

OCONEE NUCLEAR STATION UNIT 2  
INSERVICE INSPECTION PROGRAM  
(FOR 1978 - 1981 PERIOD)  
SUBMITTAL DATED SEPTEMBER 21, 1977  
SAFETY EVALUATION REPORT  
ENGINEERING BRANCH  
DIVISION OF OPERATING REACTORS

The Engineering Branch, Division of Operating Reactors, has reviewed and evaluated the Inservice Inspection Program (excluding pumps and valves) for the Oconee Nuclear Station, Unit 2 and finds it in compliance with paragraph (g) of 10 CFR 50.55a, "Inservice Inspection Requirements." Pursuant to 10 CFR Part 50.55a (g)(6)(i) we have granted relief from specific requirements, stated in the ASME B&PV Code, Section XI 1974 Edition including the Summer 1975 Addenda, which we have concluded to be impractical for the facility because of the component or system design, geometry, or materials of construction of the components. In some cases, relief was granted only after imposing the alternate inspection requirements which the staff deems necessary that such relief will not endanger life or property or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Stated below are specific relief requests, the basis and our evaluation of each relief request.

I. CLASS 1 COMPONENTS

A. Reactor Vessel

1. Relief Request

Relief is requested from reactor pressure vessel nozzle inspection (Category B-D) as required by paragraph IWB-2411.

Code Requirement

At least 4 of 8 nozzles must be inspected by completion of 80 months of operation.

Licensee Basis for Requesting Relief

The net effect of the above Code requirements is that four nozzles of a total of eight must be examined by the end of the 80 months of commercial operation. Due to core support structure design of Oconee 2, only the two reactor coolant outlet nozzles are accessible without removing the core barrel, which in turn requires complete defueling. This requirement is considered to be impractical. In lieu of the above, the following examination sequence is proposed:

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<u>Components to be Examined</u>	<u>Examinations Schedule (Elapsed Time Since Commercial Service Date)</u>
1 Reactor Coolant Outlet Nozzle	Approximately 40 months <sup>1</sup>
1 Reactor Coolant Outlet Nozzle	Approximately 30 months <sup>1</sup>
4 Reactor Coolant Inlet Nozzles	Approximately 120 months
2 Core Flooding Nozzles	Approximately 120 months

<sup>1</sup>Different nozzle will be examined each inspection.

#### Evaluation

The Licensee has proposed to inspect 100% of the reactor pressure vessel nozzle welds during this inspection interval, but the sequence of when such inspections are to be completed do not comply exactly with the requirements of the code. The staff believes that the safety gained by requiring inspection of these nozzles in the proper sequence as required by the code is not commensurate with the burden placed upon the licensee. We, therefore, conclude that the proposed sequence of inspection of Reactor Vessel nozzle welds is acceptable and this request for relief may be granted. All other inspection requirements on these welds will comply with the requirements of the code.

#### 2. Relief Request

Relief is requested from the requirements of Table IWB-2500 Category B-I-1 and paragraph IWB-2411 for the reactor vessel clad patch examination.

#### Code Requirement

Except as specified by IWB-2500 for examinations that may be deferred to the end of the inspection interval, at least 25% of the required examination shall be completed by the expiration of one-third of inspection interval and at least 50% shall be complete by the expiration of two-thirds of the inspection interval.

#### Licensee Basis for Requesting Relief

Performance of these examinations requires complete defueling of the core and removal of core barrel.

#### Evaluation

The licensee has proposed to inspect 100% of the required cladding patches at the end of the inspection interval. The inspection sequence

does not comply exactly to the code requirements. The staff believes that the safety gained by enforcing code requirements is not commensurate with the burden placed upon the licensee. The staff, therefore, concludes that the proposed inspection sequence is acceptable and relief from code requirements for the reactor vessel cladding inspection sequence may be granted.

B. Piping Pressure Boundary

1. Relief Request

Relief has been requested from the requirements of Table IWB-2600 Item No. 4.9 Category B-k-1 for:

- . Core Flood and Decay Heat Removal Systems

<u>System No.</u>	<u>Weld Attachments</u>
53A	53A and 10ZA

- . High Pressure Injection System

<u>System No.</u>	<u>Weld Attachments</u>
51A	93Z and 89C

Code Requirement

The welds of external support attachments to the pressure boundary including the base metal beneath the weld zone and along the support member for a distance of two support thickness shall be volumetrically examined.

Licensee Basis for Requesting Relief

The geometry of the attachment welds prevents meaningful volumetric examination.

Evaluation

Because of the weld design, a meaningful ultrasonic examination cannot be accomplished.

Radiographic examination of these welds would be difficult to perform and interpret, and would therefore result in little added assurance of safety. The licensee has committed to subject these welds to surface examination. Based on the loading conditions of these types of welds, flaws would most likely generate at the weld surface and thus be detectable by surface examination.

In addition the staff recommends that an ultrasonic examination of the base metal be performed to assure that flaws in the base metal do not exist. The combination of surface examination and the recommended volumetric base metal examination would provide assurance of the integrity of the welded attachments.

## II. CLASS 2 COMPONENTS

### A. Pressure Testing

#### 1. Relief Request

Relief is requested from hydrotesting the decay heat removal cooler outlet control valves LP-12 and LP-14 to 125% of design pressure after valve replacement and to alternatively test the valve to 100% of design pressure on upstream and downstream sides and conduct radiography of 100% of the valve joint welds.

#### Code Requirement

The system hydrostatic test pressure shall be at least 1.25 times the system design pressure.

#### Licensee Basis for Requesting Relief

The decay heat removal coolers are located upstream of these valves. The piping between the coolers and the valves is designed for 350 psig at 300°F. The valves are not leak tight, having design leakage of 0.5% and being normally used to control flow, not for isolation purposes. The piping downstream of the valves is designed for 505 psig at 250°F. Upon replacement of these valves, the welded joints were required to be hydrostatically tested to 125% of design pressure. Even the piping downstream of the valves would be tested to normal operating pressure and with leakage through the valves, the piping with lesser design pressure as well as the coolers could become overpressurized and possibly damaged. Venting of the upstream piping to relieve the pressure buildup could release significant amounts of high activity waste and prevent satisfactory completion of the hydrostatic test.

#### Evaluation

The circumstances which surround this particular test clearly prevent weld isolation such that the proper code required pressure can be used in performing this test. The alternative testing proposed will assure, with the supplemental radiographic techniques, that any flaws developed during repair or service will be found. Additionally the weld will be hydrostatically tested to 100% of design pressure and thus provide reasonable assurance that large flaws will be detected.

We find that the basis for this request is reasonable and that relief from hydrotesting the repair welds to 125% of design pressure may be granted.

### III. GENERAL

#### 1. Relief Request

Relief is requested from the rules of ASME Section XI IWA-2120 regarding the Authorized Nuclear Inspectors witnessing or auditing rest results.

#### Code Requirement

IWA-2130(b) states any inspector who performs inspections required by this Division shall have first been qualified by written examination pursuant to the legislation of rules of a state of the United States, the legislation of a Canadian Province, or the rules of another authority having jurisdiction over a nuclear power plant at the installation location and that had adopted this Division. The Inspector shall not be an employee of the owner or his agent.

#### Licensee Basis for Requesting Relief

The duties of the Authorized Inspector as stated in ASME Code Section XI, IWA-2120 are performed to the full extent by personnel within the Quality Assurance Department. This department of Duke Power Co. is organizationally separate from those persons responsible for performing engineering, construction, or operating functions. The personnel within the Q. A. Department have the required independence and authority to effectively carry out the quality assurance program without undue influence from those directly responsible for costs and schedules.

#### Evaluation

IWA-2130(b) states specifically that the Inspector shall not be an employee of the owner or his agent. It is concluded that the licensee should meet the requirement of the code concerning the Authorized Nuclear Inspector.