



January 31, 1983

Docket Number 50-461

Mr. James G. Keppler
Regional Administrator, Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Mlyn, 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 two (2) interim reports (IP letter U-0525, W. C. Gerstner to J. G. Keppler, 1605-L, August 6, 1982, and IP letter U-0567, D. P. Hall to J. G. Keppler, 1605-L, dated October 19, 1982). Our investigation into this matter continues, and this letter represents an interim 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 breakdown in the construction quality assurance program has occurred.

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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 manner in which in-process field work was controlled and scheduled. A backlog of partially completed construction work was created, and resulted in delays in submittal of completed work by construction personnel to the Quality Control organization for final inspections. Of particular concern are inspections which 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

Illinois Power is presently taking action to determine the extent of backlog of partially completed construction work in each area of concern. This action involves an inventory and analysis of work travelers that are presently issued for construction to determine the extent of work remaining to be completed on each. Those travelers that contain work that has not yet commenced, or where only minimal amounts of work has been initiated, will be identified and controlled to prevent unchecked or arbitrary release of this work. Priority will be placed on the completion of remaining work on those travelers where field work is substantially complete, allowing the work to be presented to Quality Control for final inspection. Another effort being taken to correct the problem where practical is to split existing work packages reflecting large amounts of work into smaller work packages, such that the completed portion of the work can be separated from in-process work and inspected by Quality Control. Additionally restraints have been placed on the level of in-process work which can be performed at any given time, through implementation of "in-process traveler control", to create incentives for timely completion of installation and inspection activities, and to assure that installation work does not out-pace final field inspection. This effort of defining the

partially completed work backlog and establishment of in-process traveler control has resulted in establishment of schedules to reduce the backlog of partially complete work to an acceptable level and to promote timely inspection.

Investigation was also performed in the area of program / procedural controls of the work activities to determine responsiveness in providing timely inspection. In the area of electrical hanger and conduit installation and inspection, investigation determined that procedures did not provide for timely inspections. Also, a backlog of electrical hanger installation documentation in the final review cycle developed due to time necessary to revise Electrical Hanger Drawings (EHD) to incorporate field changes. In the area of piping and supports, inspection delays occurred due to delays in the process of revising installation traveler documents required for the performance of quality control inspections. Corrective action on these matters has resulted in program enhancements in the form of procedural changes to strengthen controls by which installation / inspection documentation is processed. Additional manpower has been added, and existing manpower reallocated to reduce the documentation backlogs in the final review process of electrical hanger installation documentation.

In the area of structural steel, it was determined that Quality Control inspections do not lag behind construction. It was found, however, that installation and inspection documentation for structural steel was not being finalized, 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 records.

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 has become apparent that corrective action for some identified nonconformances is not being promptly implemented. This problem has evidenced itself with a trend where Nonconformance Reports (NCRs) and Deviation Reports (DRs) were written, with the rate of closure not keeping pace. 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. As a result of these concerns, two (2) recovery plans have been developed to investigate, evaluate, and identify corrective action to resolve this problem.

A 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. This plan primarily calls for the dedication of appropriate manpower to reduce existing backlogs and to expedite processing of new NCRs/DRs by establishment of requirements for timely handling of NCRs/DRs at each phase of processing. Additionally, procedures for processing NCRs/DRs are being evaluated at this time to streamline the system where possible and reduce the time necessary in handling the documents through the various stages of processing. A computer tracking system is being 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, preventing the action. The computer system provides weekly reports to each department having action on NCRs/DRs, and is reviewed to assure progress is positive in the reduction of open NCRs/DRs. Implementation of this plan thus far has shown a positive trend in reducing the number of open NCRs. However, a reduction in the number of open DRs has not yet resulted. Further efforts at improving both NCR and DR processing and tracking are being evaluated at this time.

A Corrective Action Recovery Plan has been prepared to evaluate corrective action systems for providing timely resolution to new quality problems and preventing their recurrence, and providing recommendations for enhancing the system to assure timely and lasting corrective action. Major elements of the plan include the establishment of a corrective action Management Guide, which requires the assignment of severity levels for conditions adverse to quality, defines time frames for obtaining resolution of the conditions, and establishes accountability for implementation of corrective action. Procedures which implement the corrective action program are being revised to incorporate the philosophy of the Management Guide. Elements of the plan have only recently been implemented, and a trend in reducing the number of open quality issues has not been achieved at this time. It is expected that upon full implementation of the plan and plan elements, that a positive trend in reducing the number of open quality issues will be evidenced.

Corrective Action (Interim)

In the area of Criteria X, Inspection, the following actions have been and are being taken to correct inspection timeliness problems and to prevent recurrence:

1. Baldwin Associates Procedure BAP 2.32 "IN-PROCESS TRAVELER CONTROL", 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

generally require inspection of this work when completed, prior to release of new work. This procedure has been applied to those areas where an inspection backlog exists and includes those problem areas identified in this report.

2. Increased emphasis is being placed on the completion and inspection of work which has been started, over initiation of new work. Also, the splitting up of large work packages into smaller, more manageable packages, will promote timely inspection and reduce the inspection backlog. Selection of those work packages which are near completion over those which contain new work will also promote the reduction of inspection backlog. Resources (manpower, time) have been reallocated as necessary to support the efforts of reducing the inspection and documentation backlog.
3. In the problem areas identified above, procedural changes were made to strengthen the documentation system, promote timely inspections, and to support the quality recovery effort. These enhanced procedures include, but are not limited to:
 - BAP 3.3.1 "Exposed Conduit Installation"
 - BAP 3.3.6 "Electrical Raceway Support Installation"
 - BAP 2.14 "Fabrication/Installation of Items, Systems, and Components"
4. A computer Traveler Tracking System (TTS) is presently being developed and will be implemented to assist in maintaining current status and location of work travelers through the various stages of processing.

Criteria XVI

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

1. An Illinois Power Management Guide (16-4) has been established to define the Illinois Power Company Corrective Action Program and to define responsibilities and interfaces for implementation of the program. Major elements of the Management Guide include, but are not limited to:
 - Establishment of severity levels of adverse conditions and requirements for timely resolution of the conditions.
 - Establishment of accountability for implementing corrective action on an adverse condition.

- Assessment of effectiveness of organizations in completing corrective action through evaluation of trends.
2. Illinois Power and Baldwin Associates procedures / instructions related to corrective action programs are in the process of being revised to reflect and implement the requirements of the Illinois Power Management Guide (16-4). This effort is scheduled for completion by February 1, 1983. Procedures involved in this revision effort include, but are not limited to, those associated with:
 - NRC I&E Inspection Items
 - 10 CFR 50.55 (e) Reports
 - 10 CFR Part 21 Reports
 - Condition Reports (CR)
 - Maintenance Work Request (MWR)
 - QA Audit and Surveillance Findings
 - Nonconforming Material Reports (NCFMR)
 - Management Corrective Action Requests (MCAR)
 - Nonconformance Reports (NCR)
 - Deviation Reports (DRs)
 3. Upon completion of procedural revisions identified above, training into revised procedural guidance and Management Guide philosophy will be performed for personnel responsible for implementation of the corrective action program.
 4. The position of Corrective Action Coordinator has been established, who is responsible for issuing periodic corrective action progress and status reports. These reports will be used to alert responsible department Managers, Directors, and Senior Management of problem areas which require additional management attention.
 5. Manpower levels were increased and additional emphasis was placed on processing new NCRs/DRs and working off the existing backlog, as follows:
 - Architect/Engineer personnel assisting contractor's personnel in recommendation and disposition 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.

6. A "Quality Awareness Program" is being developed to improve quality consciousness among all personnel at CPS. Emphasis will be placed on the responsibility of all personnel to perform quality work. It is believed this action will reduce occurrences of deviations/non-conforming conditions and resultant NCRs/DRs.
7. Procedures for processing NCRs/DRs are presently being reviewed and will be revised to streamline the NCR/DR documentation process and reduce handling time to promote timely implementation of corrective actions on the items.
8. A temporary computer tracking program has been developed and is being implemented to track NCRs/DRs through the various phases of processing. This program will assist in identifying those NCRs/DRs which are not promptly resolved and organizations responsible for taking action on the items. This temporary program will be replaced with a permanent system upon development of revised procedures identified in 7 above.
9. Upon completion of the procedural revisions identified in 7. above, training will be performed in the revised procedural guidance for personnel responsible for implementation of the NCR/DR system.

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. These processes resulted in quality inspections not being conducted in a timely manner. The in-place quality control inspection elements may have been 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 individual deficiency correction may not be a specific quality assurance function, the overall management and support is an integral part of an effective quality assurance program.

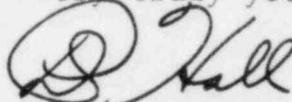
In both these investigations, the expenditure of resources could not be specifically identified as extensive because of other on-going and parallel events which result in a large overall expenditure of resources.

In evaluating all 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 documenting inspection of construction work and timely correction of conditions adverse to quality and therefore a significant breakdown had occurred.

Our investigation of this matter continues, to evaluate and identify those corrective actions necessary to correct the problems and to prevent recurrence. Although various corrective actions have been taken on these matters, several have only recently been implemented and effectiveness has not been proven. It is anticipated that an additional ninety (90) days will be necessary to complete our evaluation and to provide a final statement of corrective action on this reportable deficiency.

We trust that this interim letter provides you sufficient background information to perform a general assessment of this reportable deficiency and overall approach to resolution of concerns.

Very truly yours,



D. P. Hall
Vice President

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