



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-424/85-18 and 50-425/85-18

Licensee: Georgia Power Company
P. O. Box 4545
Atlanta, GA 30302

Docket Nos.: 50-424 and 50-425

License Nos.: CPPR-108 and CPPR-109

Facility Name: Vogtle 1 and 2

Inspection Conducted: May 1, 1985

Inspector: R. W. Newsome
R. W. Newsome

5-6-85
Date Signed

Approved by: J. J. Blake
J. J. Blake, Section Chief
Engineering Branch
Division of Reactor Safety

5/7/85
Date Signed

SUMMARY

Scope: On May 1, 1985, a technical meeting was held with Georgia Power Company (GPC) and Southern Company Services (SCS) representatives in the Region II Office for the purpose of providing GPC an opportunity to demonstrate the capability of their ultrasonic examination procedure and equipment to detect actual flaws and artificial reflectors in Region II's Centrifugally Cast Stainless Steel (CCSS) test specimens. GPC was successful in detecting the I.D. reflectors, including cracks. Region II's CCSS test specimens represented examination conditions similar to those that GPC will experience during the examination of the Vogtle facility stainless steel reactor coolant loop piping. Therefore, GPC's procedure, and ultrasonic equipment have demonstrated conservative detection capability for the preservice examination at the Vogtle facility.

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REPORT DETAILS

1. Persons Contacted

Licensee Employee - Georgia Power Company (GPC)

J. A. Edwards, Senior Regulatory Specialist

Other Organization - Southern Company Services (SCS)

T. N. Epps, Manager, SCS Inspection, Testing and Engineering (ITE)

J. M. Davis, NDE Supervisor Level III, SCS

A. Maze, NDE Level III Senior Inspector, SCS

2. Technical Issues Involved

GPC and SCS personnel identified in paragraph 1 above, visited the Region II Office on May 1, 1985, to demonstrate the capability of their ultrasonic examination procedure and equipment to detect, locate, and size actual crack flaws propagating from the pipe inside diameter in Centrifugally Cast Stainless Steel (CCSS) using a refracted longitudinal wave transducer. The refracted longitudinal wave transducer currently is the only practical method of inspecting difficult-to-penetrate weld volumes and most cast stainless steels. However, the refracted longitudinal wave mode suffers significant mode conversion when interfacing with corner type reflectors such as I.D. pipe cracks. Therefore, GPC wanted to test their procedure and equipment detection capability prior to the start of their preservice baseline examinations at the Vogtle Unit 1 facility.

Region II provided the CCSS specimens for the GPC performance demonstration test. All cracks and artificial reflectors were concealed so that the licensee had no prior knowledge of their location. GPC used a Krautkramer-Branson USL-38 instrument and dual 1 MHz by one inch transducers. The transducers had lucite wedges ground to fit the contour of the reactor coolant loop piping and were designed such that the ultrasonic sound beam was focused at a specific metal path distance.

SCS performed the actual examination of the test specimen and Region II personnel provided guidance and monitored the ultrasonic instrument calibration and subsequent crack detection techniques used by the participants. After the participants had completed the examination of the weld sample, the I.D. cracks were revealed to the licensee by removing the masking material and performing a liquid penetrant test on the sample.

3. Meeting Conclusions

During the technical meeting at the Region II Office, GPC successfully demonstrated the capability of their ultrasonic examination procedure and equipment to detect actual flaws in the volume subject to examination.