

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/85-02(DRS)

Docket No. 50-461

License No. CPPR-137

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

Facility Name: Clinton Nuclear Power Station, Unit 1

Inspection At: Clinton Site, Clinton, Illinois

Inspection Conducted: January 7-11, 15-17, and 21-25, 1985

Inspectors: R. S. Love *RS Love* 2/15/85  
Date

B. A. Berson, Esq. *BA Berson* 2/15/85  
Date

Approved By: C. C. Williams, Chief *CC Williams* 2/15/85  
Plant Systems Section *CC* Date

Inspection Summary

Inspection on January 7-25, 1985 (Report No. 461/85-02(DRS))

Areas Inspected: Routine, unannounced inspection of licensee actions on allegations; installation of instrument sensing lines; installation of electrical cables and terminations; and applicable procedures and records. This inspection involved a total of 173 inspection-hours by two NRC inspectors, includes 87 hours conducting personnel interviews off-site.

Results: Of the areas inspected, no items of noncompliance or deviations were identified.

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## DETAILS

### 1. Persons Contacted

#### Illinois Power Company (IP)

- \*D. P. Hall, Vice President
- \*W. Connell, Manager of Quality Assurance
- \*J. E. Loomis, Construction Manager
- \*D. W. Wilson, Supervisor of Licensing Administration
- \*G. W. Bell, Director, Construction and Procurement QA
- \*J. S. Perry, Manager, Nuclear Program Coordinator
- \*R. E. Campbell, Director, Quality Systems and Audits
- \*J. G. Cook, Assistant Plant Manager
- \*J. R. Sprague, Station QA Specialist
- J. Brownell, Station QA Specialist
- R. J. Kennedy, Quality Assurance Engineer (Surveillance)
- G. Bousquet, Quality Assurance Engineer (Surveillance)
- M. M. Desai, Quality Assurance Engineer (Surveillance)
- S. E. Rasor, Supervisor, Construction QA
- A. Sherwood, Lead QA Engineer (Surveillance)

#### Baldwin Associates (BA)

- \*A. E. King, Jr., Project Manager
- L. W. Osborne, Manager of Quality and Technical Services
- J. Wiley, Electrical Superintendent
- J. DeVine, Instrumentation Resident Engineer
- T. Massey, Lead Quality Control Inspector (Electrical)
- D. Jones, Instrumentation Field Engineer

The inspectors also contacted and interviewed other licensee and contractor personnel during this reporting period.

\*Denotes those present at the exit interview on January 25, 1985.

### 2. Allegations

- a. Concern (RIII-84-A-0010)(71): An anonymous, undated letter was received by the NRC Senior Resident Inspector (SRI) at Clinton Power Station (CPS). This letter expressed a concern about the termination of four fellow employees. Since their termination, there has been a feeling of intimidation among QC inspectors in that, from directions received, the quality of an installation is subservient to cost and schedule. The letter was stated to have been anonymous because the person(s) feared retribution if they persisted in doing jobs as QC inspectors.

#### NRC Followup

The Region III inspectors determined that 2 electrical QC inspectors (Senior Electrical Quality Control Supervisor and Electrical Quality Control Field Supervisor) and 2 electrical engineers (Senior

Electrical Engineer and Lead Electrical Engineer) were terminated by BA on January 3, 1984, for their involvement in the alleged improper handling of a nonconformance report.

On July 11-12, 1984, twelve electrical QC inspectors were interviewed on-site by members of the Region III staff. All 12 persons were specifically asked if the terminations of the four individuals had an intimidating or chilling effect on the performance of their daily functions. Unanimously they responded that at first there existed a state of confusion but now they felt comfortable about performing their duties. Some inspectors felt that now there appeared to be too much protection given to them because non-quality related incidents were not being effectively handled by supervisors for fear of a charge of intimidation (Reference: Inspection Report 461/84-14(DRP)).

To reassure the NRC staff that the firings did not affect the quality of the plant or cause QC personnel to overlook quality concerns, additional interviews of 7 CPS quality personnel were conducted during this reporting period. These interviews were arranged through off-site contacts and were conducted off-site. Four of the seven quality personnel had been previously interviewed on-site as discussed in the previous paragraph. One of NRC's concerns was whether the previous interviews, which took place on-site, may have had affected the candor of the inspectors.

The four previously interviewed individuals were asked if they felt reluctant to speak freely to the NRC during the July 11-12, 1984 time frame because the interviews were conducted onsite as opposed to off-site. The fact that the interviews took place on-site did not bother them, however, one individual did state that he would prefer to be interviewed in his home, i.e. in familiar surroundings. Several of the interviewees stated that they felt uncomfortable during the onsite interview because they did not personally know either of the NRC personnel conducting the interview. All reported they had been candid with the NRC inspectors.

Each of the seven individuals were asked, what effect, if any, the terminations had on how they did their job and whether they became reluctant or afraid to do their job properly. Most individuals stated that the termination of the Senior Electrical QC Supervisor (Level III) created a vacuum and confusion because the link between upper QC management and the field was broken. This lasted for about 2 1/2 months until a new Level III was hired. However, there was general agreement that the quality of the work at CPS did not suffer because of the termination of the four individuals. Additionally, several inspectors felt that after the terminations, QC supervisors became reluctant to give firm directions, as opposed to suggestions, to inspectors for fear that they could be charged with intimidation, (Example provided, rather than reprimand an inspector for inadequate inspections, the supervisor would assign another inspector to "bird dog" the questionable inspector and reinspect his work).

The individuals were also asked whether they had ever been told, written or verbally, not to contact IP, SAFETEAM, or NRC about quality concerns. All responded in the negative, although BA management encourages employees to allow BA an opportunity to resolve the concern first.

The interviewees were queried as to the support they had from their supervision before the firings as compared to their present supervision.

The individuals expressed a variety of views on both former and current QC management; however, none of these comments related to potential violations of regulatory requirements. All individuals stated that the overall quality of the plant was not adversely affected by the perceived strengths and weaknesses of the QC management.

The interviewees were asked to compare the training they received prior to certification vs the training the new inspectors receive today. In general, it was agreed that the present training program is much better. The concerns stated in this area are as follows:

- . With the large influx of new electrical inspectors, the training department is behind. They need help.
- . With the push for system turnovers and the push to reduce the backlog of electrical QC inspections, the certified inspectors do not have the time to provide adequate OJT (on-the-job training) for the new inspectors. In that all new hires were previously certified Level II on other projects, the lack of OJT shows up in software problems because the new inspectors are not familiar with the BA QC inspection forms.
- . With respect to the training in the BA Field Verification Group, when this group was first established, the new inspectors were lacking OJT prior to certification. This was remedied by assigning a newly certified inspector and an experienced inspector together as a team. This provided the new inspector with additional training and ensured that the discrepancies were identified and documented.

The interviewees were asked if, in their opinion, QC inspections were being properly conducted and resulting deficiencies documented on nonconformance reports. The general response was that with the more experienced inspectors being employed, this has resulted in more consistent inspections and they were confident that hardware problems were being identified and documented. They did state that they still have "software" problems, resulting in unnecessary reinspections because the original inspector failed to sign-off on the inspection checklist. In addition to the improved QC inspections, the craft personnel are contacting QC inspectors on potential problems.

With respect to nonconformance reports (NCR), the interviewees thought that the present NCR system is an improvement over the older system where a supervisor could void an NCR. Under the present system, no NCR is voided. All final dispositions are made outside the BA organization. Per procedures, Type "A" NCRs are reviewed by IP's Nuclear Station Engineering Department (NSED) and by Sargent and Lundy (S&L), the design engineer. Type "B" NCRs are approved by NSED.

The interviewees also stated that at times, there is a big push for inspections to support system turnover but QC has never been asked or directed to overlook quality problems. At the present time, there is a big push to reduce the backlog of electrical QC inspections. It should be noted that the NRC has expressed concerns about the large backlog of electrical QC inspections. As documented in Inspection Report 461/80-27, it was identified that approximately 5,000 hangers and 24,000 feet of cable tray had not been completely inspected by electrical QC. As documented in Inspection Report 461/84-43 (latest report that discusses electrical inspection backlog), much progress has been made to reduce the backlog of electrical inspections. This backlog is an ever changing number; for example - due to training in procedure revisions in November 1984, the backlog increased from 549 to 980 inspections. The inspection backlog is however being monitored by Region III inspectors.

#### Conclusions

The termination of the four BA employees on January 3, 1984, did not adversely affect the quality of work at the Clinton Power Station. There have been instances where QC has been pressured to complete inspections to support the schedule, however, no instances were revealed where an inspector had been asked or directed to overlook quality problems. BA management is not adverse to BA personnel bringing quality concerns to the NRC, IP, or SAFETEAM. Based on the above information, this item is closed.

#### Additional Concerns

During the course of the above interviews, several additional concerns were expressed by the interviewees. These concerns have been or will be entered into the Region III allegation tracking system and will be followed up during subsequent inspections.

b. Concern (RIII-85-A-0026)

During a previous inspection (Reference: Inspection Report 461/84-29), the Region III inspector interviewed 6 BA Instrument Field Engineers as part of the NRC followup to allegation RIII-84-A-0118. The purpose of the interview was to ascertain the effectiveness of the reorganization of the field engineering group and the freedom of the field engineers to exercise their abilities in the dispositioning of Field Change Requests.



During this reporting period, one of the six engineers interviewed contacted the Region III inspector in the CPS NRC residents office. During this interview, the inspector was informed that this engineer was told by the Senior Piping Field Engineer to "look for another job because at the first reduction-in-force, he would be terminated." The engineer further stated that the Senior Piping Field Engineer told him "that he would be terminated because he had a bad attitude and this was exemplified by his talking to the NRC."

The inspector informed the engineer of his rights under Section 210 of the Energy Reorganization Act of 1974 (Act) and also informed the engineer that he would discuss his situation with the licensee. The inspector provided the engineer with copies of: (1) Section 210 of the Act; (2) Title 29 CFR Part 24 Department of Labor Regulations; (3) the address and phone number of the Wage and Hour Division of the US Department of Labor in Springfield, Illinois.

On January 21, 1985, the Region III inspector discussed the charges noted above with IP QA Management. The inspector requested that IP investigate this matter and take appropriate action, if any. The inspector also presented the above listed information to IP and BA Management during the exit interview on January 25, 1985, (see Paragraph 1 for list of attendees). Pending a review of the licensee's investigation and action taken, this item is open (461/85-02-01).

### 3. Review of Instrument Sensing Lines

- a. During this reporting period, the Region III inspector reviewed the installation of instrument sensing lines within the Containment Building. In that the sensing lines are being supported by temporary hangers at this point in construction, the inspector did not verify final configuration, slope, separation, and support. These items will be verified during the as-built walkdown (Inspection Module No. 37051). With respect to inspection for separation of redundant instrument sensing lines, it was observed that none of the instrument sensing lines were identified with the divisional color code tags as required by Specification K-2882 and applicable BA procedures, thus making it impractical to verify separation at this time. IP QA Surveillance Finding C-85-018, dated January 24, 1985, was prepared to document the lack of color coded tags on the instrument sensing lines.
- b. Utilizing BA isometric drawing (ISO) RR-917, Revision 0, an attempt was made to walkdown the sensing lines for Reactor Recirculating flow transmitter IFT-1B33-N037 (High Pressure Side) on January 9, 1985. The subject flow transmitter is located in Instrument Panel 1H22-P010. When it was observed that the installation and the drawing conflicted, the BA Iso was compared with the applicable S&L drawings. The S&L drawing shows the sensing line routing from Terminal A7 on Panel 1H22-P010 (Terminal A7 is physically located outside of the panel) to the signal source. The S&L drawing and the BA Iso were compatible. Utilizing the GE drawing (panel vendor), it was observed that Terminal A7 connected to flow transmitter IFT-1B33-N037G (Low Pressure Side) and not N037R(Hi) as shown on

BA Iso RR-917. With the above noted change, the inspector was able to verify the routing, and general configuration and slope of the sensing line for instrument 1FT-1B33-N037G(Lo). BA Iso RR-915, Revision 3, was also utilized in this walkdown. Iso RR-915 correctly identified the instrument number, 1FT-1B33-N037G(Lo), associated with this sensing line.

In an attempt to determine the root cause for the error noted on BA Iso RR-917, Revision 0, the Region III inspector interviewed several BA "checkers", BA engineers that approved the Iso's, and S&L personnel that review and status the BA Iso's. The following information was obtained:

- (1) The draftsman checker (T.A.A.) that initialled Iso RR-917, Revision 0, is no longer employed by BA.
- (2) BA procedure BAP 1.18, Revision 1, "Drawing Preparation", does not address the checker's responsibilities to verify the adequacy and correctness of the drawings prepared by BA.
- (3) During the time frame (October-November, 1984) that Iso RR-917 was prepared, checked, and approved by BA, there was a big push to get instrumentation Iso's into the field for construction. During this period, certain BA personnel were assigned to the field office to prepare, check and approve these type drawings. In the case of checker T.A.A., he signed off on the subject drawing while assigned to the Field Office.
- (4) On November 28, 1984, S&L dispositioned Iso RR-917, Revision 0, as Status 2 (approved with comment). The comment was to incorporate FECN 7060. During the interview of S&L personnel, the inspector was informed that the S&L review of this Iso started with terminal A-7 and not with flow transmitter 1FT-1B33-N037G. It was explained that S&L is only responsible for the instrument sensing line(s) outside the instrument panels (1H22-P010 in this example).
- (5) On January 23, 1985, the inspector reviewed Iso RR-917, Revision 1, and verified that the correct instrument number (N037G) was noted on the drawing.

The drafting error (Instrument No. 1FT-1B33-N037G vs 1FT-1B33-N037R) and procedure deficiency (checker's responsibilities not defined) were documented on IP QA Finding No. C-85-017, dated January 23, 1985. Pending a review of this finding for proper closure, this item is open (461/85-02-02).

- c. Utilizing BA Iso's NB-904, Revision 0, NB-905, Revision 2, and NB-952, Revision 1, the inspector walked-down the high pressure sensing line for flow transmitter 1FT-1B33-N037G. It was observed that this sensing line is the common high pressure line for the following flow transmitters: 1FT-1B33-N037V, N037T, N037R, N037L, N037G, N037C, N037N, N037J, N037E, and N037A. It was also observed

that Iso NB904, Revision 0, had a drafting error in that transmitter 1FT-1B33-N037H was listed on the Iso and it should be 1FT-1B33-N037N. This Iso was also reviewed by checker T.A.A.. This drafting error was also noted in IP QA Finding No. C-85-017 (Reference: Paragraph b above). The inspector verified the routing, and general configuration and slope. No hardware problems were observed.

- d. Utilizing BA Iso's RI-929, Revision 4, and RI-927, Revision 5, the inspector walked down the high pressure sensing line for differential pressure transmitter 1PDT-1E31-N084A. This sensing line also provides the signal for pressure transmitter 1PT-1E31-N085A. Utilizing BA Iso's RI-926, Revision 2, and RI928, Revision 6, the inspector walked down the low pressure sensing line for 1PDT-1E31-N084A. The subject transmitters are located in Instrument Panel 1H22-P004. The inspector verified the routing and general configuration and slope. No discrepancies were identified.
- e. During the walkdown of instrument sensing lines, it was observed that redundant sensing lines within the Instrument Panels were within 1" of each other. Examples: Panel 1H22-P025, Division 1 and 2 sensing lines are within 1" of each other; Panel 1H22-P042, Divisions 3 and 4 sensing lines are within 1" of each other. The inspector requested that IP verify that this type of potential separation violation has been identified and appropriate corrective action taken by the panel manufacturers, S&L, or IP. Pending a review of this corrective action, this item is open (461/85-02-03).
- f. During an interview of the BA Assistant Resident Engineer for instrumentation sensing lines, the inspector was informed that BA had no plans to as-built the sensing line Iso's. This was discussed with IP and BA management during the exit interview on January 25, 1985. Pending a review of IP's as-built program as it relates to instrument sensing lines, this item is open (461/85-02-04).

#### 4. Review of Electrical Terminations

During this reporting period, the Region III inspector reviewed approximately 1500 terminations of electrical control, instrumentation, and power cables in Motor Control Centers (MCC), Power Generation Control Complex (PGCC) cabinets, and a 4160V Switchgear. The inspector also verified the proper landing point for approximately 400 of these terminations. Following is a list of equipment, cable numbers, and drawings utilized to verify the proper termination landing points. The drawings were also used to verify BA installed jumpers. No discrepancies were identified.

- a. MCC-1B (1AP61E) located in the Control Building, 737' elevation. Drawing E03-1AP61E, Sheet 1, Revision G.

##### Cables Reviewed

1VD05C-7/C  
1D002B-9/C  
1DG30B-7/C

1VD05B-12/C  
1D002C-12/C  
1SX29B-9/C



1SX29C-9/C  
1SX31C-9/C  
1SX40C-9/C

1SX31B-9/C  
1SX40A-3/C

- b. PGCC Cabinet 1H13-P702A, located in the Control Room. Drawing E03-1P702A, Revision G.

Cables Reviewed

1SC06D-4/C  
1SC06G-12/C  
1SC06E-9/C  
1SC02G-12/C  
1SC08H-2/C  
1RH08D-3/C  
1RH34D-3/C  
1RH43D-3/C  
1RH43D-3/C  
1RH74B-15/C  
1RH77E-2/C

1RH65A-2/C  
1RH05C-12/C  
1RH70D-4/C  
1RH69D-4/C  
1RH05D-2/C  
1RH70B-4/C  
1RH10C-9/C  
1RH10D-9/C  
1RH08C-12/C  
1RH32C-12/C

- c. PGCC Cabinet 1H13-P714, located in the Control Room. Drawing E03-1P714A, Revision J.

Cables Reviewed

1VS20C-9/C  
1VY07B-15/C  
1VY05B-15/C  
1VY11A-2/C  
1VY06B-15/C

1VY06F-7/C  
1VY05D-7/C  
1VY07F-7/C  
1VY13C-4/C  
1VX17B-12/C

- d. 4160 V Switchgear 1AP72E.  
Drawing E03-1AP72E, Sheet 1, Revision K.

Cables Reviewed

1HG01G-3/C  
1HG01J-2/C  
1VP05C-12/C

Drawing E03-1AP72E, Sheet 2, Revision H.

Cables Reviewed

1SI18B-9/C  
1RI01B-12/C

Drawing E03-1AP72E, Sheet 3, Revision H.

Cables Reviewed

1SC05K-4/C  
1SC01G-15/C

5. Review of Records

During this reporting period, the Region III inspector performed a general review of approximately 150 cable termination inspection reports. During this review, it was observed that the inspection of butt splices, except for drain wires, was not addressed on the Termination Inspection Checklist. BA Procedure BAP 3.3.3, Revision 5, Change C, dated October 3, 1984, requires BA QC inspectors to inspect butt splices. From the QC inspectors interviewed, the inspector was informed that the QC inspectors document their inspections of butt splices in the remarks portion of the checklist and/or on the termination cards when an inprocess inspection is performed. During the review of terminations discussed in Paragraph 4 above, no conductor butt splices were observed. The inspector was also informed that the termination procedure was in the process of being revised. Pending a review of the revised termination procedure to verify that the inspection of butt splices is included on the checklist, this item is open (461/85-02-05).

6. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. Open items disclosed during this inspection are discussed in Paragraphs 2.b, 3.b, 3.f, and 5.

7. Exit Interview

The Region III inspectors met with the licensee representatives (denoted under Paragraph 1) at the conclusion of the inspection on January 25, 1985. The inspector summarized the purpose and findings of the inspection. The licensee acknowledged this information.