Lewis Sumner
Vice President
Hatch Project Support

Southern Nuclear
Operating Company, Inc.
40 Inverness Parkway
Post Office Box 1295
Birmingham, Alabama 35201

Tel 205.992.7279
Fax 205.992.0341

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November 18, 1997

Docket Nos. 50-321
50-366

HL-5506

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

Edwin I. Hatch Nuclear Plant
Request for Information:
Verification of Adequate Wall Thickness for Mark I Torus Shells

Gentlemen:

By letter dated September 23, 1997, NRC staff requested a report of information based on the results of inspections of the Plant Hatch torus structures. The specific NRC requests and the Southern Nuclear Operating Company (SNC) responses are enclosed.

If you have any additional questions on this subject, please contact this office

Sincerely,

Lewis Sumner

H. L. Sumner, Jr.

IFL/eb

Enclosure: Request Response

cc: (See next page.)

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PDR ADOCK 05000321
G PDR

c: *Southern Nuclear Operating Company*
Mr. P. H. Wells, Nuclear Plant General Manager
NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. N. B. Le, Project Manager - Hatch

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

Enclosure

Edwin I. Hatch Nuclear Plant
Request for Information:
Verification of Adequate Wall Thickness for Mark I Torus Shells

NRC Request 1:

Report the design minimum wall thicknesses in the following locations:

- Vicinity of the torus-to-ring girder support welds
- At the air-water interface
- Submerged areas

SNC Response:

The Plant Hatch torus shell design wall thickness was specified by Chicago Bridge & Iron Company (CBI) for the top half and bottom half only.

Unit 1: The original design wall thicknesses of the upper and lower halves of the torus shell are listed below. The minimum wall thicknesses listed below were calculated by General Electric (GE) in an analysis performed in February, 1990. The GE analysis was based on the Plant Hatch Mark I Containment Long-Term Program, Plant Unique Analysis Report (PUAR).

	Top	Bottom
Design Wall Thickness (inch)	0.54	0.60
Minimum Calculated Wall Thickness (inch)	0.31	0.44

Unit 2: The original design wall thicknesses of the upper and lower halves of the torus shell are listed below.

	Top	Bottom
Design Wall Thickness (inch)	0.54	0.607

NRC Request 2:

The method/criteria for determining the design thicknesses for these locations.

SNC Response:

The Unit 1 torus shell was designed by CBI in accordance with the requirements for Class B vessels of the ASME Boiler and Pressure Vessel Code, Section III, including Summer 1966 Addenda and Code Cases 1177-5, 1130-1 and 1413.

The Unit 2 torus shell was designed by CBI in accordance with the 1971 ASME Code Section III, Subsection NE, including the Summer 1971 Addenda, and Code Cases 1177-7, 1330-3, 1431-0, 1443-1, and 1517.

NRC Request 3:

The actual measured thicknesses in these locations.

SNC Response:

S. G. Pinney & Associates Inc. (SGPAI) has performed desludging, coating inspections, and coating repairs on the interior of the torus in Unit 1 and Unit 2. The inspections included a "Quantitative Pit Depth Inspection" to determine that minimum wall thickness has been maintained in the submerged area.

For Unit 1, the maximum pit depth recorded was 0.031" in the bottom half, with an average being 0.014". No substantial pitting was observed in the upper half.

Subsequent to receipt of the NRC request, SNC performed sample Ultrasonic Testing of a grid, randomly selected on the bottom of the Unit 1 torus. These examinations were performed in order to assess the viability of UT thickness examinations on the torus submerged surface, as part of establishing the new Plant Hatch IWE containment inspection program. The results indicated that the wall thickness is well in excess of the required minimum wall and the design wall thickness. The minimum thickness recorded was 0.643 inches, which is indicative of manufacturing tolerances and the available plate material at the time of construction.

For Unit 2, the maximum pit depth recorded was 0.037" in the bottom half. No substantial pitting was observed in the upper half.

NRC Request 4:

The condition of the coatings on the inside of the torus.

SNC Response:

Upon completion of the quantitative inspections, areas of pitting corrosion identified in the submerged areas of the torus in both Unit 1 and Unit 2 were repaired.

SGPAI inspection of the Unit 1 vapor space (above the water line) revealed that approximately 10% of the coating exhibits pinpoint rusting to general surface corrosion as a result of the depletion of the inorganic zinc coating in isolated areas. The corrosion is general surface rust with no pitting and very little metal loss.

SGPAI inspection of the Unit 2 vapor space revealed that the Unit 2 coating is performing well, with no evidence of significant coating degradation or failure. There are isolated areas of pinpoint and uniform corrosion of substrate. The total surface area of substrate corrosion is less than 1% of the total vapor space. No substantial pitting was observed.

NRC Request 5:

The dates when these measurements and/or observations were made.

SNC Response:

The Unit 1 inspections and coating repairs of the submerged areas were initiated in the Spring 1990 outage and completed in the Spring 1996 outage. The vapor space of the Unit 1 torus was inspected by SGPAI in Spring, 1990, re-inspected in Fall, 1994 and inspected by plant personnel, per plant procedure in Spring, 1993, Fall, 1994, Spring, 1996, and Fall 1997.

The Unit 2 inspections and coating repairs of the submerged areas were initiated in the Spring 1991 outage and completed in Fall 1995 outage. The Unit 2 vapor space was inspected by SGPAI in Spring, 1991 and inspected by plant personnel, per plant procedure in Spring, 1992, Fall, 1993, Spring, 1994, Fall, 1995, and Spring, 1997.