U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/87020(FRP)

Docket No. 50-461

License No. NPF-62

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

Facility Name: Clinton Power Station

Inspection At: Clinton Site, Clinton, IL

Inspection Conducted: May 18 through June 29, 1987

Inspectors: P. Hiland L. McGregor S. Ray J. McCormick-Barger

Approved By: R. C. Knop, Chief S Projects Section 1B

Inspection Summary

Inspection on May 18 through June 29, 1987 (Report No. 50-461/87020(DRP)) Areas Inspecte: Routine, unannounced safety inspection by the resident inspector and region-based inspector of licensee action on previous inspection findings; review of allegations; licensee event report review and followup; monthly maintenance observation; monthly surveillance observation; operational safety verification; engineered safety feature system walkdown; training effectiveness; onsite followup of events at operating reactors; startup test witnessing; and management meeting.

Results: Of the 11 areas inspected, no violations or deviations were identified.

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DETAILS

1. Personnel Contacted

Illinois Power Company (IP)

* K. Baker, Supervisor - I&E Interface, Licensing and Safety (L&S) #T. Camilleri, Manager - Scheduling Outage and Maintenance #R. Campbell, Manager - QA *#W. Connell, Manager - Nuclear Station Engineering Department (NSED) *#J. Cook, Assistant Manager - Clinton Power Station (CPS) * J. Fertic, Director Quality Systems & Audits R. Freeman, Assistant Plant Manager, Maintenance *#W. Gerstner, Executive Vice President *#D. Hall, Vice President, Nuclear #D. Holesinger, Assistant Manager - Startup E. Kant, Assistant Manager, NSED * J. Miller, Manager, Scheduling & Outage Management J. Palchak, Supervisor - Plant Support Services *#J. Perry, Manager - Nuclear Program Coordination * R. Schultz, Director, Planning & Programming *#F. Spangenberg, Manager - L&S P. Telthorst, Licensing and Safety *#E. Till, Director Nuclear Training J. Weaver, Director - Licensing #J. Wilson, Manager - CPS #R. Wyatt, Director-Nuclear Program Assessment

Soyland/WIPCO

*J. Greenwood, Manager Power Supply

Nuclear Regulatory Commission

*#P. Hiland, Senior Resident Inspector, Clinton
*#S. Ray, Resident Inspector, Clinton
L. McGregor, Senior Resident Inspector, RIII
#B. Siegel, Licensing Project Manager, NRR
#R. Knop, Chief, Projects Section 1B
#W. Forney, Chief, Projects Branch 1, RIII

Denotes those attending the management meeting on June 17, 1987. * Denotes those attending the monthly exit meeting on June 29, 1987.

The inspector also contacted and interviewed other licensee and contractor personnel.

2. Licensee Action On Previous Inspection Findings (92701)

a. (Closed) Open Item (461/86074-01): Surveillance Procedure "Purpose" Section Referenced Incorrect Technical Specification. During the initial development of Clinton Power Station (CPS) surveillance procedures, the referenced technical specification requirement satisfied by the procedure was based on the draft Technical Specifications. Subsequent revisions to the CPS Technical Specifications resulted in renumbering many surveillance requirements.

The licensee established interim controls via a Plant Manager's Standing Order (PMSO-039) that used a "Master" list of surveillance requirements (Technical Specification to procedure cross-reference) to determine applicable Technical Specification LCOs due to a failed surveillance. During this report period, the licensee completed the necessary revisions to surveillance procedures that had been identified as having incorrect references in the purpose section. This item is closed.

No violations or deviations were identified.

3. Review of Allegations (99014)

(Closed) Allegation (RIII-87-A-0063 (#215)): Intimidation of Nuclear Station Engineering Department (NSED) Supervising Engineer. On May 4, 1987, the inspector was informed by the licensee's Manager - Quality Assurance that an investigation was to be performed on an expressed concern of intimidation. On May 5, 1987, the individual alleging intimidation discussed the details of the concern with the inspector.

Concern

On April 30, 1987, during an engineering meeting to discuss the disposition of Condition Report (CR) 1-87-03-014, the concerned individual perceived that a Director within the Nuclear Station Engineering Department had been intimidating when attempting to persuade the concerned individual to revise the disposition to CR 1-87-03-014. The perceived intimidation was verbal comments directed toward the concerned individual.

Review

The inspector noted that the technical issues concerning Condition Report 1-87-03-014 had been initially discussed with the licensee on about April 27, 1987, and are the subject of Unresolved Item 461/86015-01 (Reference: Inspection Report 50-461/87015, paragraph 10.b.).

During this report period, the licensee completed their investigation of the intimidation concern. That investigation concluded that no intimidation took place; however, it was also concluded that the conduct of the NSED Director toward the NSED Supervising Engineer was not appropriate. The NSED Director was provided counseling from the Manager-NSED regarding his conduct when interacting with other employees.

The inspector interviewed eight personnel that had been interviewed by the licensee during the conduct of their investigation. Those interviews were conducted to verify the accuracy of the investigation report that was provided to the inspector. The inspector did not identify any discrepancies betweer the licensee's investigation report interviews and those conducted by the inspector. The consensus of the interviewed personnel was that the exchange was a heated argument and did not intimidate them from performing their work in a quality manner.

Conclusion

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The allegation was partially substantiated in that the licensee's investigation concluded that the conduct of the Director-NSED was not appropriate. The disposition to Condition Report 1-87-03-014 was not revised by the concerned individual based on the perceived verbal intimidation nor were the interviewed personnel intimidated by the incident. The concerned individual presented this issue to appropriate licensee management (i.e. QA - Manager) who in turn initiated the investigation described above. This item is closed.

No violations or deviations were identified.

4. <u>Onsite Followup Of Written Reports Of Nonroutine Events At Power</u> Reactor Facilities (92700)

For the LERs listed below, the inspector performed an onsite followup inspection of the LER to determine whether response to the event was adequate and met regulatory requirements, license conditions, and commitments and to determine whether the licensee had taken corrective actions as stated in the LER.

a. (Closed) LER 87-014-00 (461/87014-LL) [ENS No. 08050]: Automatic Actuation of the High Pressure Core Spray System (HPCS) Due to Utility Control and Instrumentation Technician Error.

This LER was initially reviewed as documented in Inspection Report 50-461/87015, paragraph 7.a.(8). At the time of that inspection, this LER remained open pending the inspectors verification of training and revision to Clinton Power Station Maintenance Procedure CPS No. 8801.12, "Local Mounted Instrument Valve Operation".

During this report period, the inspector verified through review of training records that maintenance department personnel had been provided training on this LER. In addition, the inspector verified that CPS No. 8801.12 had been revised in revision 8, dated April 23, 1987, to provide proper instructions for backfilling transmitters prior to placing on service. Based on the above verification that corrective actions as described in LER 87-014-00 had been completed, this item is closed.

b. (Closed) LER 87-020-00 (461/87020-LL) [ENS No. 8197]: Automatic Isolation of Reactor Water Cleanup System Due to High Differential Flow Signal as a Result of Operator Error.

This LER was initially reviewed as documented in Inspection Report 50-461/87015, paragraph 7.a.(10). At the time of that inspection, this LER remained open pending the inspectors verification that Operating Procedure CPS No. 3002.01, "Heatup and Pressurization" was revised and the training described in the LER was completed.

During this report period, the inspector verified through review of training records that operations department personnel had been provided training on this LER. In addition, the inspector's review of CPS No. 3002.01, revision 8, dated June 2, 1987, indicated that the changes identified in the LER had been incorporated. Based on the above verifications that corrective actions as described in LER 87-014-00 had been completed, this item is closed.

No violations or deviations were identified.

5. Monthly Maintenance Observation (62703)

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Selected portions of the plant maintenance activities on safety-related systems and components were observed or reviewed to ascertain that the activities were performed in accordance with approved procedures, regulatory guides, industry codes and standards, and that the performance of the activities conformed to the technical specifications. The inspection included activities associated with preventive or corrective maintenance of mechanical equipment and systems. The following items were considered during these inspections: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibration was performed prior to returning the components or systems to service; parts and materials that were used were properly certified; and maintenance of appropriate fire prevention, radiological, and housekeeping conditions.

The inspector observed/reviewed the following work activities:

laintenance Work Request No.	Activity	
C-49385	Hydrostatic Test of Reactor Water Cleanup Train - A	
C-49863	Corrective Maintenance on Reactor Water Cleanup Train - B	

No violations or deviations were identified.

6. Surveillance (61726)

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An inspection of inservice and testing activities was performed to ascertain that the activities were accomplished in accordance with applicable regulatory guides, industry codes and standards, and in conformance with regulatory requirements.

Items which were considered during the inspection included whether adequate procedures were used to perform the testing, test instrumentation was calibrated, test results conformed with technical specifications and procedural requirements, and that tests were performed within the required time limits. The inspector determined that the test results were reviewed by someone other than the personnel involved with the performance of the test, and that any deficiencies identified during the testing were reviewed and resolved by appropriate management personnel.

The inspectors observed/reviewed the following activities.

Procedure No. Surveillance/Test	Activity	
CPS No. 9432.17	RWCU Area High Delta Temperature Channel Functional/Calibration	
CPS No. 9463.02	Suppression Pool Water Level Channel Calibration	

No violations or deviations were identified.

7. Operational Safety Verification (71707)

The inspector observed control room operations, attended selected pre-shift briefings, reviewed applicable logs, and conducted discussions with control room operators during the inspection period. The inspectors verified the operability of selected emergency systems and verified tracking of LCOs. Routine tours of the auxiliary, fuel, containment, control, diesel generator, and turbine buildings and the screenhouse were conducted to observe plant equipment conditions including potential for fire hazards, fluid leaks, and operating conditions (i.e., vibration, process parameters, operating temperatures, etc). The inspector verified that maintenance requests had been initiated for discrepant conditions observed. The inspector verified by direct observation and discussion with plant personnel that security procedures and radiation protection (RP) controls were being properly implemented.

During the report period, the licensee completed startup testing through Test Condition 1 (20% Reactor Power). Test Condition 2 with power levels up to 55% commenced on June 9, 1987. The licensee anticipated completion of Test Condition 2 activities in early July followed by an eleven day operator training and/or evaluation period. Test Condition 3 with power levels up to 75% was anticipated to commence in late July.

No violations or deviations were identified.

8. Engineered Safety Feature System Walkdown (71710)

The inspector performed a walkdown of the division 1 Low Pressure Coolant Injection (RHR) system during the report period to verify the system status. At the time the walkdown was performed, the licensee had identified the division 1 Low Pressure Coolant Injection system as an operable Emergency Core Cooling system meeting all the requirements of the plant's technical specifications.

For the purpose of this walkdown, the inspector utilized the following system drawings and the checklists contained in the system operating procedure:

CPS No. 3312.01V0001, revision 5, RHR Valve Lineup CPS No. 3312.01E001, revision 5, RHR Electrical Lineup P&ID M05-1075, sheet 1, revision Z

For the inspection performed, the following attributes were observed:

- System lineup procedures matched the plant drawings.
- Valve and electrical switch/breaker positioning agreed with the lineup checklists.
- Valves were locked when required.
- Equipment conditions appeared correct with no evidence of damage.
- Equipment and components were properly identified.
- Interiors of electrical and instrumentation cabinets were free of debris, loose material, uncontrolled jumpers, with no evidence of rodents.
- Instrumentation was properly installed and functioning.
- Lubrication was provided, where observable.
- Housekeeping was adequate and appropriate levels of cleanliness were being maintained.
- Support systems essential to system actuation (Division I Shutdown Service Water and Division I Emergency Diesel) were operational.

In conjunction with the above, the inspector reviewed the results of current surveillances performed on the LPCI-A system to verify technical specification requirements were met. The following surveillance test results were reviewed:

Surveillance No.	Title	Frequency	Test Date
CPS No. 9053.01	LPCI OPERABILITY CHECK (LPCI A/B)	Monthly	06/10/87
CPS No. 9053.04	RHR (A/B/C) VALVE	Quarterly (Stroke Time)	04/15/87
	OPERABILITY CHECKS	18 Months - (Position Indication)	

CPS No. 9053.06 CONTAINMENT SPRAY SYSTEM 18 Months 11/12/86 FUNCTIONAL TEST

CPS No. 9053.07 RHR PUMPS OPERABILITY Quarterly 04/11/87

The inspector concluded that the LPCI (division 1) system was operable based on direct field observations of the above lineups and inspection attributes. In addition, the inspector's review of current surveillance tests for the LPCI system indicated the plant's technical specifications were being met.

No violations or deviations were identified.

9. Training (41400 & 41701)

The effectiveness of training programs for licensed and nonlicensed personnel were reviewed by the inspectors during the witnessing of the licensee's performance of routine surveillance, startup testing, maintenance, and operational activities and during the review of the licensee's response to events which occurred during the months of May/June 1987. Personnel appeared to be knowledgeable of the tasks being performed, and nothing was observed which indicated any ineffectiveness of training.

As discussed below in paragraph 11.b., the inspectors observed simulator training in preparation for a Loss of Offsite Power test (STP-31-1). The training observed appeared to provide an effective simulation of the expected test senario.

No violations or deviations were identified.

- 10. Onsite Followup of Events at Operating Reactors (93702)
 - a. General

The inspector performed onsite followup activities for events which occurred during the inspection period. Followup inspection included one or more of the following: reviews of operating logs, procedures, condition reports; direct observation of licensee actions; and interviews of licensee personnel. For each event, the inspector reviewed one or more of the following: the sequence of actions; the functioning of safety systems required by plant conditions; licensee actions to verify consistency with plant procedures and license conditions; and attempted to verify the nature of the event. Additionally, in some cases, the inspector verified that licensee investigation had identified root causes of equipment malfunctions and/or personnel errors and were taking or had taken appropriate corrective actions. Details of the events and licensee corrective actions noted during the inspector's followup are provided in paragraph b. below.

b. Details

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(1) Automatic Scram Due To Feedwater Valve Failure [ENS No. 08767]

At about 6:15 p.m. CDT on May 24, 1987, the licensee experienced an automatic scram signal when APRM neutron flux level reached the 40% power setpoint (Test Condition 1 Setpoint). The cause for the increased neutron flux was a failed open feedwater regulating valve that caused an increased flow of feedwater to the reactor. This increased flow of feedwater resulted in neutron flux increase due to the cooling effect. At the time of this event the reactor plant was in mode 1, operating at about 18% power (25% indicated due to APRM gain adjustment). In accordance with plant procedures, the shift supervisor declared an unusual event at about 6:17 p.m. due to the unanticipated reactor scram. -The unusual event was terminated at about 6:55 p.m. The licensee notified the NRC Operations Center of this event via the ENS at about 7:13 p.m. CDT on May 24, 1987. This event was similar to a manual reactor scram that was initiated on May 6, 1987, due to failure of the same feedwater regulating valve (reference: Event No. 08584). However, the failure mechanism for the May 6 event appeared to be unrelated to the failure mechanism for this event.

(2) ESF Actuation Due to Reactor Water Cleanup Isolation [ENS No. 08887]

At about 6:30 p.m. CDT on June 5, 1987, the licensee experienced an ESF actuation when the Reactor Water Cleanup System (RT) isolated on high differential flow. At the time of event occurrence, the licensee was establishing feedwater flow to the Reactor Vessel. The pressure changes from the Feedwater System under low flow conditions were sensed by the Reactor Water Cleanup System as a high differential flow. During this event, the reactor plant was in mode 2, operating at less than 1% power. The licensee notified the NRC Operations Center of this event via the ENS at about 9:00 p.m. CDT on June 5, 1987.

(3) Inoperable Reactor Trip Function [ENS No. 08889]

At about 1:30 a.m. CDT on June 7, 1987, the licensee identified three "normally open" instrument root valves that were closed. With these valves in the closed position, turbine first stage pressure signals were isolated from the Rod Control & Information System (RCIS) and the reactor protective system (RPS) logic. The RCIS system limits the "notch" movement of control rods when turbine first stage pressure is indicating greater than 20% rated thermal power. The RPS inserts an automatic reactor trip function on turbine stop valve closure or turbine control valve fast closure when turbine first stage pressure is indicating greater than 40% rated thermal power. Immediate action of the licensee was to open the three root valves in accordance with the applicable valve lineup. At the time of this event, the licensee was in Test Condition 1 of their startup test program which had limited reactor power levels to a maximum of 20%. During this event, the reactor plant was in mode 1, operating at about 13% power. The licensee notified the NRC Operations Center of this event via the ENS at about 4:15 a.m. CDT on June 7, 1987.

(4) Reactor Water Cleanup Isolation [ENS No. 09028]

At about 6:45 p.m. CDT on June 17, 1987, the licensee experienced an automatic isolation of the Reactor Water Cleanup System (RT) due to a spurious high temperature alarm. A RT heat exchanger room high temperature alarm was received in the main control room and the RT system isolated. However, RT temperature recorders did not indicate any abnormal readings. In addition, a tour of the RT heat exchanger rooms by plant operators did not identify any abnormal temperatures. The licensee notified the NRC Operations Center of this event via the ENS at about 9:00 p.m. on June 17, 1987.

(5) Declaration of Unusual Event Due to Earthquake [ENS No. 08937]

At about 6:50 p.m. CDT on June 10, 1987, ground motion due to a seismic event was noted by the licensee. At the time of the event, the reactor plant was in Mode 1 operating at about 17% power. Initial control room observations did not indicate any effects to plant systems or equipment. One EHC pump on the turbine throttle control skid did auto start at about 6:52 p.m. The licensee initially notified the NRC Operations Center of the event at about 7:45 p.m. via the ENS. At the time of initial notification, the event magnitude was unknown but believed to be small. Operations personnel completed an initial inspection of all accessible plant areas including the cooling lake dam by 11:56 p.m.; no abnormalities were identified. The licensee assembled cognizant engineering and quality personnel on site at about 10:00 p.m. to evaluate the magnitude of the event (as recorded on passive seismic plates) and to conduct additional inspections of plant structures. The inspection teams (comprised of engineers and QC) completed their walkdowns of accessible plant areas at about 3:00 a.m. on June 11; no abnormalities were identified. At about 3:30 a.m. June 11, the licensee notified the NRC Operations Center via the ENS of activities that had been performed. At about 3:45 a.m., the licensee completed initial analysis of the passive seismic plates and concluded that the acceleration setpoint for declaring an Unusual Event (0.02G) may have been exceeded. At about 4:00 a.m. June 11, the licensee notified the NRC Operations Center via the ENS that an Unusual Event was declared at 3:45 a.m. and terminated at 3:55 a.m. Throughout the licensee's investigation into the event, the reactor plant was maintained stable and planned testing was suspended.

(6) Turbine Trip Due to Failure in EHC System

At about 8:30 a.m. CDT on June 18, 1987, the licensee experienced a trip of the Main Turbine generator while operating at about 33% reactor power. The turbine trip was due to a failure in the hydraulic line connected to the #4 turbine control valve causing a loss of EHC system fluid and the subsequent turbine trip. At the time of event occurrence, the inspector was in the main control room observing plant operations. Plant operators responded to the event in accordance with operating procedures. Reactor plant systems responded as expected. A reactor trip did not occur for this event since first stage shell pressure was below the 40% automatic trip setpoint. The licensee reduced reactor power to about 14% while repairs were being made. A previously planned design modification was implemented that installed flexible couplings at the point where the EHC hydraulic lines attach to the turbine control valves.

No violation or deviations were identified.

11. <u>Startup Test Witnessing and Observation</u> (72302)

a. During the inspection period, the inspectors witnessed various portions of STP-19-1, "Core Performance" and STP-22-1, "Pressure Regulation", including establishment of prerequisites, procedure changes, updates to revision 1, and preliminary post performance analysis. The inspectors observed that test procedures of the latest revision were available and in use by all appropriate crew members. Test crews were adequately staffed, sufficiently knowledgeable and their actions were properly coordinated. All test prerequisites and initial conditions were met or waived in accordance with test program requirements. Permanent plant equipment and test equipment required by the procedures were in service and where necessary, were calibrated to a common time base. Technical Specification LCO appeared to be adhered to at all times.

The inspector reviewed and concurred with the licensee's preliminary evaluation that the level 2 acceptance criteria were satisfied for Section 7.0, "Core Thermal Power Procedures", and Section 8.0, "Analysis". The performance of this test using the Backup Core Limits Evaluation Program (BUCLE), and in conjunction with data from STP-11-1, "LPRM Calibration" and STP-12-1 "APRM Calibration" was totally satisfactory. The inspector noted that core flow appeared to be lower than expected under present plant conditions. However, the lower flow indication did not affect the core performance parameters.

The inspectors reviewed the "Pressure Regulator" test procedure and witnessed the 2, 7.5 and 10 psig step changes on channel "A" and the 10 psig step changes to channel "B". In all tests there was a

slight drop in reactor water level and pressure, however, the plant systems returned to normal values within 1.5 to 2.5 minutes. The pressure and level oscillations were small in magnitude and quickly recovered to the setpoint values.

b. The inspectors witnessed the performance of STP-31-1, "Loss of Turbine Generator and Offsite Power". The inspectors verified that the test procedure of the latest revision was available and in use by all appropriate crew members. Technical Specification LCOs appeared to be adhered to at all times. The inspectors noted that shift supervisors directed both the test activities and the recovery from Loss of Offsite power in accordance with plant operating procedures.

In addition to the actual test performance, the inspector observed the pretest training conducted at the clinton plant specific simulator. The inspectors also attended the pre-shift briefings provided to the test crews. Both the simulator training and pre-shift briefings appeared to be thorough and comprehensive. Throughout the conduct of this test and recovery, plant operators responded in accordance with operating procedures and supervisory direction. Plant systems appeared to respond as expected with only minor exceptions.

Review of the test results will be conducted during a future inspection.

No violations or deviations were identified.

12. Management Meeting (30702)

On June 17, 1987, NRC management met with IP management at the Clinton Power Station to discuss the status of the facility, the licensee's Monthly Performance Monitoring Management Report and actions being taken to enhance the licensee's performance. Key personnel attending this meeting are identified by (#) in paragraph 1 of this report.

The licensee discussed plant operations to date and summarized significant events; the licensee discussed the status of their Maintenance Work Request (MWR) backlog; the licensee's response and evaluation of the June 10, 1987 seismic event was discussed; the licensee discussed their corrective action and operational monitoring program; and the licensee presented the status of their INPO training accreditation program.

NRC (Region III) management acknowledged the licensee's status and plans.

13. Exit Meetings (30703)

The inspector met with licensee representatives (denoted in paragraph 1) throughout the inspection and at the conclusion of the inspection on June 29, 1987. The inspector summarized the scope and findings of the inspection activities. The licensee acknowledged the inspection findings.

The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents/processes as proprietary.

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