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Georgia Power
the southern electric system

L. T. Gucwa
Manager Nuclear Engineering
and Chief Nuclear Engineer

NED-84-626

December 19, 1984

Director of Nuclear Reactor Regulation
Attention: Mr. John F. Stolz, Chief
Operating Reactors Branch No. 4
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

NRC DOCKET 50-321
OPERATING LICENSE DPR-57
EDWIN I. HATCH NUCLEAR PLANT UNIT 1
SUPPLEMENTAL INFORMATION ON IGSCC EVALUATIONS

ATTENTION: W. Hazelton

Gentlemen:

In a December 17, 1984 telephone conference between Mr. W. Hazelton and Mr. R. Hermann of the NRC staff and representatives of Georgia Power Company (GPC) regarding repairs to welds in recirculation system piping at Plant Hatch, a request was made by Mr. Hazelton for additional information on the Intergranular Stress Corrosion Cracking (IGSCC) evaluations which have been performed. The information requested concerned those flawed welds which have been shown by analysis to be acceptable without repair, with emphasis on the 12"-to-22" sweepolet-to-header welds. GPC hereby submits the following information in response to that request.

WELD 22-BM-1BC-1

FLAWS IDENTIFIED:

- 7.5 inches (in length) by 11% (maximum depth through the wall thickness) circumferential indication located at approximately "1:30" seen as if a clock face ("12:00" is toward reactor vessel and "3:00" is toward end cap);
- 4.2 inches by 17% circumferential indication located between "3:30" and "4:30";
- 1 inch by 29% circumferential indication located at "5:00"; and
- 15% spot indication located at "8:00".

B001
A

FLAWS ASSUMED FOR ANALYSIS

- 13 inches by 30% circumferential located at "3:00".

STRESSES DUE TO APPLIED LOADS/SSE LOADS:

The stresses resulting from applied loads are provided in Attachment A. The stresses provided are derived from conservative assumptions and bound the stresses associated with SSE for this weld as well as 22-AM-1BC-1.

RESIDUAL STRESS ASSUMPTIONS:

Two residual stress cases were assumed -

- Typical stresses due to a 22 inch butt weld;
- Zero residual stresses (sweepolet-to-header welds were solution annealed).

WELD 22-AM-1BC-1

FLAWS IDENTIFIED: (the clock definition is the same as for 22-BM-1BC-1)

- 6.6 inches by 11% circumferential indication located at "2:00";
- 8% spot indication located at "5:00",
- 18% spot indication located at "6:00",
- 10% spot indication located at "8:00";
- 2.2 inches by 8% circumferential indication located at "9:00"; and
- 8% spot indication located at "11:00"

The analysis for 22-AM-1BC-1 is bounded by the analysis for 22-BM-1BC-1.

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WELDS 28-A-6 AND 28-B-16

These welds each had a single axial flaw identified as follows:

28-A-6	0.5 inch by 16% axial indication, and
28-B-16	1 inch by 17% axial indication.

These indications were analyzed using a residual stress pattern due to the original weld which was analytically derived for the hoop direction.

All of the above flaws were evaluated by analytically projecting the growth of the flaw for an 18-month fuel cycle and comparing the resulting end of cycle flaw with 2/3 of the allowable "a/t" from IWB-3641, Section XI of the ASME code. Crack growth was calculated using a conservative crack growth law which was derived from data contained in NUREG-1061.

If you have questions regarding the information, please contact Mr. James Edwards at (404) 526-7011

Yours very truly,

L. T. Gucwa

WEB/mb

Attachment

xc: H. C. Nix, Jr.
J. P. O'Reilly (NRC- Region II)
Senior Resident Inspector
J. A. Edwards
W. D. Drinkard

NED-84-626
Attachment A

PLANT HATCH

Summary of Total Stresses

Weld Identification	Maximum Stresses (PSI)				Total Stress (PSI)	
	σ_{DW}	σ_{TH}	σ_{seis}	σ_{press}	$\sigma_{DW} + \sigma_{TH} + \sigma_{press}$	$\sigma_{DW} + \sigma_{seis} + \sigma_{press}$
12AR-K-3	489	1855	2892	7436	9780	10817
28-A-10	408	492	1647	6755	7655	8810
28-B-11	494	492	1618	6755	7741	8867
*** 22-BM-1BC-1(1)	61	1588	903	7288	8937	8252
*** 22-AM-1BC-1(1)	145	1588	906	7288	9021	8339
12-AR-H3	731	2915	2358	7436	11082	10525
24-A-13	1036	5111	4350	7749	13896	13135
12-BR-C3	419	2915	2146	7436	10770	10001
12-BR-D3	453	1497	2527	7436	9386	10416
12-BR-E2	442	1200	2225	7436	9078	10103
12-BR-E3	679	1855	3190	7436	9970	11305
12-AR-K2	419	1200	2064	7436	9055	9919
28-B-3	828	1093	1559	5819	7740	8206
28-B-4	568	917	1652	5819	7304	8039
12-AR-F2	415	3260	1936	7436	11111	9787
12-AR-H2	646	1481	1720	7436	9563	9802
12-AR-J3	232	1497	2220	7436	9165	9888
12-BR-C2	534	1481	2032	7436	9451	10002
12-AR-F3	756	4215	2997	7436	12407	11189
28-B-16(2)	--	--	--	--	--	--
28-A-6(2)	--	--	--	--	--	--

Notes:

(1) Sweepolet Welds
(2) The flaws on these were axial only and the only applied stress is the hoop component of pressure stress.