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HAMPTON,J.W. Duke Power Co.
RECIP.NAME RECIPIENT AFFILIATION
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SUBJECT: Forwards third ten-year inservice insp interval request for relief 97-03 which will permit plant to credit alternative tests & insps.W/one oversize drawing.

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CATEGORY 1 DOCUMENT

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(864)885-3499 Office
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DUKE POWER

June 17, 1997

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Subject: Duke Power Company
Oconee Nuclear Station, Unit 3
Docket No. 50-287
Third Ten Year Inservice Inspection Interval
Request for Relief No. 97-03

Pursuant to 10 CFR 50.55a (g)(5)(iii), attached is a Request for Relief from ASME Section III, 1989 Edition, with no Addenda. Performance of the code required radiographic examination on a weld joint for the Unit 3 High Pressure Injection System 3A recirculation orifice is not practical since 100% coverage cannot be achieved due to component geometry, joint configuration, and interferences. This request for relief is to permit Duke Power to credit alternative tests and inspections which provide an acceptable level of quality and safety in lieu of the required ASME Section III tests and inspections on the weld joint for the Unit 3 High Pressure Injection System 3A recirculation orifice.

Duke has performed ultrasonic and liquid penetrant testing to supplement the results of the limited radiographic examination. Duke believes that the ultrasonic and liquid penetrant testing, in addition to the limited radiographic testing, provides an adequate level of assurance of component integrity following repair.

A047

240063

Drawing located in Central Files

If there are any questions or further information is needed you may contact D. A. Nix at (864) 885-3634.

Very truly yours,

J. W. Hampton for
Site Vice President

Attachment

xc (w/attch): Mr. D. E. LaBarge, Project Manager
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Mr. L. A. Reyes
Regional Administrator, Region II
U. S. Nuclear Regulatory Commission

xc(w/o attch): Mr. M. A. Scott
Senior NRC Resident Inspector
Oconee Nuclear Station

Mr. Max Batavia
Bureau of Radiological Health
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2600 Bull St.
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OCONEE NUCLEAR STATION

Unit-3

Third Ten Year Inspection Intervals

Request # 97-3

1. Component for which relief is requested

(a) Name and Number:

High Pressure Injection Pump (HPI) 3A Minimum Recirculation Orifice Assembly Shell Weld 3-HPI-262-45
Alloy ASTM A276 Type 316
Serial number 90188 Part number CPM9428

(b) Function:

The HPI minimum recirculation orifice assemblies protect the HPI pumps in the event that a header throttle valve fails to open. Each HPI pump has two orifice assemblies in series that combined are designed to pass approximately 30 gpm at dead head conditions. The minimum recirculation orifice assemblies are important to safety for three basic reasons:

a) Orifices with sufficient blockage could cause the loss of an HPI pump during an accident if the train throttle valve fails to open in an ES event.
b) Severely damaged orifices could pass too much flow and reduce the HPI flow rate to the RCS during certain accident scenarios.
c) The outer orifice shell assembly functions as the system pressure boundary.

(c) ISI Class/Duke Class:

ISI Class 2 / Duke Class B

(d) Construction Code and Class:

The HPI Pump minimumrecirculation orifice assembly was constructed to the Nuclear Power Piping Code USAS B31.7-1969.

The replacement weld was performed under the rules of USAS B31.7-1969 and ASME Code Case N-416-1 which invokes ASME Boiler & Pressure Vessel Code Section III, class 2 (1992 Edition with no Addenda) for the Nondestructive Testing requirements and Section XI (1992 Edition with no Addenda) for the Pressure Testing requirements.

(e) Reference documents

Flow Diagram OFD 101A-3.3 Manufacturer's drawing OM-243-0058

2. Reference Code Requirement that has been determined to be impractical

The 1992 Edition of ASME Boiler and Pressure Vessel Code Section III, paragraph NC-5222, specifies a radiography examination for all butt welded joints.

3. Basis for requesting relief

Duke Power Company has determined that the requirements of a 100% radiography examination is impractical for the 3 inch weld 3-HPI-262-45 per 10CFR 50.55a section (g)(5)(iii). Weld 3HPI-262-45 is the circumferential butt weld which reconnects the orifice shell. This weld resulted from cutting open the orifice assembly to repair the orifice internals. Radiography coverage of this weld reconnecting the orifice shell was incomplete due to the partial masking from an adjacent internal structural weld and the first orifice plate, resulting in a limited exam. This geometric configuration resulted from cutting open the orifice assembly shell too close to the internal structural weld. Although only a limited exam of the weld was achieved, a majority of the weld including the root was acceptable per the radiographic sensitivity requirements.

4. Alternate Examination

Duke Power Company proposes use of ultrasonic and liquid penetrant examinations in addition to the limited radiography examination. For a similar weld configuration, ultrasonic and liquid penetrant examinations are used to meet the requirements of ASME Section III paragraph NC-5279. These additional examinations along with the limited radiography examination will provide an acceptable level of quality and safety in lieu of the required ASME Section III 100% radiography examination and the health and safety of the general public will not be diminished.

Additionally, the actual weld thickness (0.65 inches) is more than twice the minimum calculated wall thickness (0.3 inches) for system design pressure and temperature. Therefore, significant safety margin exists with the construction of the weld.

5. Justification for granting relief

Ultrasonic examination is a recognized alternate volumetric to radiography examination. The ultrasonic examination will provide reasonable assurance that no unallowable flaws exist in the subject weld. Thus an acceptable level of quality and safety have been achieved and public health and safety will not be endangered by allowing the alternate Ultrasonic and liquid penetrant examinations, along with the limited radiography examination, in lieu of the Code required 100% radiography examination.

6. Implementation Schedule

The limited radiography exam was performed on 5-24-97. The liquid penetrant examination and ultrasonic examination were performed on 6-5-97.

Requested By: _____ Date: 6.17.97

Reviewed By: _____ Date: 6-17-97

QA Reviewed: _____ Date: 6-17-97

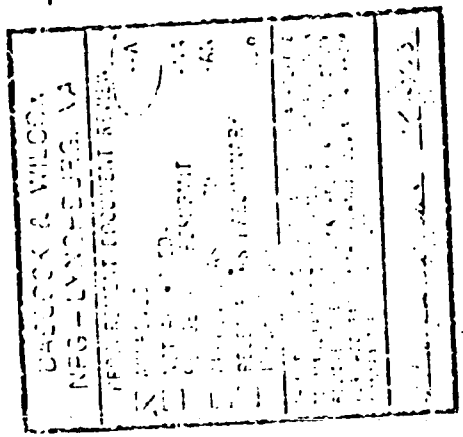
Approved By _____ Date: 6-17-97

QA CONDITION 1

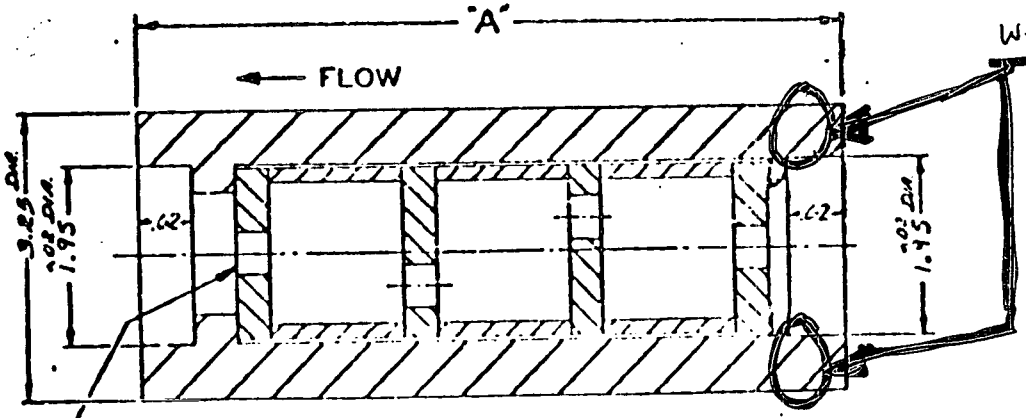
NUCLEAR SAFETY RELATED

APPROVED
DUKE POWER CO.
DATE 12-8-81
F. R. JACKSON
By: MECHANICAL DIVISION

DOCUMENT CONTROL DATE
DEC 1 1981
DUKE POWER COMPANY
DESIGN ENGINEERING



DRG. NO.	NO. OF ORIF.	"A"
C-200D438RX2	3	6.12
C-200D438RX3	4	8.00
C-200D438RX4	5	9.88
C-200D438RX5	6	11.75
C-200D438RX6	7	13.62
C-200D438RX7	8	15.50
C-200D438RX8	9	17.38
C-200D438RX9	10	19.25
C-200D438RX10	2	4.25



SIZE OF HOLES AND QUANTITY OF PLATES TO SUIT CONDITIONS. FOR QUANTITY OF PLATES, SEE ABOVE TABULATION

• UP-STREAM BYPASS ORIFICE
10 PLATES @ 3/16 INCH THK
1½ INCH SOCKET WELD ENDS
SHELL MATL - ASTM A276 TP 316
CPM-9-42B - C-200D438RX9

NOT SUITABLE FOR MICROFILM

35 40 022 00

FOR INFORMATION ONLY

OM 243-0058

ORIFICE FOR 1½ SOCKET WELD END

Ingersoll-Rand
CAMERON PUMP DIVISION
PHILLIPSBURG, N. J. U.S.A.

200-ORIFICE ASSEMBLY

C-200D438RX