

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/85-09(DRS)

Docket No. 50-461

License No. CPPR-137

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

Facility Name: Clinton Nuclear Power Station, Unit 1

Inspection At: Clinton Site, Clinton, IL

Inspection Conducted: January 23-25, and 28, 1985

Inspector: *K. D. Ward*  
K. D. Ward

2/15/85  
Date

Approved By: *D. H. Danielson*  
D. H. Danielson, Chief  
Materials and Processes Section

2/15/85  
Date

Inspection Summary

Inspection on January 23-25, and 28, 1985 (Report No. 50-461/85-09(DRS))

Areas Inspected: Unannounced special safety inspection to review previous inspection findings, 10 CFR 50.55(e) items and allegations. This inspection involved a total of 32 inspector-hours by one NRC inspector including 11 inspector-hours during offshifts.

Results: No items of noncompliance or deviations were identified.

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## DETAILS

### 1. Persons Contacted

#### Illinois Power Company (IP)

- \*D. Hall, Vice President
- \*W. Connell, Manager QA
- \*J. Loomis, Construction Manager
- \*J. Perry, Manager, Nuclear Programs Coordination
- \*H. Daniels, Jr., Project Manager
- \*R. Campbell, Director, Quality Systems and Audits
- \*F. Spangenberg, Director Nuclear Licensing
- \*E. Kant, Director
- \*J. Sprague, QA Specialist
- J. Brownell, QA Specialist

#### Baldwin Associates, Inc. (BA)

- \*L. Osborne, Manager M&TS
- \*A. King, Project Manager
  - J. Parks, Manager QC
  - M. Stello, Head Containment Engineer
  - B. Barrey, Head Turnover Engineer
  - A. Lynch, Supervisor, QC Hydro Group
  - R. Hans, Manager Industrial Relations

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

\*Denotes those attending the exit interview.

### 2. Licensee Action on Previous Inspection Items

- a. (Closed) Open Item (461/81-15-06): An allegation was made that 3/4" and 1" A-307 bolts on bus ducts on the 737' elevation of the auxiliary building had been overtorqued. QC Instruction for Raceway Hanger/Support/Fabrication/Installation Inspection Instructions does not provide torque values for 3/4" and 1" bolts. Baldwin Associates initiated Nonconformance Report 5428 to document the over-torquing of A-307 bolts. A subsequent physical inspection of the bolts in question revealed that they were A-325, high strength bolts, not A-307 bolts as had been reported. A review of the associated travelers indicated that the A-307 bolts had been replaced with A-325 bolts in late April, 1981, in accordance with project procedures. On October 20, 1981, NRC 5633 was written to supersede NCR 5428 and incorporate the additional information. Baldwin Associates Quality Control Instruction QCI-401 incorporated torquing requirements for all A-307 and A-325 bolts and all-threaded rod.

The inspector reviewed NCRs, QC Instructions and related documentation, agreed with the actions of the licensee and considers this item closed.

- b. (Closed) Unresolved Item (461/81-12-01): No code requirements for RHR pumps. This was a concern about possible weld problems (undercuts and porosities) on the guides in columns of ECCS pumps. This problem was brought up because of an IPQA concern about possible discrepant conditions noted on some ECCS pump columns. BA Q&TS was requested to perform an inspection. The resulting inspection yielded NCR 4518. This NCR was closed on May 5, 1981, based on a GE disposition that indicated that the items are non-code and are acceptable per normal shop inspection practices.

The NRC resident inspector took exception in May 1981, resulting in unresolved item No. 81-12-01. His concern was: "Will the pump perform its intended...function during a Seismic Category I Event?" NSED and Clinton Site Activities were assigned to investigate. The investigation resulted in obtaining assurances from Byron-Jackson, GE, and S&L. Also an NSED Engineer made a trip to Byron-Jackson facilities to determine if the pumps had been subject to the required inspections. The results provided additional confidence that the pumps will perform satisfactorily during the specified seismic event.

The inspector reviewed related documentation, agreed with the action performed by the licensee and considers this item closed.

- c. (Closed) Unresolved Item (461/82-04-02): Insufficient information to determine applicable welding code pertaining to in-vessel fuel racks. The resident inspector requested that Table 3.2-1 of the CPS FSAR be amended to include the quality requirements and Code applicability of the in-vessel fuel racks. This request was based upon his possible disagreement with the dispositioning of NCRs 3248 and 4520, which identify cracks in certain areas of welds on the racks and were dispositioned to "use-as-is". The required change to Table 3.2-1 of the CPS FSAR was published in Amendment 21, and the repair of the welds on the NCRs shall be performed. These two racks are temporary racks used when refueling.

The inspector reviewed NCRs, Table 3.2-1 of the CPS FSAR, and other related documentation. The inspector agreed with the action taken by the licensee and considers this item closed.

- d. (Closed) Unresolved Item (461/82-14-03): Certain items such as reradiograph vessel pedestal and containment liner were fabricated and installed without 3rd party ANI inspection. IP presented its position to the NRC in a meeting held October 26, 1982. The NRC Division of Licensing concluded that the design specifications issued by the Architect Engineer were adequate. However, the NRC recommended that an independent inspection of the appropriate records be conducted to confirm the acceptability of construction. An independent review of 25% of the fabrication/erection documentation of the reactor vessel pedestal/containment liner for Clinton

Power Station Unit 1 has been completed. The review, conducted by an authorized nuclear inspector employed by the Hartford Steam Boiler Inspection and Insurance Company, revealed that no major nonconformances were found. Twenty-six minor nonconforming conditions were identified. They have since been dispositioned. Based on the small number of minor nonconformances found in the large number of documents examined, the licensee and the inspector believe that the 25% review level is sufficient to establish that the documentation is satisfactory.

The inspector reviewed related documents, agreed with the licensee action and considers this item closed.

- e. (Closed) Noncompliance (461/81-12-02): The rigging, handling, and installation of the RHR pump column assembly was performed without applicable detailed written procedures or instructions. The inspector reviewed the final response dated August 10, 1981, procedures and related documentation.

The activity of lifting, rigging, and handling the residual heat removal (RHR) pump column assembly was performed and controlled under an equipment installation traveler. Due to ceiling height limitations and the need to remove the shipping skid prior to lifting, the job instruction, P-012 was considered impractical and unsafe for this particular lift. Therefore, the job instruction was deleted from the traveler and no alternative written instructions were issued. The lift was conducted at the direction of the discipline superintendent in a safe manner and the pump column was correctly installed in the barrel. However, to prevent recurring problems of the nature noted in the violation the following action was taken:

- . Project procedure BAP 2.11 Rigging, Hoisting, and Handling was revised to require that alternate instructions be provided by the responsible Discipline Engineer when hoisting and handling operations cannot be conducted according to the instructions referenced on the traveler. These alternate instructions were included in the traveler.
- . Baldwin Associates Training Program TPS-30 (Rigging, Hoisting, Handling) was revised to include the additional requirements of BAP 2.11.
- . All Discipline Superintendents and Engineers were trained in the requirements of BAP 2.11 and ANSI N45.2.2.

The inspector agreed with the licensee actions and considers this item closed.

- f. (Closed) Noncompliance (461/81-22-01): The contractor was performing stainless steel welding operations using oversized electrode and unmarked wire brushes, discs, chisels, and chipping hammers. The inspector reviewed the final response dated October 13, 1981, NCR, procedures and related documents.

Use of the oversized electrode was stopped immediately when the procedural violation was brought to supervisory attention. Unmarked tools were replaced with tools marked for use on stainless steel. A nonconformance report (NCR) 5263 was written and processed to document the use of the oversize-welding electrode. Affected craft and technical services personnel were given training emphasizing adherence to written procedures and control of stainless steel materials. Additionally, the pertinent welding procedure specification (NP-8-8-BA-L) was revised to allow the use of 5/32" welding electrode.

The inspector agreed with the licensee actions and considers this item closed.

- g. (Closed) Noncompliance (461/83-22-01): Concrete expansion anchor installations welded to a plate - fraudulent installation. The inspector reviewed the final response dated March 16, 1984, and related documents.

A construction hold on concrete expansion anchor (CEA) installations was placed in effect on November 29, 1983. A Reinspection Plan was established to further investigate the extent of the problem. The construction hold was lifted on January 6, 1984. The verification of inconsistencies in the installation of concrete expansion anchors along with the results of an Institute of Nuclear Power Operations (INPO) evaluation of CPS concrete expansion anchors resulted in Region III being notified of a potential 10 CFR 50.55(e) on inconsistencies in the installation of concrete expansion anchors. This 50.55(e) Item (461/84-03-EE) was closed in NRC Report No. 461/84-42.

The inspector agreed with the investigation results of this item together with the action taken with the 50.55(e) and considers this item closed.

- h. (Closed) Noncompliance (461/83-22-02): Failure to report 50.55(e) on cracks in containment liner weld seam. The inspector reviewed the final response dated March 16, 1984, and related documents.

As a result of the actions taken in accordance with the plan for investigating the potential weld deficiencies, a Nonconformance Report was prepared on October 11, 1983, documenting the existence of cracks. The Nonconformance Report was progressing toward evaluation for 10 CFR 50.55(e) reportability when the NRC Inspector inquired into the status of the investigation. An informal review of the existing documentation was made and the determination was made that insufficient information was available to determine if a potentially significant deficiency existed. Additional research concluded on November 30, 1983, that a potentially significant deficiency existed. On December 1, 1983, Illinois Power Company notified the NRC Region III of a potentially reportable deficiency in accordance with the provisions of 10 CFR 50.55(e). This 50.55(e) item (461/84-10-EE) was closed in NRC Report No. 461/84-42.



The inspector agreed with the actions taken on this item together with the action with the 50.55(e) and considers this item closed.

- i. (Closed) Noncompliance (461/83-22-03): Failure to provide timely corrective action. NCRs not written on chewing gum sculptured into weld defect on containment liner weld seam. The inspector reviewed the final response dated March 16, 1984, and related documents.

The weld discontinuities in the containment liner weld seam were identified during an inspection performed July 20, 1983. A potential 10 CFR 50.55(e) referral was written rather than the required Nonconformance Reports (NCRs). The referral was evaluated as not reportable while the constructor continued to investigate the condition. NCRs were issued on November 30, 1983, to document the weld discontinuities, and on December 1, 1983, the NRC was notified of 10 CFR 50.55(e) Potential Deficiency. This 50.55(e) item (461/84-10-EE) was closed in NRC Report No. 461/84-42.

The condition was reviewed by personnel from the constructor and Illinois Power Company, and opinions differed on whether the gum was coated on the exposed surface. Illinois Power Company subsequently contracted for laboratory analysis of the substance applied to the weld. Analysis identified the substance as chewing gum, and the analysis determined that the chewing gum was placed on the weld after application of a zinc primer coating.

The inspector agreed with the results of this item together with the action with the 50.55(e) and considers this item closed.

### 3. Licensee Action on 10 CFR 50.55(e) Items

- a. (Closed) 50.55(e) Item (461/80-01-EE): Some CPS control room termination cabinets appear to have defective plug welding on the swinging dividers. The inspector reviewed the final report dated August 10, 1981, NCRs, FDDR LH1-508-80 R/3 and other related documentation.

Nonconformance Report NCR 2968 was written documenting this problem and submitted to General Electric (GE) for dispositioning. GE dispositioned the NCR such that repairs were made per FDDR LH1-508-80 R/3. As reported in a September 22, 1980, letter to the Commission, the swing barriers were removed from all cabinets in preparation for repair at an off-site repair facility. Since installation of field cables was facilitated by the absence of these barriers, it was decided to leave them out until most of the work was done. In order to avoid any recurrence of this problem, all the termination swing barriers for CPS were scheduled for reworking even though some may not have needed repair. NCR 4547 was written recommending that repairs be made on-site by the contractor. A program was developed for the repair of the barriers at the site and implemented. The repairs were made and found to be acceptable.

The inspector agreed with the action taken and considers this item closed.

- b. (Closed) 50.55(e) Item (461/80-10-EE): Welding of temporary and permanent non-safety attachments to certain safety-related structures and improvements. The inspector reviewed the final response dated October 24, 1980, NRCs, surveillance reports and other documentation related to the subject.

On September 24, 1980, an IP stop work order was issued for all permanent non-seismic Category I and temporary attachments to seismic Category I structures and components in the containment building. The constructor (Baldwin Associates) was instructed to remove all inadequately documented temporary attachments from the drywell liner in accordance with AWS requirements. Temporary attachments to the containment liner were removed or were suitably reworked and documented as minor permanent attachments in accordance with ASME requirements. The constructor prepared weld maps of all existing non-safety-related welds to the carbon steel portion of the containment liner in order to ensure compliance with the foregoing. The containment liner contractor (CB&I) removed all temporary attachments to the stainless steel portion of the containment liner. The constructor implemented new procedures to control future temporary attachments to these structures. New welds to the containment liner were documented and shown on the weld maps. The new procedures ensure that the appropriate specifications, codes, and standards are met.

The inspector agreed with the action taken and considers this item closed.

- c. (Closed) 50.55(e) Item (461/82-10-EE): Two cases were identified where piping with less than minimum allowable wall thickness was installed in ASME Class 2 piping systems:

In the Residual Heat Removal (RHR) system, line number 1RH03BB12, pipe of 0.375 inch (nominal, standard) wall thickness was installed; design documents dictated the use of pipe of 0.843 inch (nominal, schedule 100) wall thickness.

In the Low Pressure Core Spray (LP) system, line numbers 1LP21A4 and 1LP21B4, pipe of 0.237 inch (nominal, schedule 40) wall thickness was installed; design documents indicated the use of pipe of 0.337 inch (nominal, schedule 80) wall thickness.

The inspector reviewed the final response dated September 26, 1983, NCRs, travelers, drawings, surveillances and other related documentation.

Lines 1LP21A4 and 1LP21B4 were used as installed, but a penetration sleeve was modified to shield the pipe from the external loads. This sleeve modification also required a pipe support configuration change. Line 1RH03BB12 was used as installed, but the pipe supports were modified to withstand the pool swell loads. Sargent & Lundy reviewed their design information for safety-related piping subject to external loading to ensure that the design documents are consistent and adequate. This review identified no inconsistencies other than those

noted in this report. Sargent & Lundy reviewed safety-related, augmented D, and Fire Protection related process piping isometric drawings to ensure that the correct wall thickness has been specified for fabrication and installation. This review also included a comparison of various S&L design documents for consistency. Through September 6, 1983, 1086 drawings had been reviewed. No additional cases of wall thickness deficiencies have been identified. A recurrence of this problem is unlikely because large bore piping design and fabrication is essentially complete for Clinton.

The inspector agreed with the action taken and considers this item closed.

4. Allegation No. RIII-84-A-0040 (#69)

During February and March 1984, a quality control inspector for Baldwin Associates made the following allegations:

a. (Closed) Allegation

Told by QC Engineer to leave welding inspections alone. Not his area.

NRC Findings

The NRC inspector was informed that welding inspections are not part of the duties of a QC inspector. The Baldwin Associates (BA) QA Manual states that the manager of QC is responsible for the QC activities at the site and the manager of Technical Services is responsible for nondestructive examinations, inspection of weldings, and of heat treating activities. There are four types of QC inspectors at Baldwin, electrical, civil, piping and material control. The NRC inspector reviewed job descriptions of QC inspectors and none of them included weld inspections.

This allegation was substantiated but because of the welding inspections not being part of the alleged's job, the allegation is considered closed.

b. (Closed) Allegation

Doesn't have organizational freedom to identify items.

NRC Findings

In reviewing the Baldwin Associates (BA) QA Manual the NRC inspector found that the document instructs the inspector to identify suspect areas, where quality appears to be indeterminate, and bring them to the attention of the appropriate organization for investigation. The NRC inspector also interviewed two QC inspectors and they stated that they were free to document their observations and they indicated they had no problems. The following are the responsibilities of a BA QC Level II Piping/Mechanical Inspector:



- (1) Perform tests and inspections including verifications of material identification, locations, tolerances, bolting, concrete expansion anchors and instrumentation in accordance with Project Procedures and Quality Control Instructions.
- (2) Document the inspection and tests results on the proper inspection reports and checklists.
- (3) Forward all documentation to Level II or Level III inspectors.
- (4) Identify and report nonconforming and deviating conditions.
- (5) Perform surveillance inspections during normal inspection activities.
- (6) Perform special inspections in response to audit/surveillance reports.
- (7) Initiate stop work action whenever continued construction activities would be detrimental to the quality of safety-related items.
- (8) Direct and evaluate the activities of Level I and Level II inspectors.
- (9) Plan, evaluate and report inspections and tests performed by other inspectors.
- (10) Review and approve documented results of inspections and tests.
- (11) Provide on-the-job training and technical assistance.

This allegation could not be substantiated and is considered closed.

(c) (Closed) Allegation

There is a feeling of restriction on NCR writeups. Write everything on a small sheet, 1 block. Reason: Apt to lose attached sheets.

NRC Findings

The NRC inspector reviewed 100 NCRs which were written in a time period from December 1983, to May 1984. It was found that 20 NCRs had one page, 33 NCRs had one attached sheet, 28 NCRs had two attached sheets, 15 NCRs had three attached sheets, and the remaining NCRs had from 4 to 13 attached sheets. The NRC inspector also interviewed three QC inspectors and they stated that they did not feel they were restricted in writing NCRs.

This allegation could not be substantiated and is considered closed.

(d) (Closed) Allegation

BAP 3.2.5 (between phases I and II pipe inspections) says QC doesn't write up missing or loose nuts. No vehicle to account for these items prior to Phase III.

NRC Findings

The NRC inspector reviewed Phases I, II and III in the BAP 3.2.5, Piping Component Supports, Revision 5. Phase I reads in part:  
- Includes the installation of the support's primary attachment to the building and subsequent verification of the location and orientation of the primary attachment to the building.

Phase I inspection shall be documented on a Technical Services Phase I Hanger Inspection Checklist, Form JV-728.

Phase II reads in part: - The hanger shall be attached to the pipe and with the exception of spring hangers and snubbers, will be set in their cold position. The Quality Control Inspector's sign-off in the Phase II block on a Pipe Whip Restraint traveler indicates that the pipe whip restraint is installed per the Sargent and Lundy or General Electric design drawings and that the gaps and clearances are as specified on the design drawings with the pipe installed in its final cold set position.

NOTE 1: All installation and inspections for Phase I and Phase II will be performed under the traveler. Quality Control inspection activities shall be in accordance with the Quality Control Instruction Manual.

NOTE 2: After Phase II acceptance, items such as (1) loose jamnuts, (2) loose clampnuts, (3) lack of full thread engagement for threaded connectors, (4) unacceptable angularity, (5) clamp not perpendicular, or (6) loss of required guide clearance, will not be documented on an NCR. The final Quality Control acceptance of these items will be accomplished during the Phase III inspection. Other items such as (1) damage, (2) missing items, (3) interference, or (4) disassembly, which are identified during the Phase II/Phase III interim will be documented on an NCR/DR in accordance with BAP 1.0.

Phase III reads in part: - Prior to system turnover, the Senior Discipline Engineer will forward a listing of all hangers contained in the Turnover Package to the Manager of Quality Control. Quality Control will reinspect all completed hangers on the listing. Those hangers not completed and accepted per Phase II will be listed on the Punch List.

The inspector was informed by the head of the department that if missing or loose nuts are noticed in Phases I or II that they are written up.

In reviewing related documents and interviewing personnel, this allegation was substantiated, but the NRC inspector agreed that Phases I, II and III are acceptable in the BA Procedure 3.2.5, Revision 5, and considers this item closed.

(e) Closed Allegation

Identified a questionable weld on one of the Main Steam Downcomer Pipes in the Suppression Pool. Fillet welds running transverse (touching) two vendor welds. No post weld heat treat accomplished.

NRC Findings

The allegation did not specify if the fillet welds touching the vendor welds were on pipes or on hangers.

Therefore, the inspector reviewed several drawings, ASME Section III, ND, 1974 Edition - Summer 1974, travelers and other related documentation. It was determined that all the main steam downcomer pipes in the suppression pool are 10" diameter, Class 3, full penetration welds and not fillet welds.

There could be a hanger attachment with fillet welds running transverse touching two vendor welds. However, their procedures, specifications or Codes allow this. Further, Table ND 4622.3-1 in the ASME Section III Code states that material over 1½" thick shall have post weld heat treatment. The subject material is 1-1/8" thick and did not require post weld heat treatment. The suppression pool was full of water, therefore, the inspector could not visually examine the area.

The inspector could not substantiate this allegation and considers this item closed.

(f) (Closed) Allegation

Questioned a liquid penetrant examination (PT) on a weld in the same area as Item (e) above. Surface was not compatible for a PT application.

NRC Findings

The inspector reviewed several travelers and found that the condition of the welds that were PT'd were ground smooth, partially ground or wire brushed. When a PT is performed, it is left up to the individual performing the PT to determine if the surface is acceptable or not. One individual may require a smoother surface than another. The suppression pool was full of water, therefore, the inspector could not visually examine the welds.

The inspector could not substantiate this allegation and considers this item closed.

(g) (Closed) Allegation

No one watching pressure gauge during hydro walkdowns.

NRC Findings

The inspector reviewed the Code, site hydrotest procedures and hydrotest packages that were completed. The Code on the procedures does not state that the pressure gauge is watched 100% of the time. There are several hold points such as, "Decrease pressure to 225 (+ 12, - 0) psig and hold until inspections are complete." Also a hydro procedure states that, "This inspection shall be made after test pressure was maintained for a minimum of 10 minutes and then reduced to design pressure or three quarters of the test pressure, whichever is greater." The inspector found the hydro procedures acceptable and in order to perform the hydros in a proper manner, the pressure gauge would have to be watched 100% of the time. The inspector was informed that it is a policy that the pressure gauge be watched at all times during hydro walkdowns.

This allegation could not be substantiated and is considered closed.

(h) (Closed) Allegation

No compensation taken for head pressure in hydro procedures.

NRC Findings

Hydro test procedures are written by the IP Startup Organization in accordance with procedure HTP-00-02, The NRC inspector reviewed HPT-00-02 Revision 1 which states in part: S&L shall be responsible for verifying that corrections for static head pressure are made.

This allegation was substantiated in that the Baldwin Associates hydrotest procedure does not address static head pressure, however, this responsibility lies with the A&E by approved procedure. The inspector agreed with procedures and considers this item closed.

(i) (Closed) Allegation

No controlled copy of BAPs in traveler packages for QC to use. BAPs in manual in field office.

NRC Findings

In reviewing BA Procedure 2.14 Rev. 7, Fabrication/Installation of Items, Systems and Components, the NRC inspector found that the procedure stated that a traveler package shall have attached and/or reference documents required to provide the necessary information for the accomplishment of the work. The inspector reviewed several traveler packages and found this to be true.



The allegation was substantiated but the NRC inspector found the procedure acceptable and working properly and considers this item closed.

(j) (Closed) Allegation

There are no ANSI, Code, or Design Specs in Field Office. Second shift library kept locked. Not encouraged to research anything.

NRC Findings

The second shift library is kept locked when there isn't a documentation person in the library. There is always a key in the documentation room. A documentation individual will let a person in and stay with him until he is ready to leave from the library. In interviewing personnel there seems to be no problem in finding the key to the library and checking out specs, code books, etc.

This allegation was substantiated, but because there is a key available, this item is considered closed.

5. Exit Interview

The inspector met with site representatives (denoted in Persons Contacted paragraph) at the conclusion of the inspection. The inspector summarized the scope and findings of the inspection noted in this report. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/processes as proprietary.