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ILLINOIS POWER COMPANY



CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

September 30, 1985

Mr. J. G. Keppler
Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

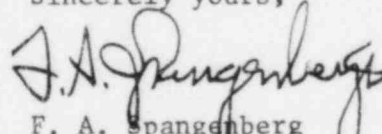
Subject: Response to Notice of Violation dated August 30, 1985
and the Executive Summary in the Construction Appraisal Team
(CAT) Inspection Report 50-461/85030 dated August 15, 1985.

Dear Mr. Keppler:

This letter is in response to the August 30, 1985, letter identifying certain activities which appeared to be in noncompliance with NRC requirements and certain areas that appear to have programmatic weaknesses. Attachments A through F provide Illinois Power Company's responses to the Notice of Violation and Attachment G provides Illinois Power Company's response to the NRC identified programmatic weaknesses.

I trust that our response is satisfactory to ensure compliance with regulatory requirements.

Sincerely yours,


F. A. Spangenberg
Manager - Licensing
and Safety

JAB/kaf

Attachments

cc: B. L. Siegel, NRC Clinton Licensing Project Manager
Director, Office I&E, USNRC, Washington, DC 20555
T. P. Gwynn, Chief Projects Section 1B, NRC Resident Office
Illinois Department of Nuclear Safety

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ATTACHMENT A
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Subject: Modeling of Snubber Supports

The Notice of Violation States in pertinent part:

"... the licensee's program was not adequately implemented in that two ASME Class 1 Nuclear Steam Supply System snubber supports were found to have been modelled and analyzed as rigid supports contrary to FSAR commitments to model them as flexible supports."

I. Corrective Action Taken and Results Achieved

The Clinton Power Station (CPS) Final Safety Analysis Report (FSAR) Subsection 3.9.3.4.1 addresses the analysis of supports in the NSSS scope of supply. Subsection 3.9.3.4.2 of the FSAR addresses the analysis of supports in the Balance of Plant (BOP) scope of supply. The NSSS/BOP scope division in the FSAR is based on piping analysis responsibility. The supports in question, although part of the Nuclear Boiler system and therefore a part of the NSSS, are within the BOP scope of supply for piping analysis and support design. Subsection 3.9.3.4.2 of the FSAR states in part: "The snubbers are designed and load rated in accordance with NF-3000 to be capable of carrying the design load for all operating conditions." These supports were, therefore, modeled as rigid supports in accordance with FSAR commitments for BOP supports.

II. Corrective Action Taken to Prevent Recurrence

Illinois Power is in compliance, therefore no actions are necessary.

III. Date When Full Compliance will be Achieved

Illinois Power is in full compliance.

ATTACHMENT B
Illinois Power Company
Clinton Power Station

Subject: Implementation of Document Control Procedures

The Notice of Violation states in pertinent part:

"... Baldwin Associates (BA) document control procedures were not properly implemented in that numerous discrepancies were identified in the filing and updating of procedures in the Civil and Structural Resident Engineer's copy of the BA Project Procedures Manual, and in the posting of design change documents in specifications."

I. Corrective Action Taken and Results Achieved

An audit of BA Project Procedure manuals, K-Spec manuals, and associated change documents was conducted by the document holders. Corrective actions required by this audit have ensured that all manuals are current and correct. Also, BA document control has retrieved copies deemed unnecessary, thereby increasing control by reducing the number of copies.

II. Corrective Action Taken to Prevent Recurrence

BA document control will continue to perform surveillances of manuals to ensure that they are current. In addition, BA will conduct training to ensure implementation of existing programs related to the updating of procedure and specification manuals and to reaffirm the need for maintaining the manuals.

III. Date When Full Compliance Will Be Achieved

Illinois Power will be in full compliance on November 1, 1985.

ATTACHMENT C
Illinois Power Company
Clinton Power Station

Subject: Welds on Vendor Supplied Items

The Notice of Violation states in pertinent part:

"... the NRC CAT inspectors identified vendor procured tanks and heat exchangers that had been accepted and installed with deficient welds. They also identified various vendor and contractor supplied radiographs which did not have the required weld and film quality."

I. Corrective Action Taken and Results Achieved

All tanks and pressure vessels supplied by Chicago Bridge & Iron (CB&I) and Richmond Engineering (RECO), the vendors of interest, have been reinspected. All nonconforming conditions were documented on Nonconformance Reports (NCRs) and are being processed in accordance with site procedures. Most of the NCRs have been dispositioned use-as-is because the discrepancies identified were found to be within the applicable ASME Code parameters.

The radiographic film for valve 1E22F016 was not legible because of water damage. Nonconforming Material Report (NCMR) No. 2-0346 was initiated to document this condition. The radiograph had been used to substantiate valve body integrity prior to the occurrence of the water damage, and the radiograph inspection report was found acceptable by the vendor and BA Quality departments. Future reference to the damaged film will not be required, as the Preservice/Inservice program requires only that the valve be exercised to the position required to fulfill its function.

The radiograph for Lakeside Bridge & Steel piece marked 2-1-1 contained unacceptable indications. Further investigation by BA Quality and Technical Services and the CAT inspectors revealed that the unacceptable indications had been reworked and re-radiographed as a result of a BA surveillance. The second radiograph film that represented the reworked condition was identified by review and comparison of other acceptable indications common to the two radiographs. This second radiograph was determined to be acceptable and is now the radiograph of record for the weld.

Three radiographs were found to contain unacceptable indications. Nonconformance reports 32681, 32597 and 32294 were initiated to document these conditions and are being processed in accordance with site procedures.

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II. Corrective Action Taken to Prevent Recurrence

Since all major plant equipment has been installed and the corrective actions noted above have been initiated, and any further modifications will be controlled by the Maintenance Work Request (MWR) program, no further corrective action is required.

III. Date When Full Compliance Will Be Achieved

Illinois Power is in full compliance.

ATTACHMENT D
Illinois Power Company
Clinton Power Station

Subject: Equipment Mounting not per Drawings and Specifications

The Notice of Violation states in pertinent part:

"... bolts for mounting large pump-motors, pump turbine assemblies mounted on skids, and HVAC control panel cabinets were not as required by the applicable drawings and specifications."

I. Corrective Action Taken and Results Achieved

Illinois Power has issued several NCMRs to document the missing or incorrect material. A review has been performed which attempted to identify the circumstances causing lockwashers to be missing or the incorrect bolting material to be installed.

This review concluded that the installation documents lacked clarity and that this lack of clarity was a contributing factor which led to the equipment being installed without lockwashers. All known instances of missing lockwashers have been documented and are being processed in accordance with site procedures. For the incorrect materials identified on skid mounted equipment it is postulated that inspections performed prior to release for shipment or upon receipt did not identify the incorrect bolting material.

Illinois Power's Architect/Engineer, Sargent & Lundy, performed an evaluation to determine if these deficiencies, had they gone uncorrected, would have affected the safe operation of CPS. This evaluation found that no safety significant conditions would have existed.

II. Corrective Action Taken to Prevent Recurrence

The equipment which exhibited the fastener deficiencies is periodically monitored for vibration in accordance with CPS Procedure No. ITP 2600.02S, "Vibration Monitoring". This procedure outlines the performance monitoring program consisting of the acquisition, retention, and interpretation of machinery vibration data. The procedure discusses the methods by which loose mounting bolts (the problem likely to occur as a result of the deficiencies identified) will be analyzed.

In view of the ability to trend equipment performance using vibration monitoring (in conjunction with the engineering analysis), no further corrective action is required.

III. Date When Full Compliance Will Be Achieved

Illinois Power is in full compliance.

ATTACHMENT E
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Clinton Power Station

Subject: Inspection Programs

The Notice of Violation states in pertinent part:

"... the licensee's inspection programs were not effectively implemented in that they:

- a) Have not assured that safety-related electrical raceways have been installed in accordance with FSAR commitments for electrical separation.
- b) Have failed to assure that appropriate quality verifications are conducted and that only qualified materials are used for work performed under the Maintenance Work Request Program.
- c) Had not assured that safety-related 5kV power cable terminations were accomplished in accordance with design documents in that required insulating materials had not been installed."

I. Corrective Action Taken and Results Achieved

- a) Illinois Power is amending the FSAR to revise the electrical separation criteria. This revision will include an option to perform analysis of potential separation problems identified by the Interaction Analysis Program. Illinois Power has also contracted with Wyle Laboratories to conduct physical testing to support the FSAR amendment. In addition, Illinois Power has conducted in-depth training for the personnel performing the walkdowns to ensure that all potential interactions are correctly identified.
- b) Illinois Power took the following actions regarding the deficiencies in the MWR program identified by the CAT inspectors:

Condition Report (CR) number 1-85-06-007 was issued to document the misclassification of MWR B02288 and the resultant use of unacceptable wire. In addition, NCMR 1-1854 was written to document the use of the unacceptable wire. MWR B11255 was written to remove and replace the wire.

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NCMR 1-0935 was written to document the lack of engineering evaluations of the environmental qualification of wire used in the performance of MWRs A16980 and A17116. Construction Work Requests (CWRs) 15086 and 15166 were written to replace the wire with acceptable material. In addition, CR 1-85-06-051 was written to address the use of incorrect wire in Class 1E MWRs.

MWR B13553 was written and Quality Control Inspection Report 0587 was prepared to document achievement of adequate inspection of the field cable splicing cited in the inspection report.

Field Change Request (FCR) 24896 authorizes the swapping of motor leads to obtain proper motor rotation. A review of this FCR revealed that, although it does state "connections may be modified as required to obtain proper motor rotation," it does not indicate that approved design drawings do not have to depict the as-installed wiring configurations.

Illinois Power initiated the following actions to define the weaknesses in the MWR program evidenced by the three types of deficiencies referred to above:

- 1) A review of the classification process for MWRs was conducted, and
- 2) A sample review of completed MWRs was conducted.

The review of the process for classification of MWRs revealed that classification was determined by reference to the FSAR, K-Specs, or drawings. This effort was being performed by Maintenance Planners instead of by engineering personnel.

The sample review of completed MWRs for classification identified a significant number of MWRs that were questionable. Therefore, the Nuclear Station Engineering Department (NSED) is conducting a review of all completed MWRs.

- c) Baldwin Associates initiated NCRs 32232 and 32081 to document the incorrect terminations identified by the CAT inspectors. Baldwin Associates Electrical Quality Control personnel will conduct a complete reinspection of safety-related 5kV cable terminations and document nonconforming conditions. These NCRs and all other NCRs will be processed in accordance with site procedures.

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II. Corrective Action to Prevent Recurrence

- a) Illinois Power's Amendments 34 and 35 to the FSAR will revise the site specific electrical separation criteria, as well as allow analysis as an alternate to existing separation guidelines. Also, the Interaction Analysis Program walkdown checklists have been revised to add specific attributes and illustrations of acceptable conditions. The personnel performing the walkdowns have been trained in the use of the revised checklist.
- b) Illinois Power has issued a procedure M.1, "Safety Class Statusing of Maintenance Work Requests". This procedure has been approved and training has been conducted. The procedure institutes controls in maintaining electrical separation, in-service inspection, environmental qualification, and quality assurance. These reviews and evaluations are now being conducted by NSED, in lieu of the Maintenance Department.

Procedure M.1 has been implemented. This will ensure that MWRs receive a proper safety classification and that substitution of materials and performance of safety-related work will have adequate controls to preclude degrading design integrity. In addition, Illinois Power's Quality Control is reviewing completed MWRs to assure that necessary Quality Inspections have been performed.

Illinois Power has initiated the required design change documents to show that leads that are modified to obtain proper motor rotation do not have to be depicted on the as-installed wiring drawings.

- c) Baldwin Associates is conducting training for BA Electrical Quality Control Inspectors to emphasize the correct termination requirements for 5kV power cable.

III. Date When Full Compliance Will Be Achieved

- a) Illinois Power will be in full compliance upon issuance of Amendment 35 of the FSAR.
- b) Illinois Power will be in full compliance on December 31, 1985.
- c) Illinois Power will be in full compliance on October 31, 1985.

ATTACHMENT F
Illinois Power Company
Clinton Power Station

Subject: Identification and Correction of Conditions Adverse to
Quality

The Notice of Violation states in pertinent part:

- a) "... NCR 31282 was incorrectly dispositioned by S&L as use-as-is based on specification requirements having been met, when the specification and FSAR requirements had not been met for cadweld operator testing frequency."
- b) "... The resolution on NCR S-S-S-0006 and NCR 174 had not provided a timely and comprehensive review of applicable soil test data to ensure the FSAR commitments were met. Corrective Action taken for NCR 174 had accepted structural fill placements using nuclear density test data where sand cone test data had failed which was contrary to the project specifications. Further, the evaluation performed of soil records did not identify or address that the inspection program during that period had not provided for adequate records or assurance that the structural fill was placed in 12 inch lifts as stated in the FSAR."

I. Corrective Action Taken and Results Achieved

- a) A review of the cited NCR was performed to establish the circumstances for the resolution and the appropriateness of the resolution provided. This review showed that the FSAR was more stringent than the appropriate standards. Specifically, sampling and testing for each cadweld operator as required by the FSAR, is not required by the standards.

At CPS each cadweld operator is tested by a qualification test and requalified every three months. The testing frequency of cadwelds at CPS is based on a crew which is assigned a single traveler at any one time. This meets the requirements of ANSI N45.2.5-1974.

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- b) A review of the two cited NCRs was performed to establish the circumstances surrounding the corrective action taken on the NCRs and the appropriateness of the resolutions provided. The NCRs were written during the period of initial construction (1976-1977) and report programmatic problems related to soils test frequency, adequacy of test procedures employed, and interpretations of soils specification requirements. The review indicated that the full extent of the nonconforming conditions was not assessed and corrected by the two NCRs, and that two years were required to fully document and resolve the overall problem.

A review was completed in September, 1985, of the dispositions provided on the two NCRs to determine the effect on the soils work adequacy, and confirmed that the original dispositions were, and remain, valid. The procedural deficiencies identified on the two NCRs had been investigated in 1976-1977 in sufficient depth by Sargent & Lundy. Some soil areas were recompacted, and some areas were retested to resolve the two NCRs. Other problems identified on the two NCRs were a result of arithmetic errors on test reports and were evaluated, but did not require additional soil compaction and testing. It was also confirmed during the review of the two NCRs that the governing earthwork specification did not preclude the use of the Nuclear Density Test Method for determining in-place soil density. As a result, this method may be used in lieu of the Sand Cone Method in evaluating the in-place soil density. Therefore, although approximately two years lapsed to obtain complete corrective action, an adequate resolution of the issues was obtained.

A review of soil placement inspection records for the period in question was also completed in September, 1985, and determined that numerous instances occurred where structural fill (type B soil) loose lift thickness exceeded the 12" limit stated in Section 2.5.4.5.1.5 of the FSAR. However, at the time in question, the FSAR had not yet been written. A review of the Preliminary Safety Analysis Report (PSAR), and the soil placement specification and procedure in effect at the time of placing the structural fill, indicated that no specific limits existed for placing the fill in 12" lifts.

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Acceptance of the fill was based, as required by the governing specification in 1976-1977, on in-place moisture/density measurements, not lift thickness. Further, compaction tests performed very early in the project determined that there was little difference in dry density between the placement of a 12" and 18" loose lift thickness. Therefore, placing soil in excess of 12" was technically acceptable and was not in violation of the governing requirements at the time.

II. Corrective Action Taken To Prevent Recurrence

- a) The current program for testing cadweld operators meets the requirements. However, for clarification Illinois Power is revising the FSAR to agree with the requirements of ANSI N45.2.5-1974. Illinois Power will continue to test cadweld operators at frequencies based on travelers.
- b) An intensive review of soils documentation was performed by Baldwin Associates Document Review Group. The review was performed to verify, through records review, that appropriate requirements applicable to soils work were met. The review focused on pertinent aspects of soils inspection and testing documentation as they applied to lift thickness, moisture-density relationships, one-point/five-point proctors, and density of soils in-place. Other aspects that support these activities, such as soil test technician certification, and traceability of measuring and test equipment used in soils work for the above activities, were also reviewed. This review is complete. Eighty-one NCRs were generated as a result of this effort, all of which were dispositioned use-as-is. Illinois Power has a high degree of confidence in the structural integrity of the soils placed at CPS.

As noted in I. above, the 12" lift thickness stated in the FSAR is not required for technical adequacy. An FSAR revision has been initiated to eliminate this statement and will be accomplished in Amendment 35.

III. Date When Full Compliance Will Be Achieved

Illinois Power will be in full compliance upon issuance of Amendment 35 of the FSAR.

ATTACHMENT G
Illinois Power Company
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Subject: Program Weaknesses Identified by Executive Summary

The Executive Summary states in part:

". . . the NRC CAT did identify a number of construction program weaknesses, which in most cases, have resulted in hardware deficiencies that require additional management attention. These include:

- 1) Control of work performed by plant staff on components after turnover from construction requires improvement. This is evidenced by the number of deficiencies identified in the Maintenance Work Request (MWR) Program. Three MWRs were found to have used unqualified wire and three MWRs did not include, or properly document, the required quality control (QC) inspections. Also of concern is the lack of control of entries into and the number of errors in IP's Startup Punchlist Tracking System.
- 2) Current programs for verification of electrical separation require improvement. The number of raceway separation deficiencies identified indicate that control of separation through design without inspection for separation is not adequate and the current walkdown program has not been effective. The FSAR does not currently allow the use of analysis which is now being used to justify reduced separation requirements.
- 3) Examples were noted where design requirements were not implemented by construction and verified by quality control activities. This is indicated by examples of hardware deficiencies identified in several areas. For example, power cable terminations were not insulated as required, tanks and heat exchangers were not modelled as committed, and a number of pieces of equipment were found to be mounted with bolts of a material grade other than that specified.
- 4) A number of document control discrepancies were found between the design change data listed for a specification or drawing in the Document Management System (DMS) and the design change documents actually posted with the controlled construction specification or drawing. This is of particular concern since control of construction specifications and drawings, and their computer data bases, is key in the management system established for ensuring that current design documents are used in developing work packages for installation and inspection. However, no resulting hardware deficiencies were noted in a sample of related work checked by the team.

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- 5) Corrective action was not considered timely or sufficiently comprehensive for deficiencies identified by the licensee in the testing of structural fill. Deficiencies were identified in the structural fill records related to the lift thickness requirement of structural fill."

II. Illinois Power's response is as follows:

- 1) An NSED review of all completed MWRs has been undertaken and appropriate corrective actions have been taken to ensure that these MWRs have been correctly classified. All completed MWRs and future MWRs will be evaluated by NSED in accordance with NSED Procedure M.1, "Safety Class Statusing of Maintenance Work Requests." The NSED procedure requires verification and documentation of proper safety class, seismic class, code class, environmental qualification and quality assurance requirements.

In order to emphasize the importance of punchlist accuracy, Startup has written, approved and implemented training on Startup Administrative Instruction 12 (SAI-12), "Startup Punchlist". Training is now complete and effectiveness will be assessed by documented reviews for errors and repetitive entries.

- 2) Illinois Power has analyzed the CAT observations, and concluded that the basic NRC issues can be summarized as follows:
 - a) Based on the number of raceway separation deficiencies noted by the CAT inspectors, the existing design, quality verifications, and walkdown programs had not been adequate to ensure compliance with specified commitments.
 - b) The personnel performing walkdown activities were not trained fully.
 - c) Walkdown personnel had not received detailed acceptance criteria.
 - d) Analysis is used to justify lesser spatial separation, which is inconsistent with current FSAR commitments.

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Illinois Power has taken several actions to enhance the electrical separation program. The first was a detailed analysis of separation items identified in the CAT Inspection Report. Most of the CAT items had been previously identified by the Interaction Analysis Program (IAP). The remaining items resulted from new construction since the last IAP walkdown. The IAP requires periodic (at least every 6 months) walkdowns of CPS. Additionally, the resolution of potential interactions will be facilitated by Amendments 34 and 35 of the FSAR which will define alternate separation criteria based on testing and/or analysis.

The second action taken by Illinois Power was to enhance the overall training of walkdown personnel. Training was conducted on such topics as Regulatory Guide 1.75, Rev. 2, the relationship between IEEE-384-1974 and the Regulatory Guide, the CPS licensing position on electrical separation and the procedures/instructions used for electrical separation walkdowns.

The third action involved the specific acceptance criteria to be used. Supplemental checklists were developed to clearly define established separation criteria and were incorporated in the walkdown training program.

The fourth action taken involved the use of analysis in determining appropriate separation criteria. This concern was identified by Illinois Power in early 1985. Corrective action was initiated prior to the CAT Inspection and will be completed by submittal of Amendments 34 and 35 of the FSAR.

- 3) Illinois Power's Quality Assurance Program ensures that quality construction is accomplished and verified by accurate translation of design requirements into construction activities. In addition, the results of the Overinspection and Record Verification Programs have provided additional confidence in the effectiveness of the Quality Assurance Program. Illinois Power considers the noted cases to be isolated incidents and therefore not of programmatic concern.

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- 4) Illinois Power has incorporated controls into the computerized data base, which is the mechanism for maintaining current information about outstanding change documents. This allows electronic transfers of information between systems, thereby eliminating errors caused by multiple inputs. In addition, extensive training has been undertaken to emphasize the importance of properly updated material (specifications, drawings). Baldwin Associates Document Control Center will perform surveillances on documents externally controlled. Any discrepancy will initiate an audit of that area's controlled documents.
- 5) In regard to the specific 1976-1977 instances cited relating to the structural fill, the corrective actions are described in Attachment F, above. In regard to the Corrective Action Program in general, however, Illinois Power implemented extensive improvements in the Corrective Action Program in 1982. These improvements were directed at timely identification and resolution of nonconforming conditions. The Corrective Action Program now provides extensive reviews both in line and generically with results that are reviewed by management monthly. This extensive program has already handled over 40,000 documents, and while some errors are inevitable, Illinois Power considers the program comprehensive and effective.