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ILLINOIS POWER COMPANY



1605-L  
U-10048

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

June 6, 1983

Docket Number 50-461

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

Subject: Deficiency 82-07  
10 CFR 50.55(e)  
Breakdown in Quality Assurance Program  
Criteria X, Inspection, and XVI, Corrective Action  
Clinton Power Station

Dear Mr. Keppler:

On July 8, 1982, Illinois Power notified Mr. R. C. Knop, NRC Region III, (Ref: IP memorandum Y-13621, 1605-L, dated July 8, 1982) of a potential breakdown in the Construction Quality Assurance Program, in that certain portions of Criteria X and XVI of 10 CFR 50, Appendix B, may not be effectively implemented. This notification was followed by three (3) interim reports (IP letter U-0525, W. C. Gerstner to J. G. Keppler, 1605-L, August 6, 1982; IP letter U-0567, D. P. Hall to J. G. Keppler, 1605-L, dated October 19, 1982; and IP letter U-10022, D. P. Hall to J. G. Keppler, 1605-L, dated January 31, 1983). Our investigation into this matter is complete, and this letter represents a final report per 10 CFR 50.55(e)(3) on this reportable deficiency.

Statement of Reportable Deficiency

Concerning Criterion X, Inspection, it has been determined that a program of quality control inspections to verify conformance with documented instructions, procedures, and drawings for accomplishing construction work was not conducted in a timely manner. Concerning Criterion XVI, Corrective Action, it has been determined that conditions adverse to quality were not corrected promptly. Together these elements indicate that a significant breakdown in the Construction Quality Assurance Program had occurred.

Add: W. Haass  
FEB 27 11/1  
JUN 9 1983

## Investigation Results

### Criterion X

Regarding Criterion X, Inspection, which reads in part, "A program for inspection of activities affecting quality shall be established and executed...", it has become apparent that numerous final inspections have not been conducted in a timely manner due to the method in which in-process construction work was controlled and scheduled. A backlog of partially completed construction work was created, which resulted in delays in the submittal of completed work by construction personnel to the Quality Control organization for final inspections. Of particular concern are inspections that affect the following components:

1. Large bore pipe and supports
2. Small bore pipe and supports
3. Instrumentation piping
4. Electrical hangers
5. Electrical conduit
6. Structural steel

In the area of electrical inspection, investigation determined that procedures for the control of installation and inspection of conduit did not provide for timely completion and inspection of the work. Installation of electrical hangers occurred at a faster rate than inspections were performed due to the manner in which work travelers were scheduled and processed. A backlog of electrical hanger installation documentation, in the final review cycle, also developed due to the time necessary to revise Electrical Hanger Drawings (EHD) to incorporate field changes. As a result, the final inspection of electrical hanger hardware and completion of associated documentation were delayed and a hardware/software backlog developed.

In the area of piping and supports, investigation determined that systems for scheduling and controlling the installation of piping and supports do not provide for timely completion and subsequent final inspection of the work.

In the area of structural steel, it was determined that Quality Control inspections did not lag behind construction. However, installation and inspection documentation for structural steel was not being reviewed and forwarded to the CPS Document Records Center in a timely manner. This situation was corrected by placing additional emphasis on the timely review and finalization of structural steel inspection documentation.

Illinois Power has determined the extent of the backlog of partially completed construction work in each area of concern. This action included the establishment of rules to gauge the backlog of partially completed construction work by review of work traveler status. Those travelers that contained work that has not yet commenced, or where a minimal amount of work has been initiated, have been identified and controlled to prevent unchecked or arbitrary release of this work. Priority has been placed on substantially completed travelers, allowing the work to be expedited and presented to Quality Control for final inspection. Priority has also been placed on those travelers that must be worked and completed first, in support of the reduction of these travelers.

To prevent further backlog of in-process work, restraints have been placed on the amount of in-process work which can be performed at any given time, through implementation of "in-process traveler control". Procedural enhancements to strengthen controls by which installation/inspection documentation is processed have also been made. Additional personnel have been added and existing manpower reallocated to reduce the backlogs in the final review process of installation documentation. These efforts have resulted in the establishment of schedules to reduce the backlog of partially completed work to an acceptable level.

#### Criterion XVI

Regarding Criterion XVI, Corrective Action, which states in part, "Measures shall be established to assure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected", it had become apparent that corrective action for some identified nonconformances was not being promptly implemented. This problem evidenced itself in a trend of Nonconformance Reports (NCRs) and Deviation Reports (DRs) in which the rate of closure was not keeping pace with the rate of issuance. Other evidence of this problem is shown in the number of open NRC inspection items, 10 CFR 50.55(e) deficiencies, IP Quality Assurance surveillance findings, IP Management Corrective Action Requests, and Baldwin Associates Corrective Action Requests.

A Corrective Action Recovery Plan has been implemented to evaluate and enhance corrective action systems for providing timely resolution to new quality problems and preventing their recurrence. Major elements of the plan include the establishment of a Corporate Nuclear Procedure on corrective action. This procedure requires the assignment of time frames for obtaining resolution of the adverse condition, classifies the adverse condition as critical, major, or minor, and establishes accountability for implementation of corrective action. Procedures that implement the corrective action program have been revised to incorporate the requirements of the Corporate Nuclear

Procedure. Further, a computerized Corrective Action Tracking and Trending System is being established to consolidate and increase the effectiveness of the corrective action trending program and to assure timely action is taken on quality concerns. Illinois Power Company management philosophy for the Clinton project is to "do it right the first time". This philosophy, and the Company's commitment to build a quality plant, is being communicated to employees at all levels, both company and contractor.

An NCR/DR Recovery Plan has been generated and implemented to evaluate and improve the system for processing and closing NCRs/DRs and to reduce the backlog of open NCRs/DRs. Procedures for processing NCRs/DRs have been streamlined to reduce the time necessary in handling the documents through the various stages of processing. A computer tracking system has been implemented to identify each open NCR/DR, organization responsible for taking action on the item, date received and date for completion of action, status, and hindrances such as stop work orders which prevent the action from being implemented.

#### Corrective Action

##### Criterion X

In the area of Criteria X, Inspection, the following actions have been, or are being taken to ensure timeliness of inspection:

1. A Baldwin Associates procedure has been written and implemented to place restraints on the conduct of construction activities. These restraints allow only limited amounts of work packages to be in-progress at any given time, and require inspection of this work when completed prior to further release of additional work.
2. Increased emphasis has been placed on the completion and inspection of work which has been started, over initiation of new work. Also, the splitting up of work packages reflecting large amounts of work into smaller packages, such that the completed portions of the work could be separated from in-process/not started work and inspected, promotes timely inspection and reduces the in-process work backlog.
3. Manpower has been added or reallocated as necessary to support the efforts of reducing the in-process work and documentation backlogs.
4. Procedural changes were made to strengthen the documentation system, promote timely inspections, and to support the quality recovery effort. These enhanced procedures include those associated with:

- Piping and Supports (large and small bore)
  - Electrical Conduit
  - Electrical Hangers
  - Instrumentation Piping
5. A computerized Traveler Tracking System has been developed to assist in maintaining current status and location of work travelers through the various stages of processing.
  6. Tracking mechanisms and manloaded schedules have been established to follow and control the reduction of the in-process work backlog. The status of efforts and results are reported to CPS management on a weekly basis.
  7. An Illinois Power Quality Assurance Effectiveness Plan has been established and will assess the effectiveness of the traveler control program.

#### Criterion XVI

In the area of Criteria XVI, Corrective Action, the following actions have been or are being taken:

1. An Illinois Power Corporate Nuclear Procedure has been issued which defines the Illinois Power Company Corrective Action Program. Major elements of the Corporate Nuclear Procedure include, but are not limited to:
  - Establishment of severity levels of adverse conditions to provide for timely resolution of the conditions.
  - Establishment of accountability for implementing corrective action on an adverse condition.
  - Assessment of effectiveness of corrective action through the evaluation of trends.
2. Illinois Power and Baldwin Associates procedures and instructions related to corrective action programs have been revised to reflect and implement the requirements of the Illinois Power Corporate Nuclear Procedure.
3. Training has been given to personnel responsible for implementation of the corrective action program in the revised procedures and the Corporate Nuclear Procedure.
4. The position of Corrective Action Coordinator has been established with the responsibility for issuing

periodic corrective action progress and status reports, consolidating trending of corrective action program items, ensuring corrective action training and alerting management of problem areas requiring additional management attention.

5. Illinois Power is enhancing corrective action tracking and trending systems utilized at CPS. These systems are computerized to allow for timely recall, up-to-date statusing, and specialized sorts of the data base in support of the Corrective Action Program.
6. Manpower levels were increased and additional emphasis was placed on processing new NCRs/DRs and working off the existing backlog, as follows:
  - Increased emphasis by Architect/Engineer personnel in the dispositioning of NCRs.
  - Increased emphasis by Architect/Engineer personnel on incorporation of NCRs into design documents.
  - IP personnel assigned as necessary to assist contractor in support of the NCR/DR program.
7. A "quality awareness program" is being developed to improve quality consciousness among all personnel at CPS.
8. Procedures for processing NCRs/DRs have been reviewed and revised to streamline the NCR/DR documentation process, reduce handling time, and promote timely implementation of remedial and corrective actions on the items.
9. A temporary computer tracking system has been developed and is being implemented to track NCRs/DRs through the various phases of processing. This system will assist in identifying those NCRs/DRs which are not promptly resolved and organizations responsible for taking action on the items. This temporary system is being replaced with a permanent system as revised programs and procedures to implement the system are developed.
10. Training concerning revised procedures has been given to personnel responsible for implementing the NCR/DR program.
11. An Illinois Power Quality Assurance Effectiveness Plan has been established to assess the effectiveness of efforts in reducing the backlog of open NCRs/DRs.

Summary

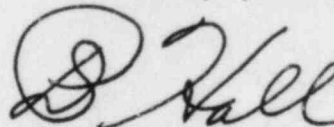
Concerning Criterion X, Inspection, it has been determined that a program of quality control inspections to verify conformance with documented instructions, procedures and drawings for accomplishing construction work was not conducted in a timely manner. The process of controlling and scheduling in-process construction work in support of the inspection effort was inadequate. The in-place quality control inspection elements were adequate, however, they were not fully exercised.

Concerning Criterion XVI, Corrective Action, it has been determined that conditions adverse to quality were not corrected promptly. Many organizational elements participate in the correction of deficiencies. Although an individual deficiency correction may not be a specific quality assurance function, the overall management and support is an integral part of an effective corrective action program.

In evaluating these elements and the guidance provided in amplification of 10 CFR 50.55(e), it was concluded that the total quality assurance program did not support the desired process of timely inspection of construction work and timely correction of conditions adverse to quality and, therefore, a significant breakdown had occurred.

We trust that this final letter provides you sufficient information to perform an assessment of this reportable deficiency and to evaluate our overall approach to resolve the problems.

Sincerely yours,



D. P. Hall  
Vice President

REC/1f

cc: H. H. Livermore, NRC Resident Inspector  
Director, Office of I&E, USNRC, Washington, D.C. 20555  
Illinois Department of Nuclear Safety  
Manager-Quality Assurance  
INPO Records Center