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SOUTHERN COMPANY
Energy to Serve Your World℠

April 18, 2003

Docket No.: 50-348

NL-03-0865

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Joseph M. Farley Nuclear Plant – Unit 1
Supplemental Information for
Relaxation Request to Order EA-03-009

Ladies and Gentlemen:

NRC Order EA-03-009, issued February 11, 2003, established interim inspection requirements for reactor pressure vessel (RPV) heads at pressurized water reactors. On March 3, 2003, Southern Nuclear Operating Company (SNC) submitted an Answer to this Order. This SNC submittal included a request for relaxation of item IV.C.(1)(b)(i) of the Order with respect to performing ultrasonic testing (UT) extending to the bottom of each penetration nozzle at the Farley Nuclear Plant (FNP) because external threads and an internal taper at the bottom end of each 4" diameter nozzle limit the lower extent of such examination. A second submittal on April 11, 2003 provided responses to questions from the NRC staff relating to this pending relaxation request.

In an April 15, 2003 phone call with the NRC staff, SNC summarized the results obtained from inspections recently performed on the top and bottom RPV heads at Unit 1 of the Farley Nuclear Plant (FNP). These inspections included a 100% bare metal visual examination of the outer surface of the top head, a best-effort visual examination of the outer surface of the bottom head, and non-destructive examination (NDE) of the penetration nozzles in the top head. No evidence of head material wastage or of leaking or cracked nozzles was found. A detailed report of these inspections will be submitted in accordance with the requirements of the Order.

In the cited call, SNC noted that for 13 of the 69 – 4" diameter nozzles, ultrasonic test (UT) data could not be acquired below the weld to the extent expected (i.e. down to just above the external threads) despite repeated scanning attempts. For all 69 of the 4" diameter nozzles, however, UT coverage was achieved from a minimum of 2.0" above the top of the weld down to more than 1.0" below the bottom of the weld. The UT coverage achieved was therefore consistent with the coverage expectations stated in SNC's April 11, 2003 submittal.

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The particular nozzles where the most limited UT coverage below the weld occurred differed from the expectations provided in Table 1 of SNC's April 11, 2003 submittal, but the stress analysis described in that submittal remains bounding. That analysis assumed a through-wall axial flaw at 0.5" below the weld, a higher stress location well within the examined volume for all nozzles, and showed that approximately 5 years of plant operation would be required for such a flaw to grow into contact with the weld and even longer to grow upwards through the pressure boundary. Moreover, for all nozzles eddy current test (ECT) coverage was achieved extending down to the internal taper of the nozzle (about 0.6" below the expected lower limit for UT coverage and 0.75" above the bottom of the nozzle), thus providing assurance that no significant surface flaws exist in this zone.

The enclosed table lists the 13 nozzles where UT coverage did not extend down to the external thread shoulder for a full 360^{o} around the nozzle, along with the location on each nozzle of the point closest to the weld unexamined by UT. In the April 15, 2003 phone call, the staff requested that SNC identify the maximum stress in the volume unexamined by UT for any of these nozzles. The information in the enclosed table and the stress profile curves provided in SNC's April 11, 2003 submittal were used to determine a bounding stress for each case. The highest stress location is for nozzle 35, where UT data acquisition was lost at 1.38" below the weld at a point on the downhill side. Per the appropriate curve, the maximum hoop stress at this point is below 3,000 psi. For all the other locations where UT data could not be acquired the stress levels are lower or are compressive.

SNC requests approval of the subject relaxation to support completion of the Farley Unit 1 reactor head inspection activities (currently scheduled for April 21, 2003).

Mr. J. B. Beasley, Jr. states he is a Vice President of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

This letter contains no NRC commitments. If you have any questions, please advise.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

J. B. Beasley, Jr.

Sworn to and subscribed before me this 18th *day of* April, *2003.*

Notary Public

My commission expires: 11/10/06

JBB/DWD/sdl

Enclosure: 1. FNP Unit 1 Spring 2003 RPV Head Inspection UT Coverage Deviations

cc: Southern Nuclear Operating Company
Mr. J. D. Woodard, Executive Vice President
Mr. D. E. Grissette, General Manager – Plant Farley
Document Services RTYPE: CFA04.054; LC# 13765

U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Mr. F. Rinaldi, NRR Project Manager – Farley
Mr. T. P. Johnson, Senior Resident Inspector – Farley

Alabama Department of Public Health
Dr. D. E. Williamson, State Health Officer

Enclosure

Joseph M. Farley Nuclear Plant – Unit 1

Supplemental Information for
Relaxation Request to Order EA-03-009 Item IV.C.(1)(b)(i)

FNP Unit 1 Spring 2003 RPV Head Inspection UT Coverage Deviations

Nozzles for which 360° UT Coverage
Down to the External Thread Shoulder Was Not Achieved

(Dimensions are based on measurements of the UT exam traces.)

Nozzle #	Weld Angle	Minimum UT Coverage Achieved Measured from the bottom of the weld down to the closest point of UT data loss.	Azimuth of Point of Minimum UT Coverage Expressed in degrees clockwise (looking down) with 0° at the maximum downhill point.
22	25.4°	1.31"	346°
35	28.6°	1.38"	348°
36	28.6°	3.88"	138°
45	33.1°	1.26"	27°
46	37.3°	4.02"	174°
49	37.3°	1.73"	300°
50	38.6°	1.80"	80°
53	38.6°	4.28"	130°
54	38.6°	4.06"	156°
55	38.6°	1.13"	20°
64	42.6°	4.08"	136°
66	42.6°	4.70"	146°
68	42.6°	4.32"	236°