

SAFETY EVALUATION BY  
REACTOR SAFETY BRANCH OF OT  
OCONEE UNIT 1  
PUMP AND VALVE TESTING  
PROVISIONS REQUIRED BY 10 CFR 50.55a

INTRODUCTION

By letter dated October 1, 1976, Duke Power Company submitted proposed changes to the Oconee Unit 1 Technical Specifications to incorporate the provisions of 10 CFR 50.55a as revised on February 12, 1976 (41 FR 6256). The revised paragraph 50.55a (g) contains provisions that require inservice inspection and testing of ASME code class 1,2,and 3 components including pumps and valves. Inspection and testing is to be in accordance with section XI of the ASME Boiler and Pressure Vessel Code and applicable agenda. The revised paragraph 50.55a(g) requires functional testing of pumps and valves as well as inservice inspection. This means that a periodic testing program of all Class 1,2,and 3 pumps and valves must be initiated according to the schedule and test frequency specified in the code.

An important provision in paragraph 50.55a(g) allows the NRC to grant relief from ASME code requirements that have been determined to be impractical for a facility. The regulation states in part: "The Commission will evaluate determinations under paragraph (g) (5) of this section that code requirements are impractical and may grant such relief as it determines is authorized by law and 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".

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Duke Power Company took general exception to the provisions of ASME Section XI and instead of providing a listing of pumps and valves which could not be inspected and tested with specific reasons for non-compliance they supplied a list of safety related pumps and a listing of valves (by drawing no.) which could be tested with specific exceptions for certain identified components. The general exceptions submitted by the licensee were as follows:

- (1) The design and access provisions for inservice examination of Oconee 1 considered principally the code requirements for inspection of the reactor coolant pressure boundary since the ASME Code, Section XI, 1970 edition did not address Class B and Class C piping and components at the time engineering design was completed. Therefore, Class B and C piping and components will be examined as accessibility permits. Inaccessible piping and components include, but are not limited to, those components permanently insulated; those components located in trenches, chases or other areas to which access would necessitate the removal of structures and/or other piping or components; and piping welds located within penetrations. Visual examinations performed during the code required system pressure tests will serve to detect degradation, if any, of the structural integrity of components for direct examination.
- (2) Class B and C piping and components whose pressurization or pressure measurement is impractical will be examined under conditions as closely approximating Code requirements as possible. Visual examinations will be conducted as accessibility permits.

- (3) The examinations of Class B and C piping and components whose operation is not necessary for the safe shutdown and cooldown of the Reactor Coolant System and whose inspection would create excessive radiation exposure will be considered to be impracticable.
- (4) Since South Carolina is not an ASME Code state, the inservice examination will not be witnessed by an Authorized Inspector.

#### EVALUATION

The Oconee Unit 1 submittal was reviewed in detail including a review of plant piping and instrument diagrams for the systems identified by the licensee.

The submittal was limited by the licensee to safety-related components. Some valves were omitted and exceptions were taken to specific test requirements for others. Many of the valves identified by the licensee were restricted from being exercised during power operation or do not have provisions for being exercised. For many valves, provisions do not exist for leak testing.

The staff has no way to confirm that the valves cannot be exercised or leak tested unless it is apparent from the piping and Instrument diagram. It is our position that we will accept the licensee's statement on testability unless our review indicates that the valve is of sufficient importance that further justification, including possibly a site visit, is required.

Our review of the submittal follows:

#### PUMPS

The scope as stated in the July 1, 1974 edition Section XI, Article IWP, includes all class 1, 2, and 3 pumps which are provided with an emergency power source. This scope is acceptable to us and should present no problems to the licensee.

The listing of Class 1,2,and 3 pumps provided with emergency power appears to be complete. However each pump was not identified by equipment number and drawing number. Unique identification for each pump should be stated in the plant technical specification along with the specific tests to be performed. The proposed Technical Specification, par. 4.04 and par. 4.2.1 are unacceptable as written. The first paragraph of the Technical Specification bases, page 4.2-3 is also unacceptable for the same reason.

The licensee has stated that insufficient instrumentation and test provisions exist to fully implement the requirement of ASME Section XI. We accept this argument and agree that the test program for pumps is acceptable subject to unique identification of pumps and revision of the plant technical specifications as stated above.

#### VALVES

The licensee submitted a listing of valves selected for testing and identified each by valve number, drawing number, and valve name. Each drawing was reviewed to confirm that all important safety related power operated and check valves were included. Some manual valves were included in the listing. We found that in some cases, valves important to plant safety were omitted. These are included in the comments below. These comments on the valve testing are listed by drawing number.

#### Dwg PO-100-A-1

Only 2 of the three pressurizer relief valves are listed. Valve No. 1RC-66 should be included.

#### Dwg PO-101-A-1

Valves listed on this drawing are containment isolation valves. Check valve No. HP-194 should be included if possible in to the test program.

Dwg PO-102-A-1

Valves BS-3 and BS-4, power operated valves on the suction lines to the reactor building spray pumps are omitted. They should be included or justification provided for not including them.

Dwg PO-103-A-1,2,3

Check valves BS-14 and BS-19 are proposed to be tested every 5 years. A source of instrument air exists (according to the drawing) for spray nozzle testing. The licensee should consider using the instrument air to test the check valves on a more frequent schedule.

Dwg PO-104-A-1,3

No comment

Dwg PO-106-A-1

No comment

Dwg PO-106-E-1

No comment

Dwg PO-107-A-1

No comment

Dwg PO-107-B-1

No comment

Dwg PO-107-D-1

No comment

Dwg PO-110-A-1

No comment

Dwg PO-116-A-1

No comment

Dwg PO-121-A-1

No comment

Dwg PO-121-B-1

No comment

Dwg PO-122-A-1

Only one of sixteen main steam safety-reliefs is listed. Licensee should provide justification for not including the others.

Dwg PO-124-B

No comment

Dwg PO-127-B

We cannot locate N2 isolation valves 1N-91 thru 1N-94. These may be mis-numbered on submittal. Licensee should confirm and correct technical specification as required.

Dwg PO-137

No comment

Dwg PO-144-A-1

No comment

Dwg O-472

No comment

CONCLUSIONS

We conclude that the pump and valve testing in accordance with the provisions of Section XI proposed by Duke Power Company for Oconee Unit 1 will be acceptable provided that the comments stated above are satisfactorily resolved. In addition, the Licensee should be required to provide unique identification for each pump and valve to be tested in the Technical Specification with specific test requirements for each. The Bases section of the Technical Specification should provide justification for exceptions to code required tests.