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ESK-96-055

April 9, 1996

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

Subject: Quad Cities Nuclear Station Unit 1, Core Shroud Examination Results  
NRC Docket No. 50-254

- References:
- (a) NRC Generic Letter 94-03, "Intergranular Stress Corrosion Cracking of Core Shrouds in Boiling Water Reactors".
  - (b) BWRVIP document GENE-523-113-0894, BWR Core Shroud Inspection and Evaluation Guidelines, dated September 1994.
  - (c) BWRVIP Core Shroud NDE Uncertainty and Procedure Standard, dated November 21, 1994.
  - (d) J. L. Schrage (ComEd) to USNRC letter, Quad Cities Station Unit 1 Core Shroud Inspection Plan, dated November 16, 1995.

The purpose of this letter is to provide the final results of the Quad Cities Station Unit 1 core shroud examinations. The examinations were performed in conjunction with the comprehensive shroud repair to assure that structural integrity of the core shroud is maintained. The examinations of the reactor core shroud were performed in accordance with ComEd's commitment to NRC Generic Letter 94-03 (Reference d) and BWRVIP guidelines (References b and c). The examinations were completed on March 31, 1996.

The core shroud examinations consisted of performing ultrasonic examination (UT) of the vertical shroud welds that could be accessed using the remote area scanner system and enhanced visual examination of the remaining design reliant welds and structures. The ultrasonic examinations were performed in accordance with the BWRVIP "Standards for Ultrasonic Examination of Core Shroud Welds" and the visual examinations were performed in accordance with the BWRVIP "Standards for Visual Inspections of Core Shrouds". In addition, eddy current was used as an aid in identifying the location of the ring segment welds associated with the shroud head flange ring, the top guide support ring and the core plate support ring.

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The following is a summary of the core shroud examination scope and results. Details of the specific areas examined and the results of the examinations are presented in the attached Table 1 and Figure 1.

- The ultrasonic examination scope consisted of shroud vertical welds (V14 through V19) located between horizontal welds H3/H4 and H4/H5 (i.e. beltline region). Approximately 27 inches, or between 31% and 36% of the total length of each vertical weld was examined. These examinations resulted in no reportable indications.

During the UT examination of vertical welds V14 and V16, OD geometry was noted at the opposite side of the vertical weld. Subsequently, these suspect areas were visually examined resulting in the identification of an uneven surface due to welding discontinuities and heavy grinding marks from the fabrication process. The UT examinations and subsequent enhanced visual examinations resulted in no reportable indications in the area of interest.

- The enhanced visual examination scope consisted of the ring segment welds associated with the shroud head flange ring, top guide support ring, core plate support ring, vertical welds V5-V7 and V26-V28, inclusive; the H8 and H9 horizontal welds at the shroud repair hardware locations; and the shroud repair hardware attachment sites at the shroud head flange ring and the jet pump support plate. These examinations resulted in no reportable indications.

While using eddy current testing to locate the ring segment welds associated with the core plate support ring, difficulty with interferences associated with the adjacent jet pumps and jet pump sensing lines was experienced. This resulted in verifying the location of one of the six segment welds with the eddy current tool. The fabrication records were reviewed and depict that the ring is fabricated with six segment welds equally spaced. Based on the location of the identified segment weld, coupled with the fabrication records, these six locations were visually examined. However, to be conservative, the balance of the core plate support ring accessible surfaces were visually examined. These enhanced visual examinations resulted in no reportable indications in the area of interest.

In summary, the examinations of the core shroud design reliant structures performed at Quad Cities Unit 1 per the Inspection Plan (Reference d), resulted in no reportable indications in the areas of interest.

To the best of my knowledge and belief, the information contained in this document is true and correct. In some respects this document is not based on my personal knowledge, but on information furnished by other ComEd employees, contractor employees, and/or consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

April 9, 1996

If there are any questions concerning this matter, or need for further clarification, please contact this office.

Sincerely,

*E. S. Kraft, Jr.*

E. S. Kraft, Jr.  
Site Vice President  
Quad Cities Station

*Linda Lee Stoermer*  
Notary Public

4/10/96  
Dated



- Attachments: (1) Table 1 - Quad Cities Unit 1 Core Shroud Examination Summary  
(2) Figure 1 - Quad Cities Unit 1 Core Shroud Examination Roll Out

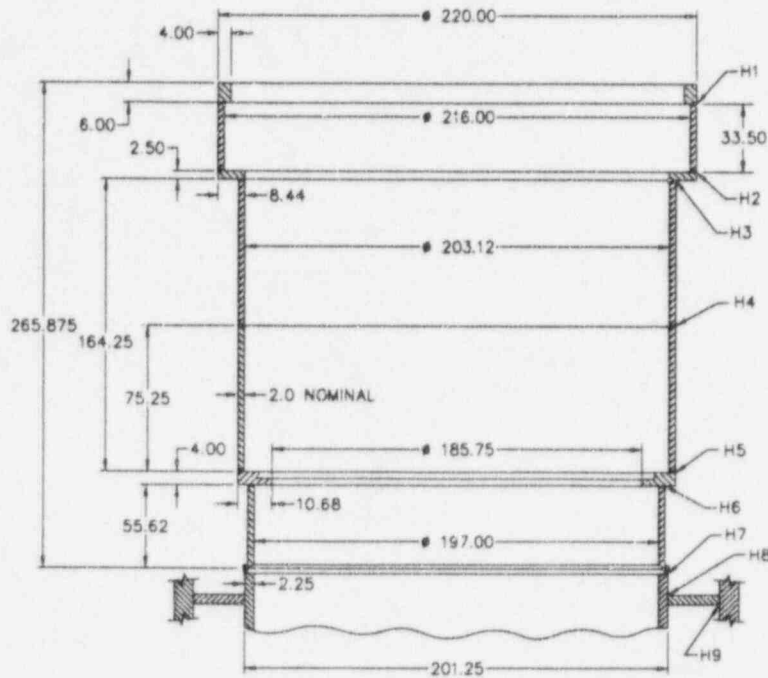
cc: H. J. Miller, Regional Administrator - RIII  
R. M. Pulsifer, Project Manager - NRR  
C. G. Miller, Senior Resident Inspector - Quad Cities  
Office of Nuclear Facility Safety - IDNS  
D. C. Tubbs, R. J. Singer, MidAmerica Energy Company

TABLE 1

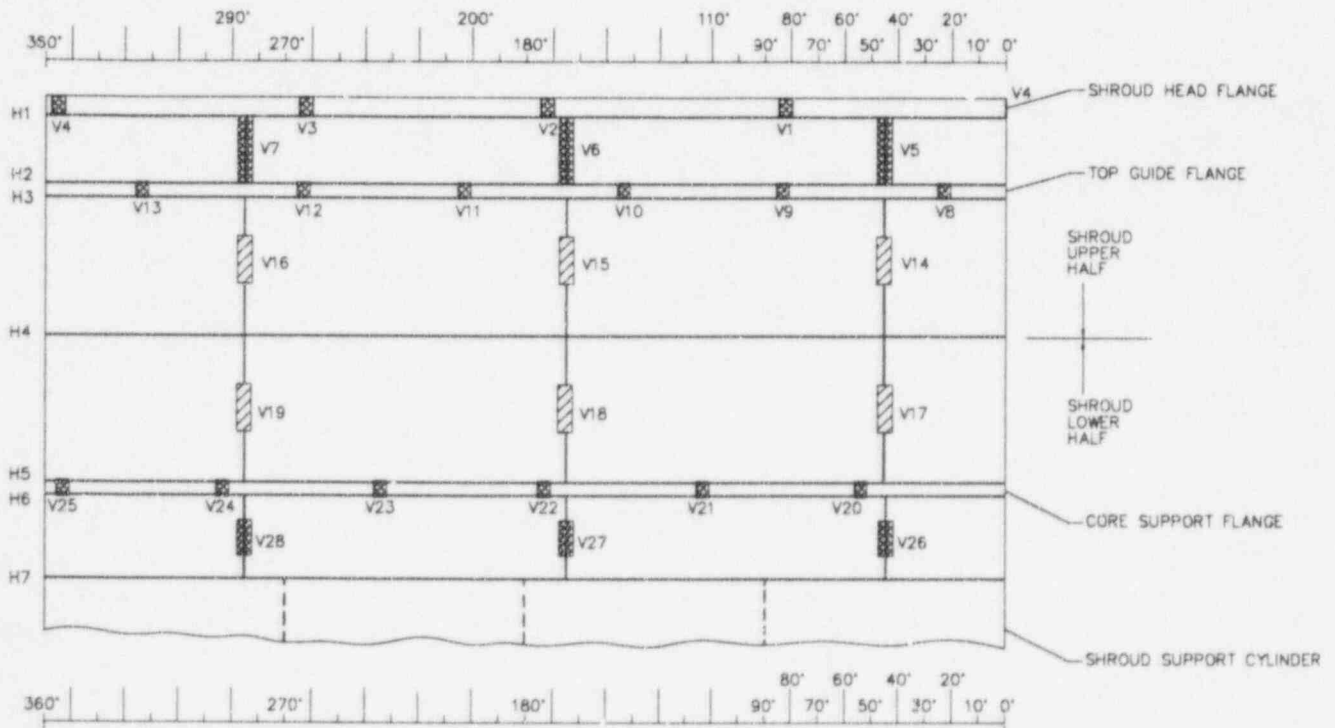
## QUAD CITIES UNIT 1 CORE SHROUD EXAMINATION SUMMARY

Component	Area Inspected	Inspection Results
Shroud Head Flange Ring Segment Welds: V1 through V4	Enhanced visual examination of ~ 12" length of ring material encompassing each weld. Verified all 4 weld locations with eddy current testing. Inspected OD, ID and Top of identified surface areas.	No Reportable Indications
Top Guide Support Ring Segment Welds: V8 through V13	Enhanced visual examination of ~ 12" length of ring material encompassing each weld. Verified all 6 weld locations with eddy current testing. Inspected OD, ID and Bottom of identified surface areas.	No Reportable Indications
Core Plate Support Ring Segment Welds: V20 through V25	Enhanced visual examination of 100% of the accessible surfaces or 55% (356") of OD and Bottom of ring. Verified 1 of 6 weld locations with eddy current tool due to access constraints.	No Reportable Indications
Vertical Welds V5, V6 and V7	Enhanced visual examination of ~ 33" of each weld or 100% of each weld from the OD surface. ( ID surface was not accessible)	No Reportable Indications
Vertical Welds V14, V15, V16, V17, V18 and V19	Ultrasonically examined 27" or between 31% and 36% of each weld.	No Reportable Indications
Vertical Welds V26, V27 and V28	Enhanced visual examination of ~ 14" of each weld or 25% of each weld from the OD surface. ( ID surface was not accessible)	No Reportable Indications
Jet Pump Support Plate to Shroud Weld H8	Enhanced visual examination of ~12" of weld in area of repair hardware attachments at 4 locations: 20°, 110°, 200° and 290° Az.	No Reportable Indications
Jet Pump Support Plate to RPV Weld H9	Enhanced visual examination of ~12" of weld in area of repair hardware attachments at 4 locations: 20°, 110°, 200° and 290° Az.	No Reportable Indications
Shroud Head Flange Ring	Enhanced visual examination of repair hardware attachment sites both prior to and following EDM at 4 locations: 20°, 110°, 200° and 290° Az	No Reportable Indications
Jet Pump Support Plate	Enhanced visual examination of repair hardware attachment sites both prior to and following EDM at 4 locations: 20°, 110°, 200° and 290° Az	No Reportable Indications



# FIGURE 1



SHROUD SECTION VIEW



SHROUD OD SURFACE DEVELOPMENT

 - DENOTES AREAS VISUALLY EXAMINED  
 - DENOTES AREAS ULTRASONICALLY EXAMINED



**Q1R14 EXAMINATIONS  
 OF CORE SHROUD  
 QUAD CITIES UNIT 1**