, Inc.
P. O. Box 23054
Jackson, Mississippi 39205

Dear Mr. Kingsley:

SUBJECT: GRAND GULF NUCLEAR STATION (GGNS), UNIT 1 - EXEMPTION TO
10 CFR PART 50.55a REGARDING REACTOR COOLANT PRESSURE
BOUNDARY (TAC NO. 66662)

In response to your letter dated November 25, 1987, as revised December 10, December 23, and December 27, 1987, the Commission has issued the enclosed exemption from the requirements of 10 CFR 50.55a(c), "Reactor Coolant Pressure Boundary," for a section of piping in the reactor water cleanup system (RWCU). This rule requires that reactor coolant pressure boundary (RCPB) piping meet the requirements for Class 1 components in Section III of the ASME Boiler and Pressure Vessel Code (ASME Code). This section of piping is classified as ASME Code, Class 2, in the as-built RWCU system. Full compliance with ASME Code, Class 1, requirements would require piping modifications. Your submittal proposed to perform an ASME Code, Class 1, stress analysis for this section of piping and to include this section of piping in the ASME Code, Class 1, portion of the GGNS, Unit 1. Inservice Inspection Program.

The NRC staff has concluded, based on the considerations discussed in the Exemption, that the Exemption is authorized by law and will not result in undue risk to the public health and safety and is consistent with the common defense and security. The augmented inservice inspection program must be incorporated into the GGNS, Unit 1, Inservice Inspection Program prior to the third refueling outage. You are requested to advise the NRC by letter when the augmented inservice inspection program is completed.

The Exemption is being forwarded to the Office of the Federal Register for publication. The related Notice of Environmental Assessment and Finding of No Significant Impact was published in the Federal Register on

Sincerely,

BB01140272 871231
PDR ADOCK 05000416
PDR

Lester L. Kintner, Sr. Project Manager
Project Directorate II-1
Division of Reactor Projects-I/II, NRR

Enclosure: As stated

cc w/encl: See next page

DISTRIBUTION: See next page

(EXEMPTION GRAND GULF)

LA:PDII-1:DRPR:NRR
PDAnderson:djm
12/30/87

PM:PDII-1:DRPR:NRR
LLKintner
12/30/87

D:PDII-1:DRPR:NRR
EGAdensam
12/30/87

Pursuant to 10 CFR 51.32, the Commission has determined that granting this Exemption will have no significant effect on the environment (52 FR 49217).

This exemption is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Gus C. Lainas, Acting Director
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 30th day of December 1987

(EXEMPTION GRAND GULF)

* SEE PREVIOUS CONCURRENCE

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PAnderson
12/30/87

PM:PD21:DRPR
*LKintner/aly
12/26/87

D:PD21:DRPR
EAdensam
12/30/87

OGC
*JScinton
12/28/87

DR24:DRPR
GLainas
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SVarga
12/30/87

Dated: December 30, 1987

EXEMPTION FOR THE GRAND GULF NUCLEAR STATION, UNIT 1

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

MISSISSIPPI POWER & LIGHT COMPANY,
SYSTEM ENERGY RESOURCES, INC., AND
SOUTH MISSISSIPPI ELECTRIC POWER
ASSOCIATION

(Grand Gulf Nuclear Station, Unit 1)

Docket No. 50-416

EXEMPTION

I

Mississippi Power & Light Company, System Energy Resources, Inc., and South Mississippi Electric Power Association (the licensee) are the holders of Facility Operating License No. NPF-29, issued November 1, 1984, which authorized operation of the Grand Gulf Nuclear Station, Unit 1 (the facility). This license provides, among other things, that the licensees are subject to all rules, regulations and orders of the Nuclear Regulatory Commission (the Commission). The facility is a boiling water reactor located in Claiborne County, Mississippi.

II

The Commission's rules at 10 CFR 50.55a(c)(1) state that components which are a part of the reactor coolant pressure boundary (RCPB) must meet the requirements for Class 1 components in Section III of the ASME Boiler and Pressure Vessel Code (ASME Code). As defined in 10 CFR 50.2, and General Design Criterion 55, the RCPB for piping connected to the reactor coolant system, such as the reactor water cleanup (RWCU) system, must extend to and include the outboard containment isolation valve. The ASME Code, Class 1, piping of a branch line in the as-built RWCU system, however, terminates at the inboard isolation valve (F252) located inside the drywell. For the BWR

Mark III containment, the drywell is considered to be the primary reactor containment for the purpose of isolating the reactor coolant system. This as-built condition also conflicts with the Updated Final Safety Analysis Report (UFSAR), Table 3.2-1, which indicates that ASME Code, Class 1, piping extends to the outer-most isolation valve (F253). GDC 55 indicates that the outer-most isolation valve should be located outside the containment. Although 10 CFR 50.55a(c)(2) states that RCPB piping is not required to meet ASME Code, Class 1, requirements provided certain conditions are met, the licensee chose not to provide the supporting analysis to attempt to justify these conditions, and instead, by letter dated November 25, 1987, requested an Exemption to 10 CFR 50.55a(c)(1) for the section of RWCU piping from valve F252 up to and including valve F253.

The licensee's design review of the RWCU system also disclosed that the inboard containment isolation valve (F252) for this branch line had the same power supply as the outboard containment isolation valve, which does not meet the UFSAR and single failure criterion for containment isolation. By a separate letter dated November 25, 1987, the licensee has requested an amendment to the license to change the Technical Specifications to reflect modifications to the power supplies of valves F252 and F253 to be made during the second refueling outage. This outage began November 6, 1987, and is scheduled to end January 1, 1988. This license amendment request is being addressed separately.

III.

The exemption request under consideration involves an exemption from the ASME Code, Class 1, requirements of 10 CFR 50.55a(c)(1) for the section of RWCU piping between valve F252 and valve F253. This section of piping is now classified as ASME Code, Class 2.

By its letter dated November 25, 1987, the licensee provided information relevant to the "special circumstances" finding required by 10 CFR 50.12(a). The licensee stated that Paragraphs 50.12(a)(2)(ii) and 50.12(a)(2)(iii) are applicable to its requested exemption. The licensee stated that application of the regulation is not necessary to achieve the underlying purpose of the rule because proposed alternative augmented inservice inspection and stress analysis will result in requirements that are essentially equivalent to ASME Code, Class 1, requirements. By letter dated December 23, 1987, the licensee provided results of its stress analysis and concluded that the subject section of piping meets the criteria for Class 1 piping in Section III of the ASME Code. The above alternative measures proposed by the licensee would not result in the system piping being re-stamped as ASME Code, Class 1, since the subject piping was not procured to ASME Code, Class 1, requirements. The chemical and physical properties of the ASME Code, Class 2, piping between valves F252 and F253, however, meet the requirements for ASME Code, Class 1, piping; and the outboard isolation valve F253 is an ASME Code, Class 1, component. Further, all welds were performed by ASME Code, Section IX, qualified welders with welding rods that met ASME Code, Class 1, requirements. The licensee also stated that compliance with the rule would result in undue hardships. For achieving full ASME Code, Class 1, compliance, the licensee stated that a significant hardship would be incurred in terms of delay to plant restart and system modification costs. This hardship would involve the physical replacement of the existing piping between valves F252 and F253 with piping procured to ASME Code, Class 1, requirements.

The staff agrees with the licensee's determination that special circumstances as described in paragraph 50.12(a)(2)(ff) exist for the requested exemption in that application of the regulation is not necessary to achieve the underlying purpose of 10 CFR 50.55a(c)(1). The purpose of the requirement for all portions of the RCPB to be ASME Code, Class 1, are to assure that this vital system is designed and inspected to the most rigorous standards to assure a very high degree of integrity of RCPB piping. In the present case, the very small portion of one of the ancillary systems that is part of the RCPB has been designed and inspected to ASME Code, Class 2, requirements. ASME Code, Class 2, systems are also very high quality systems. The basic difference between Class 1 and Class 2 designs is that Class 1 designs require a fatigue analysis. The basic difference between Class 1 and Class 2 inservice inspections (ISI) is that Class 1 ISI requires a more rigorous inspection of pipe supports, inspection of a greater portion of pipe welds and more frequent hydrostatic tests. In the present case, the licensee has performed an ASME Code, Class 1, piping stress analysis and concluded that stresses within this piping satisfy Class 1 piping stress criteria. The licensee has agreed to include this portion of the piping in the licensee's Class 1 ISI program, before the third refueling outage, to provide a more rigorous inspection of principal features of this system. Although these compensating inspection features will not be carried out for a few years, they will be adequate to detect defects in this portion of the system should they occur. Accordingly, with these compensating features, this portion of the piping system will be assured of a very high degree of integrity thus satisfying the underlying purpose of the rule.

IV.

The staff has evaluated information provided by the licensee to justify the exemption. As an alternative to the requirement for ASME Code, Class 1, RWCU system piping between valves F252 and F253, the licensee proposed the following in its exemption request:

- A. Augmenting the ASME Code, Section XI, Inservice Inspection (ISI) program by including the RWCU system piping through valve F253 in the Class 1 portion of the ASME Section XI ISI program, specifically by:
 - (1) adding supports for this section of RWCU system piping to the Class 1 support inspection,
 - (2) adding welds to the Class 1 program for volumetric and surface examination,
 - (3) including the system pressure boundary through valve F253 in the Class 1 hydrostatic test boundary, and
- B. Performing an ASME Code, Section III, Class 1 stress analysis for piping through valve F253.

The licensee is required to have documentation prior to the third refueling outage to support its November 25, 1987, commitments regarding an augmented inservice inspection. This is a reasonable length of time to complete this documentation because inservice inspection of these components would only be performed during a refueling outage. With regard to the ASME Code, Class 1, stress analysis, by letter dated December 23, 1987, the licensee provided the results of the stress analysis and concluded that the section of piping through valve F253 meets ASME Code, Section III, Class 1, allowable stress values.

The staff concludes that the licensee's proposed, augmented inservice inspection and ASME Code, Class 1, stress analysis are an acceptable alternative to full Class 1 compliance for the section of RWCU piping between valves F252 and F253, considering the burden that would result if the full ASME Code, Section III, Class 1, requirements were imposed. Accordingly, the staff finds an exemption from the requirements of paragraph 50.55a(c)(1) for this section of RWCU piping is proper.

V.

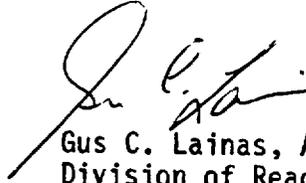
Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, an exemption is authorized by law and will not result in undue risk to the public health and safety and is consistent with the common defense and security. The Commission further determined that special circumstances, as provided in 10 CFR 50.12(a)(2)(ii), are present justifying the exemption, namely that application of the regulation in the particular circumstances is not necessary to serve the underlying purpose of the rule - to ensure integrity of the reactor coolant pressure boundary. Reactor coolant pressure boundary integrity is ensured by an analysis which demonstrated conformance to Section III of the ASME Code, Class 1, stress criteria and by inservice inspections meeting the requirements of Section XI of the ASME Code, Class 1, inservice inspection requirements.

The Commission hereby grants an exemption from the requirements of 10 CFR 50.55a(c)(1) for the section of RWCU system piping between valves F252 and F253 at the Grand Gulf Nuclear Station, Unit 1, provided that prior to the third refueling outage, Systems Energy Resources, Inc., incorporates the inservice inspection for this section of piping into the Class 1 portion of the GGNS, Unit 1, In-service Inspection Program.

Pursuant to 10 CFR 51.32, the Commission has determined that granting this Exemption will have no significant effect on the environment (52 FR 49217).

This exemption is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Gus C. Lainas, Acting Director
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 30th day of December 1987