

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-254/83-19(DE); 50-265/83-17(DE)

Docket No. 50-254; 50-265

License No. DPR-29; DPR-30

Licensee: Commonwealth Edison Company  
Post Office Box 767  
Chicago, IL 60690

Facility Name: Quad Cities Nuclear Power Station - Units 1 and 2

Inspection At: Cordova, IL (June 28 and July 1, 1983)  
Commonwealth Edison Company Corporate (July 22, 1983)

Inspection Conducted: June 28 through July 1, and July 22, 1983

Inspectors: N. C. Choules

*N. C. Choules*  
8/11/83  
Date

*J. N. Kish*  
J. N. Kish

8/11/83  
Date

Approved By: *D. R. Hunter*  
D. R. Hunter, Chief  
Management Programs Section

8/10/83  
Date

Inspection Summary

Inspection on June 28 through July 1, and July 22, 1983 (Report No. 50-254/83-19(DE); 50-254/83-17(DE))

Areas Inspected: Special, unannounced inspection by regional inspectors of activities surrounding the attempted removal and degradation of the torus containment penetration X-215 and routine inspection of maintenance activities. The inspection involved a total of 44 inspector-hours on site and at the corporate offices by two NRC inspectors.

Results: Of the two areas inspected, no items of noncompliance were identified in one area; one item of noncompliance was identified in the remaining area (failure to adequately review a request for change regarding a spare torus penetration - Paragraph 2).

## DETAILS

### 1. Persons Contacted

#### Commonwealth Edison Company (CECo)

\*N. Kalivianakis, Station Superintendent  
\*L. Petrie, Construction Superintendent  
\*R. L. Bax, Assistant Superintendent of Maintenance  
\*G. C. Tietz, Technical Staff Supervisor  
W. Leverton, Technical Staff Supervisor  
G. Abrell, Q. A. Superintendent, Operations  
D. Gibson, Q. A. Supervisor  
C. Norton, Q. A. Engineer  
J. Wetherington, Q. A. Engineer  
\*C. Smith, Q. C. Supervisor  
\*J. B. Heilman, Q. A. Engineer  
\*J. R. Ford, Q. C. Inspector  
E. Zebus, Project Engineer  
E. Rowley, Project Engineer  
J. Frizzell, Station Nuclear Engineer  
R. Gamperl, Maintenance Staff Assistant  
G. Price, Master Mechanic  
W. McGaffin, Station Construction Engineer

#### Morrison Construction Company

D. Anthony, Construction Foreman  
J. House, Apprentice Pipe Fitter and Welder  
W. Flesch, QC Supervisor

#### EDS Nuclear, Inc.

D. Bailey, Engineer  
K. Miller, Engineering Assistant

#### NUTECH Engineering

J. Gavula, Engineering Manager

#### U. S. Nuclear Regulatory Commission (USNRC)

N. Chrissotimos, Senior Resident Inspector  
A. Morrongiello, Resident Inspector

The inspectors also interviewed other licensee employees including Technical Staff, Construction Department, and Document Control personnel.

\*Denotes those present at the exit interview on July 1, 1983.

## 2. Attempted Removal of Penetration X-215

The inspector reviewed the events which led up to the attempted removal and degradation of Unit 1 torus spare penetration X-215 and the subsequent repair. The penetration was in the degraded condition for about 36 hours. Had the penetration been removed, primary containment would have been violated.

- a. The following is a chronological description of events leading up to the event and the subsequent repair. This information is based on interviews, review of records, and visual observation of penetration X-215.

<u>DATE</u>	<u>EVENT</u>
1979	NRC issued IEB 79-14 regarding seismic support of reactor systems piping.
1979	Bechtel performed a walkdown of piping in support of IEB 79-14 to provide as-built information on drawings. Torus penetration X-215 was identified on a drawing as a "Pipe Stanchion" connected to the KHR pipe running above it. On the same drawing, penetration X-215 was marked and circled with a line drawn to the base of the "Pipe Stanchion". This information was provided to EDS Nuclear in August 1979.
October 1979	The licensee approved modification M-4-1/2-79-11 for the upgrading of various pipe hangers as required by IE Bulletins 79-02 and 79-14. The licensee issued a "blanket" safety evaluation which covered the overall upgrading of the piping systems. The individual analyses for pipe hangers was contracted to EDS Nuclear.
October 1982	Based on the information provided in 1979, EDS modeled the "Pipe Stanchion" as a trunnion and determined it had to be removed. EDS requested its site representative to provide a sketch of Data Point (D. P.) 69 to be used for the deletion. (D. P. 69 was actually penetration X-215). Two EDS site representatives visually inspected spare penetration X-215 and obtained measurements. They viewed the penetration piping from below and did not see the X-215 painted on the torus above the penetration. A sketch of the penetration with measurements was provided as requested. It was also noted on the sketch that the "trunnion" was not welded to the pipe running above the "trunnion."

1983

EDS issued a Request for Change (RFC) No. QI-399 to remove the "trunnion" from the Unit 1 torus. A sketch of the "trunnion" and a dimension location was provided. Information copies of the RFC were sent to the licensee's Corporate Station Nuclear Engineering Department, Corporate Construction", Station Construction, Station QA, and to Sargent and Lundy Engineers. A copy was also sent to Morrison Construction for action.

March 1983

Morrison Construction Co., the contractor, prepared a work package to remove the "trunnion" in accordance with RFC No. QI-399. The licensee's Site Construction Department and Station QA approved the work package.

June 9, 1983

With the plant at power, Morrison Construction personnel prepared to remove the "trunnion". At about 1:00 p.m. two pipefitters (after being briefed by their foremen) proceeded to the torus area and correctly located the "trunnion" showed on the sketch provided by EDS. They proceeded to remove the "trunnion" which was a four-inch pipe with a cap by grinding away the weld at the base of the pipe on the torus. After grinding away the weld material, they attempted to remove the pipe. Had the pipe been welded to the torus as indicated, the pipe would have been easily removed when the welds were removed; however, the pipe would not move. Additional grinding was performed which included some grinding into the pipe and the pipe still would not move. At approximately 3:30 p.m. one of the pipefitters saw the number X-215 painted on the torus above the pipe they were trying to remove. According to interviews, the number was not previously seen because it was covered with dust. With the pipefitters sliding around the area, the dust was wiped off the penetration number. Upon seeing the number and the fact that the pipe could not be removed as planned, the pipefitter became suspicious that something was not right and stopped work on the removal. The pipefitters reported their findings to their foremen who suspected they were grinding on a penetration. He inquired as to the status of the penetration and made a judgment that the penetration would still perform its function. The penetration did not leak (i.e., containment integrity was not violated) when the top weld was removed because the pipe was also welded to the inside of the torus. The foremen did not report this to the licensee at this time.

June 10, 1983

The foremen verified by contacting his management and EDS that the pipe that they had attempted to remove was penetration X-215. At approximately 1:30 p.m. Morrison Construction informed the licensee's Site Construction Department that they had attempted to remove torus penetration X-215. The station was then notified of this event.

Magnetic particle testing was performed on the pipe and it was determined that the penetration had not been breached. Measurements were performed to determine the depth of the cuts into the penetration pipe. (The pipe had a nominal 3/8-inch wall thickness.) There were two cuts on the pipe penetration to a depth of 3/16 inch each and each cut was about 3/4 inch long.

A repair procedure was prepared and approved and the penetration was repaired sometime between 7:00 p.m. on June 10 and 7:00 a.m. on June 11, 1983.

- b. Review of the above event indicates that the root cause was the identification of torus penetration X-215 as a "trunnion". Apparently there was either no review or an inadequate review of original torus drawing during the initial review process by Bechtel Power, CECC, and EDS Nuclear in 1979. The proposed modification RFC No. QI-399) was also evaluated and/or reviewed by several persons representing EDS Nuclear, Station Nuclear Engineering Department, Station Construction Department, Station QA, and Morrison Construction Company prior to the performance of the activity, but no one apparently considered the torus drawings nor the effect on the torus of the removal of the so-called "trunnion". Had the penetration been removed as planned, containment integrity would have been violated. The failure to perform an adequate review of original torus drawing during the formulation and issuance of RFC No. QI-399 resulting in the classification of the spare torus penetration X-215 as a "trunnion" is considered an item of noncompliance pursuant to Appendix B, Criterion III, Design Control (254/83-19-01).
- c. In addition to the above, the inspectors discussed the following concerns regarding the event with the licensee.
  - . The station operating organization was not notified of the event until 22 hours after it happened. The licensee stated it was taking action to assure any such future events are promptly reported to the operating organization.
  - . An evaluation had not been performed following the event to determine if the degraded penetration would have withstood the accident pressure during the time it was degraded. At the inspector's request on June 30, 1983, the licensee agreed to have an evaluation

performed. The evaluation dated July 9, 1983, was performed by NUTECH Engineers and concluded that the degraded penetration would have withstood the accident pressure. The inspectors have no further questions regarding this evaluation at this time.

- For the IEB 79-14 modification, work packages were reviewed and approved by CEC Co Site Construction Department (SCD) to identify any interfaces with operations. Station personnel possessing adequate plant operational knowledge were not involved in the review of these work packages for the operating plant interfaces. Having such persons in the review/approval process would have increased the likelihood that the "trunnion" would have been correctly identified as a penetration. This item is considered to be an unresolved item (254/83-19-02).

### 3. Maintenance

Work Requests (WRs) and specialized procedures for activities concerning safety related systems and components were reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides, industry codes or standards and in conformance with Technical Specifications.

The following items were considered during this review: limiting conditions for operation were met while components or systems were removed from service; approvals and concurrences were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; and materials were properly certified.

The following Work Requests (WRs) were reviewed:

<u>WR No.</u>	<u>Maintenance Activity</u>
12225	1-001-7C Breaker tripped when tried to open valve.
13823	Added two protective devices between MG Set & RPS Bus.
14318	HPCI pump casing leak.
21862	HPCI turbine thrust bearing inspection and disassembly
22041	Inboard pump seal leaking/replace (28 Recirc. Pump).
22442	19-18 TIE BKR. would not close in from control rooms.
23721	Air leaking from "Y" on starting air header, downstream of regulator.
24207	Inspected and repaired U-2 HPCI testable check valve.



24210 Unit 2A RHR Pump seal blown, repair.

25254 Inspect and change out 108 and 109 relays (if necessary).

During the review, the inspectors noted that two Work Requests that had the word "various" filled in where the personnel performing the work were to be identified. This practice does not allow for specific identification of workers who have performed the work. The licensee stated that when several workers were involved in work extending over more than one shift that "various" was sometimes entered. The licensee stated it would consider entering the lead workman's name under these conditions. The inspectors have no further questions regarding this item at this time.

No items of noncompliance or deviation were identified.

4. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspection is discussed in Paragraph 2.c.

5. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) on June 17, 1983, and summarized the purpose, scope, and findings of the inspection. On July 22, 1983, the inspectors met with Messrs. E. Zebus and E. Rowley and discussed the evaluation performed on the degraded penetration and other items.