U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-456/91008(DRS); 50-457/91006(DRS)

Docket Nos. 50-456; 50-457

Licensee: Commonwealth Edison Company
Opus West III
1400 Opus Place
Downers Grove, IL 60515

Facility Name: Braidwood Nuclear Power Station, Units 1 and 2

Inspection At: Braceville, IL 60407

Inspection Conducted: March 11 through April 1, 1991

Inspectors: _____ 4/12/91
Ronald A. Langstaff Date

_____ 4/12/91
Kombiz Salehi Date

Approved By: _____ 4/12/91
Monte P. Phillips, Chief Date
Operational Programs Section

Inspection Summary

Inspection on March 11 through April 1, 1991 (Report No. 50-456/90008(DRS); 50-457/90006(DRS))
Areas Inspected: Routine, announced, safety inspection of modifications and design changes implemented during the unit 1 refueling outage. The inspection was conducted utilizing Inspection Module 37700.
Results: One previously identified open item was closed. No violations were identified.

The modification and design change programs as implemented were effective and met regulatory requirements.

Considerable improvement in the temporary alterations program was noted. The temporary alterations program met regulatory requirements.

Strengths were noted in the positive impact of the quality assurance organization efforts for reviewing the temporary alteration program and human factors considerations for the level indication modifications reviewed. Weaknesses were noted in a lack of attention to detail and the lack of appropriate review of modification-related technical specification changes to determine required training content for licensed personnel prior to the change becoming effective.

REPORT DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

K. Kofron, Station Manager
E. Carroll, Regulatory Assurance
*D. Cooper, Technical Staff Supervisor
R. Kyrouac, Nuclear Quality Programs (NQP) Superintendent
R. Legner, Services Director
M. Lohmann, Project Manager
D. O'Brien, Technical Superintendent
D. Rupert, Engineering Support
D. Skoza, Site Engineering Supervisor
G. Vanderheyden, Training Supervisor

*Denotes the individual who did not attend the exit meeting conducted on April 1, 1991.

Other personnel were contacted during the course of the inspection, including members of the licensee's technical, operations, regulatory assurance, and corporate engineering staff.

2. Action on Previously Identified Items

(Closed) Open Item (50-456/87041-03; 50-457/87039-11): RHR suction valve interlock in technical specifications appears to need a change to increase the 360 psig limit given. The original concern was that the residual heat removal (RHR) suction valve open permissive interlock had a setpoint value which differed from that specified by Technical Specifications. During this inspection, the setpoint value for this interlock was 360 psig which was in agreement with the Technical Specifications, and was conservatively within the 400 psig value specified by the UFSAR. This item is considered closed.

3. Modifications and Design Changes (37700)

The inspectors reviewed six permanent plant modifications and four temporary modifications to determine if they had been conducted in accordance with programmatic and regulatory requirements and if all technical issues had been adequately addressed. The review of the modification

packages included documentation review of design specifications and calculations, testing criteria and results, updated operating procedures, and lesson plans and required reading for associated training. The inspectors also observed installation of work in progress, testing in progress, and walked down the final installation configurations where appropriate.

a. Modifications Reviewed

(1) Modifications M20-1-87-073 and M20-2-87-007, Refueling Cavity and Reactor Vessel Level Indication. These modifications installed level and associated level indication equipment to provide water level indication for shutdown conditions.

(2) Modification M20-1-88-084, Elimination of Pressure Testing Permissives for Delta T/TAVG. This modification changed the trip logic from a one out of three to a two out of four logic. The change in logic decreased the vulnerability of tripping the unit if a single instrument failed during testing of the circuit. This modification only changed the system during the test phase and did not alter the normal safety function of the system.

(3) Modification M20-2-89-005, Installation of Blind Flanges on Spare Penetrations. This modification installed blind flanges on three spare penetrations on unit 2. The work involved welding a blind flange to each of the three spare penetrations.

(4) Modification M20-1-89-014, Redundant Reactor Vessel Level Indication. This modification installed a redundant means of reactor vessel level indication similar to one of the level indications provided as part of modification M20-1-87-073. This modification was performed as part of a licensee commitment to Generic Letter 88-17.

(5) Modification M20-1-89-032, Removal of Auto-Closure Interlock (ACI) Function of Residual Heat Removal (RHR). This modification removed the ACI function on the RHR suction isolation valves and provided an alarm on the main control board in its place.

The ACI function had been a contributor to loss of decay heat removal events. This modification was performed as part of a licensee commitment to Generic Letter 88-17.

(6) Modification M20-1-90-008, Loop Seal/Vent for Auxiliary Feedwater Pumps Section Line. This modification added a loop seal with a gate valve on the standpipe for the condensate suction header to the auxiliary feedwater pumps and installed a check valve in the condenser hot well return to the condensate tank. The loop seal was installed to prevent air induction into the suction piping. The check valve was installed to limit the interaction between the condenser hotwell overflow line and the suction piping.

b. Inspection Results

The modification and change program as implemented was effective and met regulatory requirements. The 10 CFR 50.59 evaluations performed by both corporate engineering and site technical staff were well supported. Appropriate and prompt corrective actions were taken by the licensee where deficiencies were identified during installation or testing.

A strength was noted in use of human factors for the level indication modifications reviewed. For the primary means of level indication, three ranges were provided; the reactor vessel, refueling area, and a wide range which spanned the previous two areas. Redundant indication, similar to the reactor vessel level indication range was provided. All four meters provided indication in feet elevation for ease of comparison. A diagram depicting the span of each level indicator was placed adjacent to the level meters on the control panels as an operator aid.

Two weaknesses were identified concerning the lack of attention to detail and the lack of appropriate review of modification-related technical specification changes to determine required training content for licensed personnel prior to the change becoming effective.

(1) Lack of Attention to Detail

There were several errors involving the testing for modifications M20-1-87-073 and M20-2-87-007. A calibration data sheet for one of the level transmitters reflected a transmitter elevation one foot higher than its actual elevation. The

licensee discovered this error as a result of level indication discrepancies identified during testing.

A head correction performed by instrument and maintenance personnel to correct for the difference in test tap elevation and transmitter elevation was not done correctly for one of the level transmitters. The licensee discovered this error as a result of level indication discrepancies identified during testing.

Test results outside of specified acceptance criteria were not identified during the site technical staff review and approval of test results. Although the results were outside of the acceptance criteria originally specified in the test procedure, the results were within the design acceptance criteria. The acceptance criteria originally specified in the test procedure, written by the site technical staff, was considerably more stringent than that required by design engineering. This was discovered by the licensee during its investigation of the inspectors concern involving the final results being outside of the acceptance criteria.

Although minor in nature, each of the above errors should have been caught by routine quality efforts instead of modification testing and NRC review of the results.

(2) Lack of Appropriate Review for Required Training

The inspectors were concerned that the utilization of required reading as the sole method of training for TS changes where time of implementation is important may result in licensed staff not being adequately trained. Technical Specification (TS) amendment 25 related to the removal of the residual heat removal suction valve autoclosure interlock (ACI) and associated surveillance requirements. Although the required reading noted the removal of requirements for the ACI in the Technical Specifications, the required reading did not address when the ACI would be removed. Since the change to the Technical Specifications preceded the modification by three months for unit 1 and by about nine months for unit 2, there would be a significant period after the TS change when the ACI would still be present. There had been no review of the required reading material by the

licensee personnel who had been involved in the development of this TS change. The licensee's staff concurred with this concern, and indicated that an improved procedure covering Technical Specifications change notification with appropriate review would reduce the probability of confusion or inadequate notification.

4. Temporary Alterations

Four temporary alterations (88-2-005, 89-1-045, 90-0-007, and 90-1-011) were reviewed. Considerable improvement in the temporary alteration program from the previous modifications inspection was noted. The program, as implemented during this inspection met regulatory requirements.

Areas of improvement in the temporary alterations program included a reduction in the number of safety-related temporary alterations in place, commercial grade evaluations were performed when appropriate, and adequate 10 CFR 50.59 evaluations.

A licensee audit had also been performed in this area (see paragraph 5).

5. Quality Verification

Three audits (20-90-04, 20-90-18, and 20-91-03A) and two field monitoring reports related to modifications were reviewed. Where findings were identified, recommendations and corrective action were commensurate with the significance of the findings.

In the case of audit 20-91-03A, temporary alterations, the audit identified programmatic problems which remained even though improvements had been made. Recommendations made by the audit were appropriate for the problems identified. The inspectors determined that the audit was thorough, provided good perspective on programmatic deficiencies, and was a strength. Because station commitments in response to the audit had not been finalized at the time of inspection, implementation of corrective actions could not be assessed.

A licensee engineering evaluation of a weld associated with modification M20-1-89-005 determined that although the weld was acceptable, the welder had inadequate qualification. As a result, the licensee required the welder to take additional training prior to performing additional work at Braidwood.

6. Exit Meeting

The inspectors met with the licensee representatives (denoted in paragraph 1) on April 1, 1991. The inspectors summarized the scope and findings of the inspection. The inspectors also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection and the licensee did not identify any such documents or processes as proprietary.