

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/86001(DRSS)

Docket No. 50-461

License No. CPPR-137

Licensee: Illinois Power Company
500 South 27th Street
Decatur, IL 62525

Facility Name: Clinton Power Station, Unit 1

Inspection At: Clinton Site, Clinton, IL

Inspection Conducted: November 4-8, 1985, January 27-31, February 18-21, and
March 6, 1986

Inspectors: *D. E. Miller/for*
R. A. Paul 3/27/86
Date

D. E. Miller/for
C. F. Gill 3/27/86
Date

Approved By: *D. E. Miller/for*
L. R. Greger, Chief 3/27/86
Facilities Radiation Protection
Section Date

Inspection Summary

Inspection on November 4-8, 1985, January 27-31, February 18-21, and March 6, 1986 (Report No. 50-461/86001(DRSS))

Areas Inspected: Routine, announced inspection of preoperational radwaste and radiation protection programs, including: organization, staffing, and qualifications; ALARA; internal and external exposure control program; procedures and preoperational tests of liquid and gaseous effluent, process, and area monitors; and the solid radwaste solidification system; and open items. The inspection involved 113 inspector-hours onsite by two NRC inspectors.

Results: No violations or deviations were identified.

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DETAILS

1. Persons Contacted

#+*J. Brownell, Staff Specialist, Licensing
+R. Campbell, Director, Quality System and Audits
*W. Connell, Manager, NSED
*H. Daniels, Project Manager
+*W. Gerstner, Executive Vice President
+*J. Greene, Manager of Startup
+*D. Hall, Vice President
*D. Hillyer, Supervisor, Radiation Protection
#D. Holesinger, Director, Startup Testing
+J. Loomis, Construction Manager
+J. Palchak, Supervisor, Plant Support Services
+*J. Perry, Manager of Nuclear Programs Coordinator
+*R. Schaller, Director, Nuclear Training
#+*D. Shelton, Manager, NSED
#+*F. Spangenberg, Director, Nuclear Licensing
#P. Raysircar, Assistant Director, NSED
#R. Weber, Supervisor, Quality Systems
*J. Wilson, Plant Manager

#C. Gill, NRC/Region III, Radiation Specialist
#L. Greger, NRC/Region III, Chief, Facilities Radiation
Protection Section
+P. Hiland, NRC Resident Inspector
#W. Shafer, NRC/Region III, Chief, Emergency Preparedness and
Radiation Protection Branch
#R. Warnick, NRC/Region III, Chief, Reactor Projects Branch 1

The inspectors also contacted other licensee employees and contractors including nuclear safety and licensing, radiation protection, startup, and engineering personnel.

*Denotes those present at the exit meeting on January 31, 1986.

+Denotes those present at the exit meeting on February 21, 1986.

#Denotes those present at a meeting with licensee representatives on March 6, 1986.

2. General

This inspection, which began at 1:30 p.m. on November 4, 1985, was conducted to review: the status of preoperational testing of the liquid, gaseous, and solid radwaste systems; the preoperational radiation protection program; radiation monitoring systems; training; ALARA; and open items. Extensive tours of the licensee's facility were made during the inspection.

3. Licensee Action on Previous Inspection Findings

(CLOSED) Open Item (461/85004-18): Review of area radiation, process, and constant air monitor calibration procedures. The licensee has essentially completed the calibration procedure development, revision, and review for the above noted procedures.

(CLOSED) Open Item (461/85052-01): Review and revision of Radiation Protection Procedures Series 1000 through 1900 to make them more concise, workable, and tailored to the radiation protection program. To date, more than 50 percent of these procedures have been completed and approved; the remainder are to be completed and approved by fuel load. Several revised procedures were reviewed; no significant problems were noted.

(CLOSED) Open Item (461/84001-02): Results of certain preoperational tests of the liquid radwaste system. An inspector reviewed the results of tests performed to demonstrate the operability of the filter drain reprocessing and disposal system (PTP-WF-01), and the proper operation of the containment, drywell, and fuel buildings equipment drain system. Except for a few discrepancies, the tests met the stated objectives and acceptance criteria.

(OPEN) Open Item (461/85004-01): Complete compliance and action plan reports for NUREG-0737 Items II.B.3 and II.F.1 (Attachments 1, 2, and 3). The licensee, in a letter to the Regional Administrator (U-0785), dated January 18, 1985, committed to prepare a commitment and compliance report by April 19, 1985, and an action plan report by June 19, 1985. During a November 1985 site visit, an inspector found the completed reports did not adequately substantiate the licensee's compliance with their commitment to NUREG-0737. Since then, the licensee has been adequately responsive to concerns raised by the inspector. Working staff meetings have been held in the NRC/Region III offices, at the licensee's request, on December 6 and 20, 1985 and February 13, 1986, to resolve compliance documentation issues. Significant progress has been made during these meetings.

(OPEN) Open Item (461/85004-02): Complete installation, development of procedures, and training on use of post-accident sampling system per NUREG-0737 Item II.B.3 commitments. Installation is scheduled for completion by March 25, 1986. Procedures and training are expected to be completed by March 10, 1986. This matter will be reviewed further during a future inspection.

(OPEN) Open Item (461/85004-03): Complete installation, development of procedures, and training on use of the post-accident noble gas effluent monitoring systems per NUREG-0737 Item II.F.1, Attachment 1 commitments. Installation, procedures, and training are scheduled for completion by March 21, 1986. This matter will be reviewed further during a future inspection.

(OPEN) Open Item (461/85004-04): Complete installation, development of procedures, and training on use of the post-accident effluent sampling and analysis systems per NUREG-0737 Item II.F.1, Attachment 2 commitments. Installation, procedures, and training are scheduled for completion by March 21, 1986. This matter will be reviewed further during a future inspection.

(OPEN) Open Item (461/85004-05): Complete installation, calibration, development of procedures, and training on use of the containment high-range radiation monitors per NUREG-0737 Item II.F.1, Attachment 3 commitments. Installation procedures, and training are scheduled for completion by March 21, 1986. Licensee letter (U-600469), dated March 12, 1986, from Hall to Devton (NRC/NRR) request that the completion of preoperational testing (including calibration) of these monitors be deferred until prior to initial criticality. This matter will be reviewed further during a future inspection.

(OPEN) Open Item (461/85004-06): Complete the ANSI/ASME N510 acceptance test program. The licensee's preoperational test procedure No. XTP-00-12, "HVAC In Place Filter Testing," was approved on February 21, 1986. This matter will be reviewed further during a future inspection.

(OPEN) Open Item (461/85004-07): Demonstrate, by laboratory testing, that the air cleaning systems' spinster carbon adsorber has not significantly degraded, and replace the carbon, if necessary. As of February 21, licensee procedure No. GTP-411, "Sampling Impregnated Absorbant From Standard Drums For Vendor Testing," had been drafted but not approved. This matter will be reviewed further during a future inspection.

(OPEN) Open Item (461/85004-08): Complete ANSI/ASME acceptance testing compliance analysis and action plan reports. The licensee, in a letter to the Regional Administrator (U-0785), dated January 18, 1985, committed to prepare two documents to track compliance for the ANSI N510 acceptance test program. These documents are to be internal reports made available for NRC review. The first report is to be a commitment and compliance analysis scheduled for completion by April 19, 1985. The report is to provide a detailed (line-by-line) identification of each commitment associated with ANSI N510, address the review of other documents listed in Section 14.b of Inspection Report No. 50-461/85004, assure that potential programmatic deficiency areas are such as those discussed in Section 14.c of Inspection Report No. 50-461/85004 do not exist at Clinton, assure that specific deficiencies at Clinton identified in Section 14 and 15 of Inspection Report No. 50-461/85004 were properly resolved and that similar deficiencies do not exist elsewhere in the plant, ascertain compliance, identify any corrective measures needed or variance request required, and identify actions needed to document compliance. The second report is to be a detailed action plan providing a tracking system for actions needed to comply with commitment and regulations for design deficiencies and other discrepancies and their resolution, to document compliance. This report showed to be detailed enough to include specific tasks, individuals assigned to each task, a

schedule for completion, and a periodically updated status. The scheduled completion date for the action plan report was June 19, 1985. As of February 21, 1986, neither report was sufficiently developed to demonstrate compliance with licensee commitments to ANSI N510. This matter was discussed at the exit meeting on February 21, 1986, and will be reviewed further during a future inspection.

4. Radiological Protection Organization, Staffing, and Qualifications

The radiation protection organization is nearly fully staffed. Contractor consultants are still employed to fill some job functions and to perform special tasks. Currently, there are four Radiation Protection Shift Supervisors (two more are being hired), all are qualified as supervisors not requiring NRC licenses as specified in Section 4.3.2 of ANSI/ANS 3.1-1978. There are fifteen radiation protection technicians; all meet the technician qualification requirements specified in ANSI/ANS 3.1-1978. The licensee intends to supplement the radiation protection technician staff with contractor technicians before reactor startup. Contractor technicians will be used as needed through 1986.

Except for the permanent radiation protection technicians, it appears the licensee has sufficient permanent staff to implement the radiation protection program during reactor startup and operation. Given the complexity of a radiation protection program at a BWR of this plant size, it appears to the inspectors that a larger permanent radiation protection technician staff may be necessary to adequately perform a quality radiation protection program. This matter was discussed at the January 31, 1986, exit meeting.

5. ALARA

The licensee has continued to strengthen the ALARA program. Most of the licensee identified plant deficiencies have been addressed by the ALARA committee or the staff assigned to ALARA reviews. Improvements in ALARA procedures are being made; all major ALARA procedures have been, or are in the process of being, revised. In addition to a full time consultant assigned to strengthen the ALARA program, two licensee radiation protection engineers have been given responsibilities for portions of the ALARA program. Based on ALARA committee documentation and discussions with cognizant persons involved in the ALARA program, it appears the ALARA committee is functioning as intended. Licensee progress in strengthening of the ALARA program will continue to be inspector reviewed.
(461/84026-03)

6. Liquid Radwaste Systems

All liquid radwaste preoperational testing has been completed and the systems have been turned over to plant staff. Selective preoperational test results were reviewed by an inspector. No significant problems were identified.

7. Gaseous Radwaste System

To date, there has been no preoperational testing of the system. Testing is scheduled for completion before fuel load. The glycol cooling portion of the offgas system has been flushed. The procedure used to flush the system (FTP-OG-01) and the test log sheets were reviewed; one minor test procedure exception was noted. Hydro test procedures have been revised and testing is expected to begin in mid-February. Test results will be reviewed during a future inspection. (461/84009-01)

8. Radiation Monitors

To date, approximately 30 percent of the preoperational testing has been completed on fixed process and area radiation monitors. Startup calibration has been completed on 80 percent of the area radiation monitors; 85 percent of the safety, liquid effluent, and post-treatment monitors; and 20 percent of the constant air monitors. Systems operability is expected before fuel load. This matter will be further reviewed during a future inspection. (461-84026-01)

9. Radiation Worker Training

The licensee has initiated a radiation work practical training program to familiarize all radiation workers with the proper methods and techniques used in working with radioactive materials. The program includes lectures which stress the importance of developing good radiological work habits; the importance of cooperation between radiation workers and the radiation protection staff; proper use of maintenance work requests (MWR's), radiation work permits (RWP's), and personal time records (PTR's); demonstration of the impact of radiation controls on previously developed work habits; practical demonstrations of good radiation protection practices while working on simulated radioactive systems; and the importance of exposure reduction. Special consideration is given to airborne radioactivity, special dosimetry and placement, Quality Control interaction, handling of tools, proper donning and removal of clothing, and personal frisking.

The inspector participated in one of the training sessions and found the trainees to be attentive and the quality of the training good. This matter was discussed at the exit meeting on January 31, 1986.

10. Radwaste Molded Case Circuit Breaker Tests

An inspector witnessed partial completion of Test Procedure GTP-46. The testing was to verify that the molded case circuit breakers and overload relays on the solid radwaste system operate per manufacturer's specifications. The inspector reviewed the procedure methodology, discussed the test with the testing engineers, and noted some minor problems the testers were having with overload trip times falling within the lower end of the band width.

11. Radwaste Solidification System

The Associated Technologies Incorporated (ATI) radwaste solidification system (described in Inspection Report No. 50-461/85028) has not been installed. The plant piping that will feed to the vendor system is installed and preoperational hydro flush testing of the piping has started.

The ATI system was scheduled to be installed and tested by January 1, 1986. The system is now scheduled to be operational by February 28, 1986; integrated tests are scheduled to be performed by ATI on February 15, 1986. Licensee employees will observe the tests. The reasons for the delay in installation are vendor problems concerning development of QA and training programs. After installation, the licensee will test the system using cold resins, train all utility persons who will use the system, and perform an ALARA review of the installed system and associated piping and support accessories. This matter will be reviewed during a future inspection. (461/84001-04)

12. Audits

The results of two quality assurance audits were reviewed. The audits covered radwaste, radiation protection, and chemistry. Subjects reviewed during the audits included organizations, training, procedures, records, offsite dose calculation manual, use of equipment, radiation surveys, dosimetry issue and use, personal frisking, and fuel and fuel container handling. Discrepancies found in three radiation protection procedures and the offsite dose calculation manual were corrected. Five discrepancies were found in the radwaste area; all of which were being corrected during this inspection.

An inspector discussed the licensee's QA audit program with the QA inspector responsible for radiation protection, radwaste, and emergency preparedness audits. Based on this discussion and a review of the qualifications of the QA auditors, technical specification QA audit requirements, and the 1986 annual audit schedule, it appears the licensee should have an adequate health physics, radwaste, and transportation audit program.

13. Instruments and Equipment

The licensee appears to have an adequate supply of portable survey instruments, air samplers, respirators, protective clothing, and personal dosimeters. The portable instrument calibration system appears acceptable for required instrument calibrations.

14. Exposure Control Program-Internal

There have been no significant changes in the internal exposure control program as described in Inspection Report No. 50-461/85028.

An inspector visited the whole body counter facility, observed workers being counted, and reviewed the whole body counting analysis program. During this review it was noted that the whole body count results listed in the "percent of MPC-hour" and "committed dose" columns were incorrect when compared to the quantity of radioactivity listed in the "net activity" column. This matter was discussed with the licensee, who indicated that the nomenclature filed in the computer was incorrect; the nomenclature was corrected during the inspection. The licensee appears capable of adequately assessing whole body count results.

15. Radiological Controls Action Plan and Goals-1986

The licensee has developed and is committed to a plan to identify actions needed to improve the radiological control program to meet industry standards of excellence. The intent of the plan is to select the most important activities of those departments which impact on the quality of the radiological control program. The following departments have identified and addressed those activities they recognize as necessary to implement the program: Nuclear Planning and Support, Nuclear Training, Nuclear Station Engineering, Plant Operations, Plant Maintenance, Plant Radiation Protection, Quality Assurance, and Licensing and Safety.

16. Facilities

An inspector toured selected areas of the plant which are related to radiation protection, chemistry, and radwaste. Toured were the access control area, laboratories, counting room, decontamination facilities, whole body count room, respirator fit room, protective clothing and respirator cleaning facility, instrument calibration facility, office areas, radwaste building and control room. With the exception of relatively small wet wash, dryer and respirator cleaning areas, it appears that the licensee has sufficient space to adequately conduct operations. Ample storage areas for protective clothing, respirators, and equipment have been provided.

The licensee intends to use the installed respirator and protective clothing cleaning facilities when plant operations begin; however, provisions are being made for use of a contractor laundry as a backup to the installed systems facilities.

The licensee's principal access and egress control point to the radiologically controlled area (RCA) is located near the entrance to the power block from the service building. Personal frisking and equipment surveys, performed at the control point, can be observed from the radiation safety office. Another control point will probably be established at the north end of the radwaste and machine shop building during high traffic occasions.

The inspector noted several exit-only doors located in the RCA which are not alarmed and through which personnel could easily egress without performing RCA egress surveys. This matter was discussed at the exit meeting on January 31, 1986.

During the inspection, it was found that some persons were confused about the licensee's access control program. While reviewing this matter an inspector determined that the confusion existed because some persons were trained on an earlier revision of the access control procedure. Based on this finding, the inspector discussed with the licensee the need to develop some mechanism which ensures that the work force is notified of any important changes to Radiation Protection Procedures which significantly effect worker conduct. This matter was discussed at the exit meeting on January 31, 1986.

17. Contamination Control

The station Radwaste Department will be responsible for general housekeeping, and decontamination of large areas and spills. Contamination of small areas and equipment will be decontaminated by the work group that caused the contamination. Hand tools and portable equipment will be decontaminated in designated areas by persons responsible for them. The Plant Manager has expressed a commitment to maintain those areas controlled for contamination to an absolute minimum and intends to have a program to trend the effectiveness of the contamination control program. This matter was discussed at the exit meeting on January 31, 1986.

18. Radioactive Waste Collection, Segregation, and Compaction

The Radwaste Department is responsible for picking up radioactive and nonradioactive waste from the RCA. All material disposed of in receptacles designated as radioactive waste will be compacted and disposed of as DAW. Contents of receptacles designated as nonradioactive material will be surveyed before release to an unrestricted area; the surveys will consist of monitoring the outside of the bag with a thin-window "pancake" GM probe, and periodically opening a bag and hand frisking its contents. For the future, the licensee has budgeted for a waste monitoring system which uses sensitive scintillation detectors; surveys will be performed in low-background areas. An inspector discussed with the licensee the need to ensure their monitoring systems meets the criteria described in IE Information Notice No. 85-92: "Surveys of wastes before disposal from nuclear reactor facilities." The licensee intends to have appropriately labeled waste receptacles and carriers by fuel load.

19. Meeting With Licensee Representatives

At the licensee's request, members of the NRC/Region III staff met with licensee representatives (denoted in Section 1) on March 6, 1986, to discuss inspector perceived problems with licensee management controls and responsiveness to certain NRC concerns. These concerns, noted below, include resolution of licensee commitments, open and unresolved items, and field problem and condition reports.

- In response to previous inspector concerns, the licensee committed to complete certain actions regarding HVAC systems and NUREG-0737 Items II.F.1.1, II.F.1.2, II.F.1.3, and II.B.3 in a letter to Region III, dated January 18, 1986. Several of these commitments have not been completed in a timely manner, and in some instances, the quality of the product was seriously lacking.

- Numerous open and unresolved items (461/85004-01 through -16) have remained open for a seemingly inordinate length of time.
- An unusually large number of field problem reports (FPRs) and condition reports (CRs) were needed to address HVAC startup problems. An inordinate number of these problems did not appear to be resolved to the satisfaction of the startup group.

The licensee representatives at the meeting were, in general, able to explain that most of the apparent lack of responsiveness to NRC concerns and apparent management control weakness were due to the normal priority mechanism of a near term operating licensee (NTOL) nuclear power plant. They also reaffirmed that the deficiency tracking systems (FPR, CR, etc.) were functioning properly, and all workers would continue to be encouraged to make appropriate use of these systems.

These matters will be reviewed further during future inspections.

20. Exit Meetings

The inspectors met with the licensee representatives (denoted in Section 1) at the conclusion of the inspection on January 31, and February 21, 1986. The scope and findings of the inspection were summarized. The inspectors also discussed the likely information content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee identified no such documents/processes as proprietary. In response to certain items discussed by the inspectors, the licensee stated they would review the size of the permanent radiation protection plant staff and determine methods to prevent workers from unauthorized exiting through doors in the RCA.