



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO REQUESTED RELIEF FROM INSERVICE INSPECTION REQUIREMENTS

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

PENNSYLVANIA POWER COMPANY

BEAVER VALLEY POWER STATION, UNIT NO. 1

DOCKET NO 50-334

1.0 Introduction

The Beaver Valley Power Station, Unit 1, Inservice Inspection (ISI) of ASME Code Class 1, 2 and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda, as required by 10 CFR 50.55a(g). However, 10 CFR 50.55a(g)(6)(i) authorizes the Commission to grant relief from ASME Code requirements upon making the necessary findings.

By letters of June 16, 1987 and November 10, 1987, Duquesne Light Company (the licensee) requested relief from the requirements of Section XI of the ASME Boiler and Pressure Vessel Code 1974 Edition with Addenda through Summer 1975 which the licensee considers to be impractical. The licensee proposed an alternative examination and requirements in lieu of that which it considers to be impractical, to provide for the assurance of structural reliability of the associated component. The licensee's proposal and NRC staff evaluation is presented below.

2.0 Evaluation

2.1 Relief Request for Vessel Welds on the Non-Regenerative Heat Exchanger (CH-E-2) - Category C-A, Item C 1.1)

ASME Boiler and Pressure Vessel Code, Article IWC-2000, Table IWC-2600, Item C 1.1, Category C-A, "Pressure Retaining Welds in Pressure Vessels," requires that volumetric examinations shall cover at least 5% of each circumferential weld, uniformly distributed among three areas around the vessel circumference during each inspection interval.

The licensee has requested relief from the volumetric examination requirements for 1.4" of two circumferential butt welds (Weld #1 and Weld #2) associated with the non-regenerative heat exchanger CH-E-2, to complete the inspection interval examination requirement. As an alternative examination, the licensee proposes that the subject heat exchanger be visually examined for leakage during the system leakage test. The visual examination will be augmented by radwaste monitoring, radiation surveys, and Operating Surveillance Tests OST 1.6.2, "Reactor Coolant System Water Inventory Balance," and OST 1.48.2, "High Energy Line and ECCS Inspection."

Access for examination of the two circumferential welds is limited by geometry to the vessel side of each weld, and is further limited by the presence of nozzles and supports. The erection of scaffolding, insulation removal, and other activities associated with weld preparation and examination would require work activities in high radiation fields. Based on surveys, fields are on the order of 300 to 500 mR/hour in the immediate work area with hot spots of 7 R/hour. The licensee estimates that the exposure incurred by the preparation and examination of the two welds would total 18 Rem.

Heat exchanger CH-E-2 is readily isolable should a leak occur. The heat exchanger has double-valve isolation from the primary system (LCV-CH-460 A&B) and is automatically isolated on a pressurizer low level signal. It could be easily isolated by the control room operators should one of the welds be discovered to be leaking. This heat exchanger operates at 310 psi, 290°F inlet, 115°F outlet. Should either of the two welds fail and begin to leak, the leakage would be contained within the cubicle by the sill at the entryway. Leaking fluid would be collected by the floor drain system. The exposure estimate for the decontamination of the cubicle is 13.6 Rem. This estimate is based on working space dose rates and estimated work durations. The dose estimate for examination is higher than that for decontamination primarily because of the surface preparation required to perform the ultrasonic examination.

The control room operators perform OST 1.6.2 at 3-day intervals when the plant is operating at steady state conditions. This OST would detect leakage from the welds. Leakage from the welds would be collected by the liquid waste system, and would be apparent in the liquid waste system inventory which is logged daily, and is reviewed by the Shift Supervisor daily, and by the Site Radwaste Coordinator weekly. OST 1.48.2, which requires visual examination of accessible high energy lines outside containment for degradation of welds, is performed quarterly. Additionally, Radiological Control Department personnel enter the heat exchanger cubicle monthly to perform radiation surveys. Slight leakage (less than that detectable by OST 1.6.2 or the liquid waste inventory) would be detected during this survey.

Because of the significant personnel exposures involved in performing the examinations, and the limited examination areas that can be accessed, the licensee considers the performance of the examinations to be impractical.

The staff has reviewed the licensee's relief request and the licensee's proposed alternative examination, and conclude that the code-required examinations are impractical, and that the proposed alternative examinations will provide adequate assurance of the structural integrity of the subject heat exchanger.

The staff verified that this relief request is consistent with the requirements of 10 CFR 50.55a and NUREG-0800 (Standard Review Plan) Chapter 6, Section 6.6 for Inservice Inspection of Class 2 and 3 Components. The relief as requested can be granted.

### 3.0 Conclusion

Based on the review summarized herein, the staff concludes that the relief granted and the alternative examinations imposed through this document provide reasonable assurance that the acceptable level of quality and safety intended by the ASME Code will be satisfied. The staff has determined that pursuant to 10 CFR 50.55a(g)(6)(i) granting relief where the inspection requirements are impractical is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest considering the burden that could result if the requirements were imposed on the facility.

Date: April 25, 1988

Principal Contributor:

R. A. McBrearty



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

Central Files P1-137

I called earlier to try to get the error corrected on the attached document.

If you have not yet done so, here's a corrected copy for your use. Please be sure NUDOC gets the correction. Thanks.

Peter Jam

2-1314