Station Support Department

10 CFR 50.55a(a)(3)

PECO ENERGY

PECO Energy Company
Nuclear Group Headquarters
965 Chesterbrook Boulevard
Wayne, PA 19087-5691

September 16, 1994

Docket No. 50-277

License No. DPR-44

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

Subject: Peach Bottom Atomic Power Station, Unit 2
Submittal of Proposed Alternative Repair
Plan In Accordance with 10 CFR 50.55a(a)(3)

Dear Sir:

In a letter dated August 31, 1994 from A. C. Thadani (U. S. Nuclear Regulatory Commission (USNRC)) to R. A. Pinelli (Boiling Water Reactors Owner's Group (BWROG)), the USNRC provided guidance that the shroud repair options presented to the USNRC by the Boiling Water Reactor Vessel Internals Project (BWRVIP) do not fall under the ASME Code, Section XI definition for repair or replacement. Additionally, the letter states that shroud repair options considered to date are alternatives to Section XI, and require review and approval by the USNRC.

Accordingly, PECO Energy Company requests review and approval of the proposed repair plan for the Peach Bottom Atomic Power Station, Unit 2 core shroud in accordance with 10 CFR 50.55a(a)(3), in the event that such a repair is determined to be necessary. Attachment 1 is a listing of documents which describe the proposed repair. Please note that some of the attached documents are preliminary. Additionally, we acknowledge that the attached documents constitute only a portion of the information to support our 50.55a(a)(3) request. The attached information is being submitted at this time to avail the USNRC the maximum time possible to review our 50.55a(a)(3) request. The additional information which completes our request will be provided by September 26, 1994.

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Inspections of the core shroud have been rescheduled to begin September 21, 1994. If a shroud repair is determined to be necessary following completion of the inspections, the currently scheduled date to begin the repair is October 5, 1994. In order to support this repair contingency, we request that you review and approve our 50.55a(a)(3) request by October 3, 1994.

In the event that the repair is deemed unnecessary during the inspections, the USNRC will be promptly notified.

As discussed in 10 CFR 50.55a(a)(3)(i), proposed alternatives may be used when the applicant demonstrates that the proposed alternatives would provide an acceptable level of quality and safety. The proposed repair of the PBAPS, Unit 2 shroud is being designed by General Electric Company, and utilizes the shroud repair design criteria of the BWRVIP. This repair will provide a permanent mechanical repair that ensures that the shroud will meet its design basis safety function in the event of failure of circumferential welds. The proposed repair is being designed to ensure the structural integrity of the core shroud during normal operation and under postulated transient and design basis accident conditions for the remaining plant life. Appropriate codes and standards will be utilized to ensure that the proposed alternative repair will provide an acceptable level of quality and safety. Therefore, the proposed alternative repair would meet the acceptability criteria of 10 CFR 50.55a(a)(3)(i).

If you have any questions, please contact us.

Very truly yours,

G. A. Hunger, Jr.

G. A. Hunger, Jr.,
Director - Licensing

Attachments

cc: T. T. Martin, Administrator, Region I, USNRC
W. L. Schmidt, USNRC Senior Resident Inspector, PBAPS

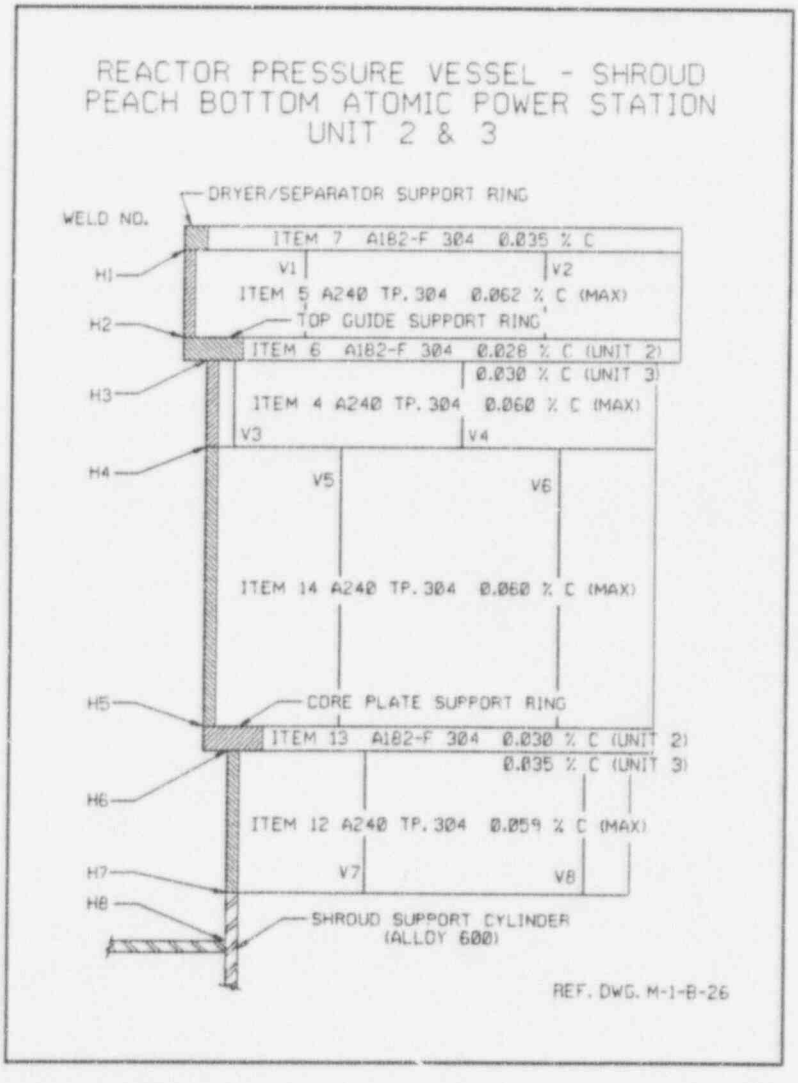
ATTACHMENT 1

Document	Status
1. Modification Description	Final
2. Project Instruction, GENE-771-54-0894, Rev. O, dated August 1994	Final
3. Design Specification - Shroud Stabilizer Hardware, 25A5579	Preliminary
4. Code Design Specification - Shroud Stabilizers, 25A5580	Preliminary
5. Fabrication Specification - Fabrication of Shroud Stabilizer, 25A5601	Preliminary
6. Installation Specification - Cleaning and Cleanliness Control for Field Modifications of Vessel Components, 21A2040	Preliminary
7. Installation Specification - Stabilizer Installation, 25A5581	Preliminary

MODIFICATION DESCRIPTION

CORE STRUCTURE CHARACTERISTICS AND FUNCTIONS

The basic function of contingency modification P00435 is to provide a non-welded, mechanical solution to the problem of unacceptable Reactor Pressure Vessel (RPV) Core Shroud welds which may be found in Peach Bottom Unit 2 as a result of examinations planned during the refueling outage beginning September 16, 1994. The total scope of welds involved in this repair are welds H1 through H7 as shown below.



The specific core structure components that are directly affected by this modification are the core shroud, shroud support plate, shroud head and steam separator assembly, core support, and the top guide.

Core Shroud

The functions of the core shroud are to provide a partition to separate the upward flow of coolant through the core from the downward recirculation flow in the annulus and to provide a floodable core region following a recirculation line break. The core shroud also helps to limit the postulated deflection of other vessel internals and assure that the control rods and the Core Standby Cooling Systems can perform their safety functions during abnormal operational transients.

Shroud Support Plate

The shroud support plate is connected between the shroud and the RPV. It provides support for the shroud and forms the lower boundary for the downcomer annulus between the core shroud and the reactor vessel wall. The shroud support plate also provides the openings for the welded discharge connections for the 20 jet pump assemblies.

Shroud Head and Steam Separator Assembly

This component is bolted to the top of the upper shroud to form the top of the core discharge plenum. This plenum provides a mixing chamber for the steam-water mixture before it enters the steam separators. Individual stainless steel axial flow steam separators are attached to standpipes which are welded to the shroud head.

Core Support (Core Plate)

The core support consists of a circular stainless steel plate stiffened with a rim and beam structure. Perforations in the plate provide lateral support and guidance for the control rod guide tubes, peripheral fuel support pieces, in-core flux monitor guide tubes, and start-up neutron sources. The entire assembly is bolted to a support ledge, between the central and lower portions of the core shroud.

Top Guide

The top fuel guide is formed by a series of stainless steel beams joined at right angles to form square openings. Each opening provides lateral support and guidance for four fuel assemblies. Holes are provided in the bottom of the beams to anchor the in-core flux monitor guide tubes and start-up

neutron sources. The top fuel guide is located near the top of the shroud.

CORE SHROUD STABILIZER-TIE ROD ASSEMBLIES

This modification involves the installation of 4 core shroud stabilizer-tie rod assemblies between the shroud support plate and shroud head and separator interface, similar to the Edwin I. Hatch Nuclear Plant Unit 1 design. Each assembly includes spring restraints to minimize any lateral shroud movement to assure acceptable deflections for control rod insertion, and vertical tie rods to restrain the uplift forces due to pressure drops across the reactor internals.

The upper spring is attached to a bracket that is hooked over the top of the shroud and through a notch machined in the shroud head and separator assembly. This bracket and spring limit the movement of the sections above weld H3 by providing a load path from the shroud, at the top guide elevation, to the RPV. The lower spring and dowel provides the same function between the core plate elevation and the RPV for the shroud sections below weld H4. Additionally, an intermediate limit stop is installed on each tie rod between the RPV and the tie rod to increase the natural frequency of the tie rods and thereby preventing unacceptable response due to flow induced vibrations. The tie rods are installed between the upper brackets and the lower springs to provide a vertical load path between the top of the shroud and the shroud support plate as well as providing support for the springs. Each stabilizer assembly is attached to the shroud support plate by means of a pinned connection and a base plate with two self locking "L" bolts.