

U.S. NUCLEAR REGULATORY COMMISSION
REGION III

Report No. 50-461/88006

Docket No. 50-461

Operating License No. NPF-62

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

Facility Name: Clinton Nuclear Power Station, Unit 1

Inspection At: Clinton Site, Clinton, Illinois

Inspection Conducted: March 14-18, March 28-31, and April 6, 1988

Inspectors: *F. J. Jablonski for*
W. W. Kropp

4-21-88
Date

F. J. Jablonski for
T. Tella

4-21-88
Date

Approved By: *F. J. Jablonski*
F. J. Jablonski, Chief
Maintenance and Outage Section

4-21-88
Date

Inspection Summary

Inspection on March 14-18, March 28-31, and April 6, 1988

(Report No. 461/88006(DRS))

Areas Inspected: Routine, unannounced inspection by two region based inspectors of the modification process and associated quality verification process, and followup of previous inspector identified problems. The inspection was conducted utilizing portions of Inspection Procedure 37702.
Results: No violations were identified.

DETAILS

1. Persons Contacted

Illinois Power Company (IP)

W. C. Gerstner, Executive Vice President
K. A. Baker, Supervisor, Inspection and Enforcement Interface
R. E. Campbell, Manager, Quality Assurance
D. P. Hall, Vice President, Nuclear
E. W. Kant, Director, Nuclear Station Engineering Department
R. J. Kerestes, Director, Field Engineering
J. A. Miller, Manager, Schedule and Outage
D. G. Tucker, Director, Configuration Management
J. D. Weaver, Director, Licensing

The above listed personnel attended the exit meeting on April 6, 1987. Other persons were contacted as a matter of routine during the inspection.

2. Licensee Action on Previous Inspection Findings

- 2.1. (Closed) Violations (461/86053-01c): Failure to provide post modification test acceptance criteria. The licensee's corrective actions were reviewed and documented in Inspection Report 50-461/86077, but the violation remained open pending verification of the effectiveness of the licensee's training in the development of acceptance criteria. During this inspection, modification packages M-002 and VP-022 were determined to have adequate post modification testing acceptance criteria; therefore, the licensee's training in this area appeared effective. This item is closed.
- 2.2. (Open) Violation (461/86053-02d): Failure to document bases for concluding that no unreviewed safety questions were generated as a result of plant modifications. The licensee's corrective actions were previously reviewed during an inspection as documented in Inspection Report 50-461/86077. The licensee's corrective actions were determined to be adequate; however, this violation was kept open to review effectiveness of the licensee's training in this area. During this inspection, the inspectors reviewed modification package M-002 that pertained to the addition of test connections to several instrumentation lines. The 10 CFR 50.59 (50.59) Safety Evaluation did not adequately address justification for concluding that no unreviewed safety question existed. (See Paragraph 3.1.1.2 for further details.) Since the 50.59 evaluation for modification M-002 did not adequately address the unreviewed safety question, the inspector has concern that the licensee's corrective actions in the area of training for this violation might not have been effective; therefore, this violation remains open.
- 2.3. (Closed) Open Item (461/87011-01): Review the matrix that cross references requirements of ANSI N18.7 with appropriate licensee

procedures. The inspector reviewed QA audit Q38-87-37, regarding implementation of the ANSI N18.7 matrix; no deficiencies were identified; however, four recommendations, which were identified, had been implemented. The inspector selected six ANSI N18.7 requirements from the Implementation Matrix and verified that referenced procedures adequately addressed the requirements, which included the areas of housekeeping, procurement, control of non-conforming material, and limitations of parameters. No problems were noted. This item is closed.

- 2.4. (Closed) Violation (461/87035-01): The torquing of bonnet nuts for Main Steam Isolation Valve (MSIV) 1B21F028A, and the installation of the poppet for MSIV 1B21F022B, were not performed in accordance with procedure CPS 8216.11, "Main Steam Isolation Valve Maintenance," Revision 5. The inspector reviewed the licensee's corrective actions as documented in a letter to the NRC dated January 27, 1988, and determined that the corrective actions and associated documents such as Condition Reports, memoranda, and training records were as stated; no problems were identified. This item is closed.
- 2.5. (Closed) Violation (461/87035-02): When a violation of the procedure for tightening bonnet nuts was identified, work continued and no corrective action was taken until all 22 nuts were tightened. The licensee's corrective action, documented in a letter dated January 27, 1988, consisted of an engineering evaluation to assess valve integrity. The licensee's corrective action to prevent recurrence consisted of a review of Procedure CPS 8216.11 with all mechanical maintenance personnel prior to resuming valve repairs. It was emphasized that apparent conflicts between procedural requirements and supervisory direction must be resolved prior to continuing work. The inspector reviewed documentation pertaining to departmental briefings and training attendance records; no problems were noted. This item is closed.
- 2.6. (Closed) Unresolved Item (461/87035-03): Experience requirements waived for certification of Quality Control inspectors. The licensee took exception to Paragraph C.6 of Regulatory Guide 1.58, which endorses ANSI N45.2.6, the standard pertaining to certifications of inspection personnel. The licensee's program allows experience requirements to be waived but utilized factors such as education, technical experience, and satisfactory completion of performance or capability tests. The licensee had 9 waivers for experience of the 71 inspectors currently certified. The inspector reviewed two certification packages and determined that the waivers were appropriate and based on a written and practical examination. It appeared that the licensee was not abusing the right to waive experience requirements. No problems were noted with the certification packages. This item is closed.

3. Evaluation of Modifications

This inspection was conducted to evaluate activities at Clinton to determine if modifications were accomplished, effective, and self assessed. Particular

emphasis was placed on management involvement, resolution of technical issues, and corrective actions. The inspection was scheduled to coincide with a planned outage. The evaluation was accomplished by:

- Assessment of backlogged modifications and field alterations
- Observation of installation activities for two modifications
- Review of packages for completed modification and field alterations.

Also assessed was the quality verification process related to modifications, which was accomplished by:

- Review of audit reports
- Review of corrective action documents, such as Condition Reports and Request for Corrective Action (audit findings)

Results of the inspection are documented in the following sections.

3.1. Accomplishment of Modifications: The inspectors evaluated computer printouts of open Modifications and Field Alterations. Field Alterations are modifications that cost below a specific dollar amount, could be easily reversed, not immediately concealed, easily determined to have been performed correctly, and did not change design bases. A portion of the open Modifications and Field Alterations were reviewed in detail; none indicated a condition that degraded safety. The backlog of open Modifications decreased over the past six months, while open Field Alterations increased. This trend was due to budget restraints and the increased use of the Field Alteration process instead of Modifications. The inspector determined that a Modification Review Committee reviews the postponement of Field Alterations for impact on safety. The inspector reviewed a computer listing of open Field Alterations; none were identified that would adversely affect plant safety if not accomplished in a timely manner.

3.1.1. Completed Modification/Field Alterations: The inspectors reviewed packages for four Field Alterations and seven Modifications. The packages reviewed were:

◦ Field Alterations

<u>Number</u>	<u>System</u>	<u>Description</u>
AP-F003	Auxiliary Power	Install Class 1E power to optical isolator
DG-FC04	Emergency Diesel Generator	Revise FSAR to downgrade valves from ASME to Non-ASME

DG-F009	Emergency Diesel Generator	Replace spider on shaft coupling for fuel oil transfer pump
HP-F003	High Pressure Core Spray (HPCS)	Material substitution for HPCS upper pump shaft

° Modifications

<u>Identification</u>	<u>System</u>	<u>Description</u>
M-002	Various	Add test connections to instrument lines
HP-004*	HPCS	Replace circuit breakers for valves
HP-019*	HPCS	Replace damage shaft on HPCS water log pump
NB-025	Nuclear Boiler	Replace pressure transmitters with transmitters better suited for harsh environment
RH-012*	Residual Heat Removal (RHR)	Install interlocks between RHR/shutdown cooling low pressure core spray suction valves.
VP-022	Drywell Cooling	Change control power to Class 1E
SX-023	Shutdown Service	Change setpoint of low Sx Water pressure at heat exchanger

*These modifications had been voided

° Some of the specific areas evaluated were:

Design review process

10 CFR 50.59 evaluations

Seismic and environmental qualification

NRC approval where appropriate

Impact assessments for training and/or procedures

Post-modification tests

As-built drawings

Configuration control

- 3.1.1.1. The inspectors concluded that the post modification tests, impact assessments, control of as-built drawings, the design review process, seismic qualification, and configuration control were adequately addressed. The Modification and Field Alteration packages contained sufficient documentation and were well organized to facilitate an in-depth review of the design process.
- 3.1.1.2 One concern was identified with the package for Modification M-002. This Modification pertained to the addition of test connections for the excess flow check valves in instrument lines for monitoring the Suppression Pool. These test connections were classified as ASME, Class B, Seismic Category I. The modification consisted of attaching an 1/2" line to 3/4" instrument lines. This line had two ASME, Class B, valves in series with the line end capped. These additional valves were classified as containment isolation valves and, therefore, required a change to Technical Specifications. This change was approved by the NRC by letter dated March 21, 1988. The 10 CFR 50.59 review, documented on the Safety Evaluation Form (SEF), did not adequately justify that no "unreviewed safety question" existed. The SEF justification concluded, "This mod does not increase the potential for loss of Suppression Pool Water since two closed isolation valves, ASME, Class B, Seismic Cat. I, and a cap are provided at each test connection location." The justification did not address the welded tee connection where the line for the test connections were connected to the instrument lines. The licensee took immediate corrective action and revised the SEF to address these welded tee connections. (See Paragraph 2.2 for other details.)
- 3.1.2 Summary of Modification Accomplishment: Accomplishment of modifications appeared to be effective based on the decreasing trend in open Modifications. Modification packages were well organized and contained sufficient records to substantiate that there were adequate design controls. The increasing trend in open Field Alterations, at this time, was not considered to have negative impact on the modification process. Field Alterations appeared to be effectively controlled.

No violations were identified.

- 3.2. Effectiveness of Modifications: The inspectors observed portions of the installation activities for two modifications, M-002 and VP-022, to determine if those activities were performed in accordance with

requirements established in the modification package. The inspectors evaluated:

- ° Workmanship of electrical connections
 - ° Workmanship of welds
 - ° Weld procedure qualification
 - ° Shop fabrication activities
 - ° Verification of dimensions
 - ° Post-modification tests
- 3.2.1. As-Built Configuration: The inspectors concluded that the installation activities were effectively accomplished with one exception. The installation records of the test connections associated with modifications M-002 did not include the actual as found measurements to substantiate that the fabricated spool was installed within specified tolerances. Therefore, it could not be determined from the record that adequate controls existed to ensure modifications to ASME components/material were accomplished within the tolerances specified in design documents. This matter is considered an open item (461/88006-01).
- 3.2.2. Summary of Modification Effectiveness: Controls established for the installation of modifications appeared to be effective; one concern was identified that pertained to installation tolerances for ASME modifications.

No violations were identified.

- 3.3. Quality Verification: The inspectors reviewed audit and condition reports to evaluate the licensee's quality verification process. These documents were reviewed for root cause analysis, timely corrective action, trend analysis, technical assessments, justifications for close out, and use-as-is dispositions.
- 3.3.1. Audits: The inspector reviewed several audits of the modification process. It appeared that the licensee was progressing towards performance based audits. For example, a performance based audit, number Q38-87-51, was conducted in October and November 1987. This audit verified system configuration, status, and condition of a small portion of the High Pressure Core Spray (HPCS) system. The licensee was cautioned during the exit meeting that performance based audits should include team members with operational backgrounds. For those audits that assess engineering aspects of a system, team members should have a thorough understanding of engineering applications for nuclear plants.

The nine Request for Corrective Actions (audit findings) reviewed had adequate corrective actions and were closed in an appropriate manner. Effectiveness of the corrective actions were evaluated by the licensee during the closure of the audit finding or verified during a future audit.

3.3.2. Condition Reports (CRs): Of 26 CRs reviewed, 23 had adequate corrective actions. The inspectors had concerns with three CRs in the areas of root cause analysis, timeliness of corrective action, and corrective actions as follows:

CR-1-87-11-090

This CR, issued on November 10, 1987, identified a Field Alteration that had not been reviewed by Quality Engineering (QE) because it was incorrectly classified as nonsafety-related. In August 1987, a trend had been identified with QE reviews of modifications; however, prior to this trend being identified, other documents already identified problems with QE reviews:

- July 1986, audit report
- February 1987, three CRs
- March 1987, one CR
- June 1987, four CRs
- July 1987, two CRs

Condition Reports, not pertaining to material/equipment problems, were trended by Quality Assurance. This trend was performed weekly and utilized a three month data base, which could be assessed if three similar occurrences had been identified during the period. Utilization of a three month data base would probably identify gross trends; however, as shown above, it is apparent that subtle trends were not identified in a timely manner.

The licensee committed to assess the present trend process to determine if the object of the identification of conditions adverse to quality was accomplished in a timely manner. This matter is considered an open item (461/88006-02).

CR 1-88-01-051

This CR pertained to check valves in the Standby Liquid Control (SLC) system that were not identified in the licensee's Pump and Valve Operability Program (PVOP) for testing in the closed position. This condition was identified by the licensee's Independent Safety Engineering Group (ISEG) during review of another plant's Licensee Event Report. Identification of this problem indicated that the review process by the licensee's ISEG was effective; however, the disposition of the CR was not indicative of an adequate quality verification process because:

- Root cause analysis was inadequate; the documented analysis on the CR just reiterated the condition described on the CR;
- Corrective action never identified a commitment date for testing the valves;
- The basis for operability was weak;
- The CR disposition had been reviewed by QA without comments concerning root cause analysis or operability.

The licensee took immediate corrective action and revised CR 1-88-01-051 to address the above concerns. Since this was the only CR where concerns were identified in the root cause analysis and justification for operability, further action by the NRC was not warranted.

CR 1-88-03-063

During an independent review of the licensee's Inservice Test (IST) program performed by Stone & Webster during June and July of 1987, two valves in the Residual Heat Removal (RHR) system were identified as "active" safety-related. The valves, 1E12-F040 and 1E12-F049, had been previously identified as "passive" safety-related. These normally closed valves were sometimes open to divert RHR to radwaste. These valves receive automatic isolation signals for closure during certain plant conditions, such as low level in the reactor. The written report for the independent review was issued October 7, 1987, and received by the licensee's Nuclear Station Engineering Department (NSED) on October 8, 1987. On March 23, 1988, CR 1-88-03-063 was issued to document that RHR to Radwaste valves (1E12-F040, 1E12-F049) were classified "passive" safety-related and should have been classified as "active" safety-related. The immediate action taken was to document a justification for operability.

The inspector reviewed the justification and determined it to be satisfactory. However, the justification could have provided more supportive data pertaining to the automatic features associated with the valves. The inspector had a concern with the timeliness in the issuance of CR 1-88-03-06, which was approximately 4½ months after receipt of the independent review report by NSED. Timeliness in identification of a potential operability problem with two valves in RHR was considered unsatisfactory; however, since the issue of timeliness appeared to be an isolated incident, no further action by the NRC was warranted.

- 3.3.3. Summary of Quality Verification Process: It appeared that the licensee was effective in the identification of potential problems. Management tools, such as independent reviews and the ISEG, were used in an effective manner. However, weaknesses were apparent in resolution of problems in a timely and thorough manner.

No violations were identified.

4. Conclusions

- ° Training was not totally effective in correcting previously identified problems with 10 CFR 50.59 reviews.
- ° Modification activities were adequately controlled, management attention and involvement in the modification process was evident, and resources were adequate and reasonably effective; however, actual field measurements were not documented, which precluded independent QA verification that installation met design specification tolerances.
- ° Quality verification activities were effective in identifying potential problems. However, management attention is needed in the areas of trend analysis and resolution of problems, especially in the area of timeliness, thoroughness of investigations, and root cause analysis.

5. Open Items

Open items are matters that have been discussed with the licensee, which will be reviewed further by the inspector and involve some action on the part of the NRC or the licensee, or both. Two open items disclosed during this inspection are included in Paragraphs 3.2.1 and 3.3.2.

6. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) on April 6, 1988, and summarized the purpose, scope, and findings of the inspections. This inspector discussed the likely informational content of the inspection report with regards to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents or processes as proprietary.