

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-456/94003(DRSS); 50-457/94003(DRSS)

Docket Nos. 50-456; 50-457

Licenses No. NPF-72; NPF-77

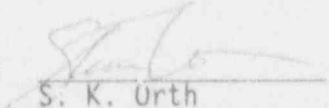
Licensee: Commonwealth Edison Company  
Opus West III  
1400 Opus Place  
Downers Grove, Illinois 60515

Facility Name: Braidwood Nuclear Power Station

Inspection At: Braidwood Site, Braidwood, Illinois

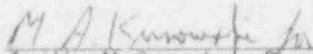
Inspection Conducted: January 31 - March 8, 1994

Inspector:

  
S. K. Orth

3/10/94  
Date

Approved By:

  
J. W. McCormick-Barger, Chief  
Radiological Programs Section 1

2/10/94  
Date

Inspection Summary

Inspection on January 31 - March 8, 1994 (Reports No. 50-456/94003(DRSS); 50-457/94003(DRSS))

Areas Inspected: Routine announced inspection of: (1) the Radiological Environmental Monitoring Program (Inspection Procedure (IP) 84750); (2) the solid radioactive waste processing and shipping program (IP 86750); and (3) follow-up of previous inspection items (IP 84750).

Results: One violation was identified concerning the quality control of chemistry inline monitors. Corrective actions were not taken when inline chemistry instruments failed to meet acceptance criteria. Chemistry management continued to lack adequate oversight and control of chemistry quality control (Section 2). The Radiological Environmental Monitoring Program (REMP) and the solid radioactive waste processing and transportation program continued to be properly implemented. The administration of the REMF was a strength for the station (Section 5).

## DETAILS

### 1. Persons Contacted

- <sup>1</sup>K. Kofron, Station Manager
- <sup>1,2</sup>D. Miller, Technical Services Superintendent
- <sup>1</sup>E. Roche, Health Physics Services Supervisor
- <sup>1</sup>A. Haeger, Regulatory Services Supervisor
- <sup>1,2</sup>J. Schuster, Chemistry Supervisor
- R. Akers, Site Quality Verification Superintendent
- <sup>1</sup>K. Aleshire, Emergency Preparedness Coordinator
- <sup>1</sup>M. Cassidy, Site Quality Verification Inspector
- <sup>1</sup>S. Butler, Site Quality Verification Inspector
- <sup>1,2</sup>J. Lewand, Regulatory Assurance
- R. Thacker, Lead Health Physicist, Technical Group
- A. Lewis, Teledyne Sample Collector
- L. Alexander, Lead Chemist
  
- <sup>2</sup>C. Pederson, Chief, Reactor Support Programs Branch, US NRC
- <sup>1</sup>E. Duncan, Resident Inspector, US NRC
- <sup>1</sup>J. Roman, Inspector, IDNS

<sup>1</sup>Present at the NRC exit meeting on February 4, 1994.

<sup>2</sup>Participated in telephone conference on March 8, 1994.

The inspector also contacted other licensee personnel in the course of the inspection.

### 2. Licensee Actions on Previous Inspection Findings

- a. (Closed) Inspection Followup Item (IFI) Nos. 456/92003-01; 457/92003-01: Licensee to perform a Kankakee River low flow study to determine the effect of river flow on the dispersion of plant discharges. The licensee proposed that at times of low river flow, discharges may be recirculated upstream and into the intake pumps, which may have resulted in sample anomalies in the radiological environmental monitoring program (REMP) in 1989.

The licensee provided an adequate evaluation which determined the cause of the sample anomalies: during low river flow, a pool of discharge water formed in the River Screen House from the drainage of a chemistry sample line connecting the intake and discharge lines. During the period of question, this pool of discharge water expanded into the location where sample BD-07 was obtained. Since the above appeared to be the reason for the sample anomalies and the Kankakee River has not been in low flow since about 1990, the low flow dye study would not afford any additional information. This item is closed.

- b. (Closed) IFI Nos. 456/93005-01; 457/93005-01: The licensee was to analyze a spiked sample of steam generator (SG) blowdown for chloride, fluoride, and sulfate and report the results to the Region III office for comparison.

The results of the comparison were very good. The licensee achieved agreements in the chloride and fluoride analyses; the NRC result for sulfate could not be used for comparison. The licensee determined the concentrations of chloride and fluoride to be 24.2 and 27.6 parts per billion (ppb), respectively. The NRC results for chloride and fluoride were 22.8 and 25.0 ppb, respectively. Both licensee's results were in good agreement with NRC values; this item is closed.

- c. (Open) IFI Nos. 456/93005-02; 457/93005-02: The licensee was to investigate methods to reduce errors and sources of chemical contamination in analyses performed with the ion chromatographs (ICs).

The licensee completed some changes to improve the performance of the ICs. The six-position valve was removed which decreased the possibility of delivery volume inconsistencies and chemical contamination. However, the inspector reviewed recent quality control (QC) data which indicated a positive bias in the instruments' responses. The licensee will continue to evaluate improvements in these analyses to improve the performance of the systems. The results of this evaluation will be reviewed in future inspections.

- d. (Closed) Violation Nos. 456/93005-03; 457/93005-03: Violation of Technical Specification (TS) 6.8.4.c which requires that a program for secondary water chemistry to inhibit SG corrosion be established, implemented, and maintained.

In the licensee's response to the violation, the licensee stated that the chemistry department had revised procedure BwCP PD-7, "Braidwood Quality Control Program," to contain the necessary provisions to delete BwCP 510-7, "Process Sample Panel Performance Check." Further, it stated that full compliance with BwCP PD-7 was achieved on April 26, 1993, and that compliance with Nuclear Operations Directive NOD-CY.8 had been re-initiated. Further enhancements of the inline quality control program were also described.

The inspector reviewed the quality control log book required by BwCP PD-7 and noted that the performance tests were recommenced as stated in the licensee's response. However, the log books did not document the acceptance criteria used or the corrective actions taken for those tests not meeting the acceptance criteria. The chemistry supervisor indicated that the chemistry and site quality verification (SQV) staffs had further evaluated the program (Section 4) and noted several weaknesses, including the

deficiencies noted by the inspector. In addition, it was indicated that corrective actions were not taken for several isolated and repetitive failures to meet the acceptance criteria for pH and conductivity instruments. Inconsistently, the licensee issued work requests but often did not test the equipment after maintenance was completed, as required by NOD-CY.8.

Since about July 1993, an individual from the licensee's Production Training Center (PTC) was responsible for performing the QC tests. This individual was onsite about two days each week to perform the tests and, frequently, was not onsite to followup on the results. Discussions between the chemistry supervisor, inspector, and PTC individual indicated that the PTC individual was not aware of the appropriate actions to be followed after test performance and that the chemistry group was unaware of his activities.

The licensee is required by TS 6.8.1.a to implement procedures recommended in Regulatory Guide 1.33, Revision 2, which include those procedures necessary to calibrate and adjust laboratory equipment to maintain accuracy. The licensee's procedures BwCP PD-7, "Braidwood Station Chemistry Quality Control Program," Nuclear Operations Directive NOD-CY.8, "Nuclear Stations Division Chemistry Quality Control Program," and the "Nuclear Operations Inline Chemistry Instrument Quality Control Program Manual" specified frequencies and acceptance criteria for chemistry inline instruments to ensure the reasonable accuracy of chemistry measurements. Failure to perform corrective actions since about April 1993 for instruments not meeting the acceptance criteria contained in NOD-CY.8 is a violation of TS 6.8.1.a (Violation Nos. 456/94003-01 and 457/94003-01).

Although the NRC has the ability to exercise discretion in licensee identified violations in Section VII.B of the "General Statement of Policy for NRC Enforcement Actions," (Enforcement Policy, 10 CFR Part 2, Appendix C), the NRC has cited this violation because corrective actions from the initial violation should have prevented this violation. Additionally, this violation was identified by the chemistry staff and SQV staff; however, no corrective actions were taken.

The licensee acknowledged the inspector's concerns regarding the current state of the inline instrument QC program and indicated that the chemistry staff would perform laboratory analysis of samples obtained at routine sampling points to satisfy the required TS testing. The measurements attained via the inline monitors would be used strictly for trending purposes, not for required measurements and reporting. These actions would ensure that the licensee was in compliance with the appropriate technical specifications and that the measurements were accurate. The chemistry supervisor also indicated that the staff was in the process of implementing significant changes to the inline QC

program, e.g. procedures, performance tracking, and performance criteria, which would be completed in June of 1994.

Progress in the QC of inline chemistry instruments will be further reviewed in future inspections.

One violation was identified.

3. Management Control and Organization (IP 84750)

The inspector discussed the chemistry unit organization with the licensee. Since the last inspection, the licensee completed a comprehensive reorganization involving several personnel changes within the chemistry group. Many of the former chemistry staff had moved into corporate positions and positions at other utilities. The position of quality control (QC) chemist was eliminated, and the responsibilities were distributed among the lead analytical chemist and the chemistry engineering assistants, each bearing responsibility for certain areas of chemistry QC.

The former lead chemist at the LaSalle Nuclear Station replaced the chemistry supervisor (CS). The CS was a degreed chemist and occupied positions in the LaSalle chemistry department since about October 1981. The turnover of information between the former CS and the present CS appeared to be acceptable.

The lead chemist, laboratory supervisor, chemistry engineering assistants, and waste product chemist functionally reported to the CS. One of the chemistry engineering assistants was reassigned as the laboratory supervisor to replace the former two supervisors. A member of the licensee's training staff filled the vacancy as a chemistry engineering assistant. The former unit 1 chemist was involved in a certification training, and, subsequently, a member of the corporate chemistry staff was assigned to the position.

The inspector reviewed the backgrounds and qualifications of the additions to the chemistry staff and verified that all were qualified for their respective positions. However, all of these personnel were relatively unfamiliar with the Braidwood chemistry program and lacked experience in supervisory positions. The effects of these changes may present a potential for instability within the chemistry group and will be reviewed in future routine inspections.

No violations or deviations were identified.

4. Audits and Appraisals (IPs 84750 and 86750)

The inspector reviewed several recent audits of the chemistry, REMP, and radioactive waste (radwaste) processing and shipping areas and discussed auditing activities with members of the site quality verification (SQV) staff. The audits appeared to be performed in good depth, and findings were of good technical bases. In the areas of REMP and radwaste

processing and shipping, findings were generally positive and indicated the program areas were acceptably implemented.

The SQV staff discussed a recent chemistry corrective actions audit performed prior to this inspection. The SQV findings were in agreement with NRC findings (Section 2.d) and indicated concerns with the administration of the chemistry QC program. Based on the results of the audit, the SQV staff expected a continued emphasis and review of the chemistry program, including followup of corrective action requests.

The inspector discussed the functions of the SQV department and audit followup actions with the SQV staff. SQV's assessments consisted of the results of both audits and field monitoring reports (FMRs) which were integrated to direct the level of further auditing activities. Problems identified at other licensee facilities were incorporated into the SQV audits via routine, corporate-wide information exchanges. The SQV tracking and followup system had good provisions for ensuring audit concerns and, subsequent, corrective actions were addressed in a timely manner.

No violations or deviations were identified.

5. Radiological Environmental Monitoring Program (REMP) (IP 84750)

The inspector discussed the administration of the REMP with the station point of contact (POC), reviewed the 1991 and 1992 annual reports, and observed the licensee's sample collector. The annual reports contained sample results required by the licensee's Offsite Dose Calculation Manual and TS; missed samples were properly documented. The licensee's activities continued to have no undue adverse effect to the environment.

The station POC was knowledgeable of the program and the interfaces between the station and the licensee's corporate staff and vendor. The POC also had a variety of mechanisms to ensure that samples were properly collected and that sample anomalies and reportable limits were identified. Quarterly, the POC examined selected sampling equipment and reviewed sampling locations and activities, including the sample collector's analytical techniques.

The inspector accompanied the licensee's sample collector and observed the collection of selected water and filter collections. The sample collector demonstrated very good analytical techniques in obtaining sample media and ensured no sample line inleakage when replacing particulate/charcoal filters at the air samplers. The air samplers were within calibration and in good material condition.

The licensee continued the private well monitoring program described in Inspection Reports No. 50-456/92003(DRSS); 50-457/92003(DRSS). Two private wells located on the bank of the Kankakee River, downstream of the licensee's discharge line, continued to show positive hydrogen-3 (H-3) results in the range of 200-650 picocuries per liter (pCi/l) (7.4 - 24 becquerels per liter (Bq/l)). The H-3 concentrations were well below

the licensee's reporting level of 20,000 pCi/l (740 Bq/l) and pose no health or safety concerns. Although the licensee credits the results to the operation of the Braidwood facility, a defined pathway was not well understood and, consequently, was still under investigation. The licensee will continue to monitor the wells as part of the routine REMP program and include the results in the annual reports.

No violations or deviations were identified.

6. Solid Radioactive Waste and Transportation (IP 86750)

The inspector reviewed selected radwaste shipment records of both resin and dry active waste (DAW) shipments and verified the licensee's compliance with the requirements of 10 CFR 20 and 49 CFR 172. The licensee's shipping documentation, including the required radiation surveys, driver instructions, and manifests, was properly completed. The licensee continued to ship DAW to an offsite facility for super-compaction but discussed plans to operate its own compactor during the next routine refueling outage.

The licensee continued to use scaling factors based on a single waste stream to classify the radioactive waste. The licensee consolidated the former ten waste streams based on a contractor recommendation (Inspection Reports No. 50-456/92012(DRSS); 50-457/92012(DRSS)). Quarterly, the licensee compared selected fractions of gamma emitting nuclides in reactor coolant to detect possible changes in the waste stream, and annually a complete isotopic analysis was performed by a vendor. The results of these analyses were entered into a cumulative data base.

The licensee continued to reduce solid radioactive waste through volume reduction and separation. Volume reduction of DAW consisted of segregation of contaminated and potentially clean trash. During outages, the licensee positioned a radiation protection technician at the containment entrance to monitor and limit the amount of excess material which potentially could contribute to the volume of DAW.

No violations or deviations were identified.

7. Exit Interview

The scope and findings of the inspection were reviewed with the licensee representatives (Section 1) at the conclusion of the onsite inspection on February 4, 1994. Additional telephone conversations were held on February 14, 1994, and March 8, 1994, concerning the chemistry quality control program. During the exit interview, the inspector discussed the likely informational content of the inspection report with regard to documents or processes reviewed during the inspection. Licensee representatives did not identify any such documents or processes as proprietary. The following matters were specifically discussed by the inspector:

- a. the administration of the Radiological Environmental Monitoring Program (Section 5);
- b. the deficiencies in the quality control program for inline chemistry measurements (Sections 2 and 4); and
- c. the lack of adequate chemistry oversight (Section 2).