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50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana & 05000316
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RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Requests relief from provisions of ASME Section XI - 1974, Table IWB-2500 exam Categories B-L-1 & B-L-2 for reactor coolant pump.

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March 8, 1984
AEP:NRC:0070M

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
Inservice Inspection Program - Code Relief

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

This submittal is made pursuant to Title 10 of the code of Federal Regulations, Part 50.55a (g) (6) (i), and requests code relief from the provisions of ASME Section XI - 1974, Table IWB-2500 examination categories B-L-1 and B-L-2 for the reactor coolant pump. Section XI, category B-L-1, covers volumetric examination of 100% of the pressure-retaining welds and category B-L-2 covers visual examination of the internal pressure boundary surfaces. These examinations are required for at least one of a group of pumps performing similar functions in the system. Section XI indicates that these examinations may be performed at or near the end of the inspection interval. Indiana & Michigan Electric Company requests relief from the above categories of examinations for the Donald C. Cook Nuclear Plant. The basis for requesting code relief is that the substantial radiation exposure that the inspection personnel will incur and the substantial costs involved do not justify the possible information that might be gained about the weld and adjacent base metal.

The pump casing is made from ASME SA-351, Grade CF-8M, a cast austenitic stainless steel that has a long history of satisfactory service in handling fluids. The casing was made in two sections to facilitate the casting process and the two sections are welded together with a matching filler material. Welding case CF-8M material to repair imperfections is a routine practice for almost all CF-8M castings, except those of simple configuration and small size. The material has good fracture toughness, and unlike ferritic steels, is not subject to fracture prevention criteria.

Volumetric examination will require a substantial number of radiographic exposures that will require complete disassembly of the pump (Figure 1). Disassembly of the pump, storage of the internals, and placement of film will expose personnel to substantial radiation. From experience at other nuclear plants examining reactor coolant pumps, personnel exposure could be in the range of between 35 to 100 man-rem.

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Based on cost incurred by other nuclear plants, this pump examination cost is estimated to be about $500,000, which does not include costs associated with unit unavailability should this examination require extending an outage.

The examination will require disassembly of a pump under adverse conditions where there is a possibility of causing damage to the pump internals. There is no other reason to disassemble any of these pumps other than to perform these examinations. This examination will also require handling the reactor vessel upper internal assembly an addtional time, as the upper internals will have to be put back into the reactor vessel to minimize airborne radiation while the pump examination is performed.

Radiographic examination of similar welded reactor coolant pumps has been performed at a number of plants. The radiography has been acceptable and the volumetric examination has not shown any deterioration in the welds. We understand that code relief has been granted by the NRC from volumetric examination for other reactor coolant pumps, and that this examination and its frequency is being studied by EPRI and the ASME B&PV Code groups.

As an alternate to the B-L-1 and B-L-2 examination, a visual examination will be performed on the external surfaces of one pump during the hydrostatic pressure tests. In addition, a surface examination will be performed on this pump on the accessible external surface of the weld.

If a pump has to be disassembled for maintenance, a visual examination will be made of the internal surfaces to satisfy the B-L-2 code requirement and the volumetric examination to the B-L-1 requirement reevaluated at that time.

Based on the foregoing, we believe that the radiation exposure and costs for this examination do not justify performing the volumetric examination to meet the requirements of categories B-L-1 and B-1-2 and, therefore, we are requesting a code relief for the Coolant Pump weld inspection.

This document has been prepared following Corporate procedures which incorporate a reasonable set of controls to insure its accuracy and completeness prior to signature by the undersigned.

Very truly yours,

M. P. Alexich
Vice President

EBK 3/7/84

MPA/cam

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R. C. Callen
G. Charnoff
E. R. Swanson, NRC Resident Inspector - Bridgman

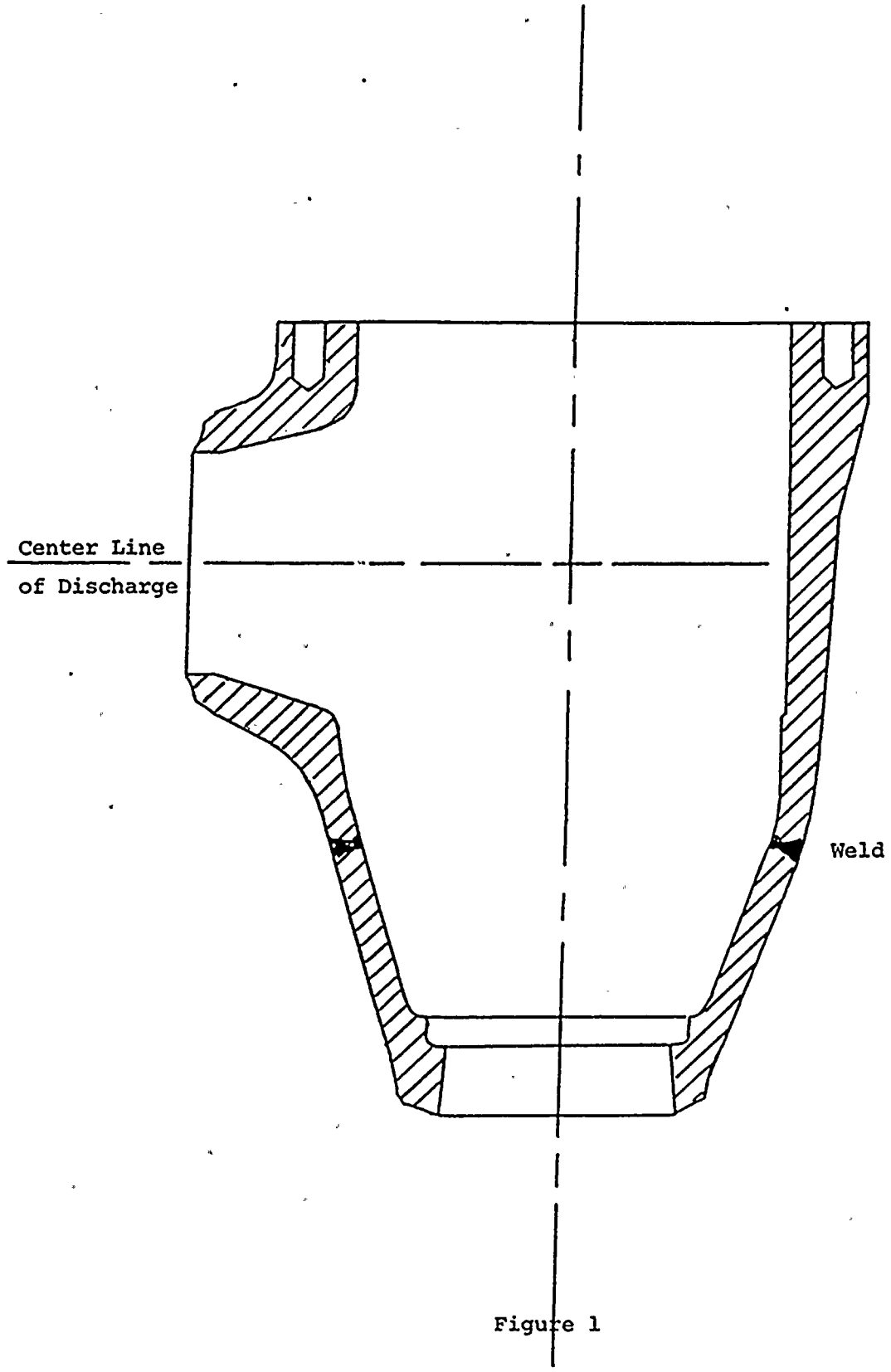

Figure 1

Reactor coolant pump casing cross-section showing location of weld.