



Commonwealth Edison  
1400 Opus Place  
Downers Grove, Illinois 60515

December 3, 1990

Dr. Thomas E. Murley, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

ATTN: Document Control Desk

Subject: Dresden Nuclear Power Station Unit 3  
Reactor Head Inspection Plan  
NRC Docket No. 50-249

- References: (a) NRC/CECo Meeting at NRR office  
(Rockville, Maryland) on April 19, 1990.
- (b) M. Richter (CECo) letter to T. Murley  
(NRC), dated September 4, 1990.

Dr. Murley:

A meeting was held with your staff on April 19, 1990 (Reference (a)) to discuss the cracks identified in the Quad Cities Unit 2 reactor vessel head. During that meeting, Commonwealth Edison Company (CECo) committed to review the fabrication history of its Boiling Water Reactor (BWR) vessels, and to perform an inspection of each reactor vessel head. Reference (b) presented the upper vessel fabrication history summary for Dresden Unit 3. This letter transmits the inspection plan for the Dresden Unit 3 reactor vessel head.

Attachment 'A' to this letter presents the Dresden Unit 3 Reactor Head Inspection Plan which was developed from the upper vessel fabrication history review. The Unit 3 fabrication history review revealed major mismatches at the upper head dollar plate-to-torus, upper head torus-to-flange, and uppermost shell-to-shell welds (see Figure 1). The inspection will encompass the entire reactor head, which includes the dollar plate-to-torus and torus-to-flange welds. The Inspection Plan delineates that visual examinations be performed on the inner diameter of the reactor head to identify any evidence of potential cracks. All cracks identified by visual and/or dye penetrant examinations, will receive an ultrasonic examination. The Inspection Plan will be implemented during the upcoming Unit 3 refueling outage which is currently scheduled to begin in March 1991.

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The Inspection Plan does not include the vessel shell-to-flange and uppermost shell-to-shell welds. The vessel shell-to-flange weld will not be inspected since no major mismatch was indicated in the fabrication history review. The uppermost shell-to-shell weld will not be inspected due to technological limitations. Remote automated ultrasonic examination technology for BWR vessel welds is being developed; however, the technology cannot be utilized reliably at this time. Examination of the uppermost shell-to-shell weld cannot be performed from the outer diameter due to inaccessibility, and manual liquid penetrant and/or manual ultrasonic examination from the inner diameter cannot be accomplished due to the excessive radiation field anticipated at that area. The uppermost shell-to-shell weld will be examined when the technology for remote ultrasonic examinations is fully developed.

Please direct any questions or comments on this letter to this office.

Respectfully,

*Milton H. Richter*

M.H. Richter  
Nuclear Licensing Administrator

Attachment A: Proposed Reactor Head Inspection Plan (Dresden Unit 3)

Figure 1: Summary of Dresden Unit 3 Reactor Vessel Fabrication

cc: A.B. Davis, Regional Administrator, Region III  
B.L. Siegel, NRR Project Manager  
B. Elliot, NRR Technical Staff  
D.E. Hills, Senior Resident Inspector, Dresden

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ATTACHMENT A

PROPOSED REACTOR HEAD INSPECTION PLAN  
(DRESDEN UNIT 3)

**REACTOR HEAD**

1. Direct visual examination, VT-1, of 100% ID of the reactor head. Lighting adequacy must be verified with a 1/32 inch black line on a 18% neutral gray card.

Conditions to be examined for and recorded:

- a/. Cracks or linear indications
  - b/. Heavy/unusual rust streaks
  - c/. Clad repair and/or clad thickness variations
  - d/. Excessive grinding
2. Photograph representative areas of the ID of the reactor head.
3. Dye penetrant test (PT) the following:
    - a/. All linear indications
    - b/. All heavy/unusual rust streaks
    - c/. Sample of clad repair and/or clad thickness variation areas as determined by CECO Nuclear Engineering Department (NED).
    - d/. Sample of excessive grinding areas as determined by NED.
4. Ultrasonically test (UT), from the ID, all cracks detected by VT and/or PT.

# FIGURE 1 - SUMMARY OF DRESDEN UNIT 3 REACTOR VESSEL FABRICATION

