DUKE POWER COMPANY
POWER BUILDING
422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28242

WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

TELEPHONE: AREA 704
373-4083

December 15, 1981

Mr. James P. O'Reilly, Director
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Re: McGuire Nuclear Station
Unit 2
Docket No. 50-370

Dear Mr. O'Reilly:

Pursuant to 10 CFR 50.55e, please find attached Significant Deficiency Report SD 370/81-06 (final) concerning radiographic film for reactor vessel CRDM welds supplied by Westinghouse not meeting the requirements of ASME Section III Appendix IX. An interim report was submitted by my letter dated July 2, 1981.

Very truly yours,

William O. Parker, Jr.

PBN:ls
Attachment

cc: Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. P. R. Bemis
NRC Resident Inspector
McGuire Nuclear Station

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DUKE POWER COMPANY
MCGUIRE NUCLEAR STATION
SIGNIFICANT DEFICIENTY

Report Number: SD-370/81-06 (final)

Report Date: December 15, 1981

Facility: McGuire Nuclear Station Unit #2

Identification of Deficiency: Radiographic film for reactor vessel CRDM housing welds supplied by Westinghouse does not meet the requirements of ASME Section III, Appendix IX.

Description of Deficiency: On June 3, 1981, Messrs. W. O. Henry, J. K. Berry and J. E. Cavender advised Mr. J. Bryant of NRC, Region II, of this deficiency.

On June 24, 1981, Westinghouse determined that eleven (11) RT films at McGuire exceeded the film density requirement, and also one film for a CRDM housing weld could not be located in the records.

Evaluation of Deficiency: Westinghouse fabricated a mock-up of the CRDM housing welds and radiographed the mock-up using the same RT technique that was used originally. Artificial discontinuities were introduced in the mock-up which consisted of a 1/32 inch (0.032 inch) groove and a 1/16 inch (0.063 inch) diameter hole.

The essential features of the IQI (penetrameter) and the artificial flaws were clearly discernable in the radiographs of the mock-up.

Westinghouse radiographed the eleven (11) CRDM housing welds at McGuire and also radiographed the one weld for which no radiograph could be located. No rejectable indications were detected by this examination.

Indications of porosity of approximately 1/65 inches (0.016 inches) were discernable in some instances on some of the film. This information verified that the radiographic technique is sufficiently sensitive to detect discontinuities which would be considered rejectable for these welds even though all the essential parameters of radiography may not have been met.

In addition, Westinghouse performed a fracture mechanics evaluation of the welds which indicates that a very large flaw would be necessary to cause failure of the weld. (The Westinghouse report "Rotterdam Drydock Reactor Vessel CRDM Weld Radiography" was submitted to the NRC via letter NS-EPR-2523, E. P. Rahe to R. C. DeYoung, dated November 25, 1981.) Therefore, we conclude that these welds would not have failed.

Corrective Action: These radiographs were produced approximately 8 to 10 years ago. We do not anticipate receiving any other radiographs produced by this organization (RDM). All other radiographs, which were produced by RDM on these two vessels, were reviewed and no other discrepancies were detected. No other action is planned.