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U. S. NUCLEAR REGULATORY COMMISSION
Document Control Desk
Washington, D. C. 20555

Attention: Mr. Dave Wagner, Project Manager
Project Directorate III-3

Gentlemen:

DOCKETS 50-266 AND 50-301
INSPECTION REPORT 266/87023(DRS); 50-301/87021(DRS)
EXAMINATION OF STEAM WELD IN
MAIN REACTOR COOLANT PIPING ELBOWS
POINT BEACH NUCLEAR PLANTS, UNITS 1 AND 2

This information is provided in response to the request of Mr. J. F. Schapker of Region III. The information provided herein is related to Mr. Schapker's Inspection Report 50-266/87023(DRS); 50-301/87021(DRS), which was forwarded by Mr. J. J. Harrison's letter of December 17, 1987, and unresolved items 301/87021-01 and 266/87009-01.

In April 1987 we became aware that the 31-inch diameter, 90-degree elbows in both the Unit 1 and Unit 2 reactor coolant system may have been fabricated by welding two castings together. There are a total of four of these elbows in each unit, two in each loop. Each of the 31-inch diameter, 90-degree elbows supplied by ESCO Corporation to Westinghouse Electric Corporation for use at Point Beach were manufactured with two longitudinal welds joining the two-piece austenitic stainless steel castings together. ESCO Corporation utilized the electro-slag welding process in its manufacturing process. Based on the knowledge that these fittings may contain longitudinal welds, we initiated a non-conformance report (NCR) to track our investigation and document our action. This NCR is being tracked as an open item by our NRC Resident Inspector. Based upon the corrective action delineated in this letter, we will be closing the NCR.

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Our initial investigation determined that none of these longitudinal fitting welds were included in our ASME Section XI, Inservice Inspection Plan. These welds would be ASME Section XI Category B-J and Item B9.12. The extent of examination required is at least a pipe-diameter, but not more than 12 inches of each longitudinal weld intersecting the circumferential welds required to be examined. Our records showed that four intersecting circumferential welds had been examined for Unit 1, and three intersecting circumferential welds had been examined for Unit 2. The ISI record for the circumferential welds indicated that no examination of the longitudinal welds had been performed.

During the April/May 1987 outage of Unit 1, we attempted to verify the existence of the welds and determine their location. We removed the insulation from one elbow and carefully examined the surface visually. The flush ground surface of the elbow did not allow locating the weld visually; therefore, a macro etch of the suspect areas was performed. This effort was also inconclusive, since the etching did not reveal the location of the longitudinal welds.

Additional investigation produced radiographs and sketches of the cast fittings that identified longitudinal seam welds and showed their approximate location. These sketches indicate that the weld should be located in the same areas of the elbows that show evidence of grinding (apparent removal of weld reinforcement). Based upon this evidence, we concluded that our 31-inch, 90-degree elbows were fabricated with longitudinal welds. The longitudinal welds have been incorporated into the ASME Section XI, ISI Plan. This was done in a manner that will include examination of the longitudinal welds that intersect with the scheduled circumferential welds. Additionally, longitudinal welds that intersect with previously examined circumferential welds will be examined during the next available outage of each unit.

During the October/November 1987 outage of Unit 2, the longitudinal welds that intersect with the three previously examined circumferential welds were examined both by the liquid dye penetrant (surface) and ultrasonic (volumetric) methods. These examinations produced the following results:


1. No surface flaws were observed as a result of the liquid dye penetrant examination.
2. No internal flaws were identified in the weld and base material examined by the ultrasonic method.

3. The 31-inch, 90-degree elbows are cast stainless steel which produces poor signal-to-noise ratios due to the metallurgical grain structure. It is believed that flaws within the outside 3/4 T (2-1/4" of thickness) would have been identified. Results of the inside 1/4T (3/4" of thickness) are questionable, since the ID notch of the calibration standard could not be resolved during the examination.

Examinations of the longitudinal welds in the 31-inch, 90-degree elbows of Point Beach Unit 1 that should have previously been examined are scheduled for the spring 1988 outage. These welds will also be incorporated into the normal ISI program. It is our intent to improve, if possible, the examination techniques to provide better coverage of the required weld volume.

We recognize that ultrasonic examination techniques of cast stainless steel materials have not been proven reliable and, for this reason, several nuclear power plants have received relief from these examination requirements. While we recognize the difficulties associated with the techniques involved in this task, we do not plan to ask for relief at this time.

Very truly yours,


C. W. Fay
Vice President
Nuclear Power

Copies to NRC Resident Inspector
NRC Regional Administrator - Region III
Attention: Mr. J. F. Schapker