

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-456/91004(DRP); 50-457/91004(DRP)

Docket Nos. 50-456; 50-457

Licenses No. NPF-72; NPF-77

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

Facility Name: Braidwood Station, Units 1 and 2

Inspection At: Braidwood Site, Braidwood, Illinois

Inspection Conducted: January 27 through March 9, 1991

Inspectors: S. G. Du Pont
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Reactor Projects Section 1A

3/29/91
Date

Inspection Summary

Inspection from January 27 through March 9, 1991 (Reports No. 50-456/91004(DRP); 50-457/91004(DRP))

Areas Inspected: Routine, unannounced safety inspection by the resident inspectors of licensee action on previously identified items; licensee event report review; allegation followup; followup of events at operating power reactors; evaluation of licensee's quality assurance; operational safety verification; monthly maintenance observation; monthly surveillance observation; report review and meetings.

Results: Of the ten areas inspected, no violations were identified in nine of these areas. One non-cited violation was identified in the area of Allegation Followup.

A non-cited violation of 10 CFR 50, Appendix B, Criterion V, was identified for failing to accomplish the required quality control checks in accordance with the procedure.

Operations appear to be adequate during this inspection. Unit 1 was in a forced outage at the beginning of the inspection period and as of March 1, 1991, the licensee has started their scheduled refueling outage. The licensee is currently defueling the reactor and completing the five year overhaul of the 1A emergency diesel generator. Steam generator sludge lancing and eddy current testing is almost complete. Unit 2 has been operating at or near full power throughout the inspection period.

Maintenance/Surveillance continues to remain constant. Because of the Unit 1 refueling outage and the increase in maintenance activities, the licensee has been stressing increased awareness, particularly for items that may affect the operating unit. There have been no missed surveillances during this inspection period.

Safety Assessment and Quality Verification, in general, remains unchanged. The inspectors reviewed portions of the quality assurance program and the licensee's actions appear to be very positive with their approach to this subject.

Licensee Management involvement in most of the areas appears to have increased during this inspection period. During the Unit 1 refueling outage, emphasis has been placed on heightened awareness on infrequent occurring activities.

DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

- *K. L. Kofron, Station Manager
- *G. E. Groth, Production Superintendent
- *D. E. O'Brien, Technical Superintendent
- *G. R. Masters, Assistant Superintendent - Operations
- *R. J. Legner, Services Director
- *R. D. Kyroutac, Nuclear Quality Program Superintendent
- *D. E. Cooper, Technical Staff Supervisor
- *M. E. Lohman, Assistant Superintendent, Maintenance
- *A. D'Antonio, Quality Control Supervisor
- S. Roth, Security Administrator
- *K. G. Bartes, Nuclear Safety Supervisor
- *E. W. Carroll, Regulatory Assurance
- *D. J. Skoza, Engineer
- *E. M. Roche, Radiation Protection

*Denotes those attending the exit interview conducted on March 11, 1991, and at other times throughout the inspection period.

The inspectors also talked with and interviewed several other licensee employees.

2. Licensee Action on Previously Identified Items (92701, 92702)

a. Open Items

(Closed) 50-457/90012-01: During a Unit 2 cooldown on March 18, 1990, the licensee exceeded Technical Specification (TS) 3.4.9.2.b, Pressurizer Cooldown Limit of 200°F in one hour. The TS action item requires the licensee to perform an engineering evaluation of the structural integrity of the pressurizer. In 1989, the licensee anticipated this problem and performed the evaluation. The inspector reviewed the evaluation and determined the licensee met its requirements during the March 1990 event. This item is considered closed.

(Closed) 50-457/90012-02: During the March 18, 1990 cooldown event, the RCS pressure dropped below the minimum RCP NPSH and minimum number 1 seal differential pressure. The licensee replaced all three seals. The old seals were then analyzed for damage. The inspector reviewed the analysis. No concerns were identified. This item is considered closed.

(Closed) 50-456/91002-01: During the early January 1991 routine Emergency Preparedness (EP) inspection, a spot check of records

indicated that several members of the onsite Emergency Response Organization (ERO) had not completed training Module 19, "Overview of GSEP", by January 1, 1991. The licensee planned to modify a recently developed EP training tracking computer program to include Module 19, and to ensure that all members of the onsite ERO, who had not completed Module 19 training during 1990, would complete this training by February 1, 1991.

Records review and discussions with the Generating Station Emergency Preparedness (GSEP) Instructor and GSEP Coordinator indicated that the tracking program had been modified to include Module 19, which could be taught by a number of instructors and which contained a somewhat more detailed overview of the licensee's EP program than that provided during annual unescorted access training. The licensee determined that about 10 ERO members had apparently not been trained on Module 19 during 1990. These persons either completed training on this module by February 1, 1991 or were deleted from the emergency organization's roster. This item is closed.

b. Violations

(Closed) 456/89009-01: On April 16, 1989, during a plant heat-up and pressurization from Mode 5 to Mode 3 an inadvertent safety injection (SI) was initiated. The SI occurred when the reactor coolant system (RCS) pressure increased above the setpoint of 1930 psig. The root cause was determined to be the failure of on-shift operations personnel to adequately monitor and control the system pressure increase. The licensee has revised BWGP 100-1 and implemented other administrative controls to prevent recurrence of this incident. These actions appear to have been effective. This item is considered closed.

(Closed) 456/90010-01: An inadvertent actuation of the 1RY456 pressurizer power operated relief valve (PORV) occurred when an instrument mechanic failed to perform a step in surveillance BWIS 3.1.1-338. This resulted in a 60 psi reduction in reactor coolant system (RCS) pressure. The licensee has revised BWIS 3.1.1-338 and implemented other administrative controls to prevent recurrence of this incident. These actions appear to have been effective. This item is considered closed.

(Closed) 456/90023-02: As of October 4, 1990, the licensee had failed to develop adequate administrative procedures to limit the working hours of unit staff who perform safety-related functions. Specifically, BWAP 100-7, Revision 2, Overtime Guidance for Personnel that Perform Safety-Related Functions, the administrative procedure implementing Technical Specification 6.2.2.e was deficient in that it did not address all unit staff groups responsible for performing safety-related functions such as Technical Staff Engineers who direct the performance of surveillance testing.

In order to ensure that overtime at Braidwood Station is properly controlled, the licensee has revised Braidwood Station Procedure, BWAP 100-7, Overtime Guideline for Station Personnel, to include overtime guidance for all Commonwealth Edison personnel working at Braidwood Station. This revision will provide adequate administrative control to limit the working hours of unit staff who perform safety-related functions. The resident inspectors found these actions acceptable. This violation is closed.

No violations or deviations were identified.

3. Licensee Event Report (LER) Review (92700)

Through direct observations, discussions with licensee personnel, and review of records, the following LERs were reviewed to determine that reportability requirements were fulfilled, that immediate corrective action was accomplished, and that corrective action to prevent recurrence had been or would be accomplished in accordance with Technical Specifications (TS):

(Closed) 457/89006
(Closed) 457/89008
(Closed) 456/89011
(Closed) 456/89015
(Closed) 456/89019
(Closed) 457/90011
(Closed) 457/90012
(Closed) 456/90015
(Closed) 456/90016
(Closed) 456/90017
(Closed) 456/90019
(Closed) 456/90020
(Closed) 456/90021
(Closed) 456/90022
(Closed) 456/90023
(Closed) 456/91001

No violations or deviations were identified.

4. Allegation Followup

(Closed) RIII-90-A-0052: On or about May 15, 1990, an individual expressed concerns to the NRC Resident Inspector pertaining to Nuclear Work Request No. A40354:

Allegation

The concerns related to the potential overtightening of the flexitalic gasket used in the flow element flange upstream of RTD manifold common return header isolation valve 2RC8074A.

Discussion

Review of the package and discussion with licensee maintenance personnel identified that the flexitalic gasket and flange torque values were in accordance with a standard torque chart. The chart was supplied by the licensee's technical staff. The torque chart was developed using an industry technical reference based on bolting material, size, and fabrication. A concern about buckling of the gasket retaining ring was discussed and the licensee's maintenance and technical staff describe this as a normal condition. Discussions with Region III staff personnel identified the outer ring to be a spacer which did not have any effect on the flexitalic gasket's sealing capabilities. Additionally, the staff indicated that overtightening of the gasket was highly unlikely.

After reviewing the work package, the resident inspector had two additional concerns. These were; 1) the torque values supplied by the technical staff acceptable for ASME code work?, and 2) some of Quality Control (QC) hold points for the flange and flow element reassembly on May 5, 1990 were missed or not documented.

The licensee's technical staff and engineering department investigated the question of the torquing values. The results were that the torquing values were acceptable. Also engineering supplied a list of acceptable torque values which have been incorporated into the licensee's procedures. Engineering is continuing to analyze those points that will undergo repetitive torquing throughout the life of the plant and will provide recommendations of bolt/stud replacement if necessary.

There were some hold points that were missed. These missed hold points were identified by the licensee and dispositioned.

Findings

The original concern of overtightening the gasket was not substantiated. The two concerns pertaining to the specific torque values being acceptable for ASME code work and missed QC hold points were thoroughly addressed by the licensee. The torque values were reviewed by the licensee's engineering department and Sargent and Lundy. Recommendations have been incorporated into the station procedures.

10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, states in part . . . Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.

Contrary to the above, on or about May 5, 1990, QC hold points for steps BA-8E on the station traveler for work package N20-2-9C, 118-001, NWR A40254, had not been observed or signed off. This is a violation. Since the licensee identified the violation and corrective actions have been effective in preventing recurrence, this is considered to be a non-cited violation (50-457/91004-01(DRP)) in accordance with 10 CFR 2, Appendix C, V.G.1, and, as such, a Notice of Violation will not be issued.

One Non-cited violation was identified.

5. Event Followup of Operating Power Reactors (93702)

Oil found in 1C and 1D Accumulator Tanks

On February 28, 1991 the licensee reported to the inspector that oil had been found in the 1C and 1D Safety Injection (SI) accumulators tanks. Approximately 25 gallons of oil was found in each tank. The other two accumulators had previously been drained during this outage and although oil was found in them, the amount was not determined. The licensee believes the oil came from the nitrogen compressor used to pressurize the accumulator tanks. In December 1989, while filling and pressurizing the accumulators, the diaphragm assembly leaked forcing oil into the tanks and associated piping. During disassembly of the compressor following the event, the diaphragms were found to be rotated such that a sensor, that would normally detect an oil leak and shut down the compressor, was ineffective. The root cause of the diaphragm rotation is undetermined, however, it is thought to be from either improper installation or compressor vibration. To prevent future rotation, the diaphragms are now being attached to each other prior to installation. The diaphragms are susceptible to fatigue failure, therefore, licensee has initiated a program to replace them semi-annually. The licensee is also investigating the use of a different type of compressor. Until the investigation is complete, nitrogen will be supplied from an alternate source. A similar method is currently employed at Byron Station for outages.

The licensee requested Westinghouse to perform a Justification for Continued Operation (JCO) analysis for Unit 2 assuming the same amount of oil found in Unit 1 was also present in Unit 2. The JCO was not complete prior to the end date of this report.

After a review of the above information the inspector identified the following concerns; 1) justification for not flushing the oil from the SI accumulator and associated piping following the diaphragm rupture in 1989, 2) the effectiveness of the new maintenance schedule for diaphragm replacement and procedure revision, and 3) the results of the JCO. These items are considered to be an Open Item (50-456/90004-01(DRP)) pending further evaluation of the above concerns by the licensee and the NRC staff.

No violations or deviations were identified.

6. Evaluation of Licensee's Quality Assurance (35502)

Inspection report 50-456/89030(DRP) was an Augmented Inspection Team inspection investigating a residual heat removal (RHR) system suction relief valve event of December 1, 1989. In the report, eight recommendations were made by the inspectors to the NRC staff. Although no reply by the licensee to the NRC was required, they did provide the inspector with the actions taken concerning the recommendations. The inspector has reviewed the actions and has no further questions. This item is considered closed.

No violations or deviations were identified.

7. Operational Safety Verification (71707)

During the inspection period, the inspectors verified that the facility was being operated in conformance with the licenses and regulatory requirements and that the licensee's management control system was effectively carrying out its responsibilities for safe operation. This was done on a sampling basis through routine direct observation of activities and equipment, tours of the facility, interviews and discussions with licensee personnel, independent verification of safety system status and limiting conditions for operation action requirements (LCOARs), corrective action, and review of facility records.

On a sampling basis the inspectors daily verified proper control room staffing and access, operator behavior, and coordination of plant activities with ongoing control room operations; verified operator adherence with the latest revisions of procedures for ongoing activities; verified operation as required by Technical Specifications (TS); including compliance with LCOARs, with emphasis on engineered safety features (ESF) and ESF electrical alignment and valve positions; monitored instrumentation recorder traces and duplicate channels for abnormalities; verified status of various lit annunciators for operator understanding, off-normal condition, and corrective actions being taken; examined nuclear instrumentation (NI) and other protection channels for proper operability; reviewed radiation monitors and stack monitors for abnormal conditions; verified that onsite and offsite power was available as required; observed the frequency of plant/control room visits by the station manager, superintendents, assistant operations superintendent, and other managers; and observed the Safety Parameter Display System (SPDS) for operability.

During tours of accessible areas of the plant, the inspectors made note of general plant/equipment conditions, including control of activities in progress (maintenance/surveillance), observation of shift turnovers, general safety items, etc. The specific areas observed were:

. Engineered Safety Features (ESF) Systems

Accessible portions of ESF systems and components were inspected to verify: valve position for proper flow path; proper alignment of

power supply breakers or fuses (if visible) for proper actuation on an initiating signal; proper removal of power from components if required by IS or FSAR; and the operability of support systems essential to system actuation or performance through observation of instrumentation and/or proper valve alignment. The inspectors also visually inspected components for leakage, proper lubrication, cooling water supply, etc.

. Radiation Protection Controls

The inspectors verified that workers were following health physics procedures for dosimetry, protective clothing, frisking, posting, etc., and randomly examined radiation protection instrumentation for use, operability, and calibration.

. Security

During the inspection period, the inspectors monitored the licensee's security program to ensure that observed actions were being implemented according to their approved security plan. The inspector noted that persons within the protected area displayed proper photo-identification badges and those individuals requiring escorts were properly escorted. The inspector also verified that checked vital areas were locked and alarmed. Additionally, the inspector also verified that observed personnel and packages entering the protected area were searched by appropriate equipment or by hand.

. Housekeeping and Plant Cleanliness

The inspectors monitored the status of housekeeping and plant cleanliness for fire protection, protection of safety-related equipment from intrusion of foreign matter and general protection. The general plant cleanliness continued to be good; however, several areas appeared to decrease slightly due to the extended force and scheduled refueling outages on Unit 1.

The inspectors also monitored various records, such as tagouts, jumpers, shift logs and surveillances, daily orders, maintenance items, various chemistry and radiological sampling and analysis, third party review results, overtime records, QA and/or QC audit results and postings required per 10 CFR 19.11.

No violations or deviations were identified.

8. Monthly Maintenance Observation (62703)

Station maintenance activities listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards, and in conformance with Technical Specifications.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from and restored to service; approvals 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; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and fire prevention controls were implemented.

The following maintenance activities were observed and reviewed:

Unit 1A Diesel Generator - 5 year overhaul.

Unit 1 Main Turbine overhaul.

Unit 1 OB Chiller - Retubing.

Unit 1 Main Generator Repair.

No violations or deviations were identified.

9. Monthly Surveillance Observation (61726)

The inspectors observed several of the surveillance testing required by Technical Specifications during the inspection period and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that results conformed with Technical Specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

10. Report Review

During the inspection period, the inspector reviewed the licensee's Monthly Performance Report for January 1991. The inspector confirmed that the information provided met the requirements of Technical Specification 6.9.1.8 and Regulatory Guide 1.16. The inspector also reviewed the licensee's Monthly Plant Status Report for January 1991.

No violations or deviations were identified.

11. Open Items

Open Items are matters which have been discussed with the licensee which will be reviewed further by the inspector and which involve some action on the part of the NRC or licensee or both. One open item was disclosed during this inspection and is discussed in Paragraph 5.

12. Meetings and Other Activities (30702)

Site Visits by NRC Staff

A meeting was held on March 1, 1990, between the Region III Branch Chief for Branch 1 of the Division of Reactor Projects, the Byron and Braidwood Senior Resident Inspectors and Braidwood Station's management. Discussions pertained to the licensee's actions, within the different departments, taken as a result of the procedural violations on October 4, 1990 and subsequent Enforcement Conference.

13. Exit Interview (30703)

The inspectors met with the licensee representatives denoted in Paragraph 1 during the inspection period and at the conclusion of the inspection on March 11, 1991. The inspectors summarized the scope and results of the inspection and discussed the likely content of this inspection report. The licensee acknowledged the information and did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.