IMB

ILLINOIS POWER COMPANY

1A.120
U-10240
CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

January 18, 1985

Docket No. 50-461

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

Subject: Potential 10CFR50.55(e) Deficiency 55-84-02
Material Traceability

Dear Mr. Keppler:

On January 11, 1984, Illinois Power Company notified Mr. R. C. Knop, NRC Region III (ref: IP memorandum Y-18980, dated January 11, 1984) of a potentially reportable deficiency per 10CFR50.55(e) concerning material traceability at the Clinton Power Station (CPS). This initial notification was followed by three (3) interim reports (ref: IP letter U-10124, D. P. Hall to J. G. Keppler dated February 14, 1984; IP letter U-10157, D. P. Hall to J. G. Keppler dated July 12, 1984; and IP letter U-10207, D. P. Hall to J. G. Keppler dated October 18, 1984.) Our investigation of this issue is continuing, and this letter represents an interim report in accordance with the requirements of 10CFR50.55(e). Attachment A provides the details of our investigation to date.

We trust that this interim report provides you sufficient background information to perform a general assessment of this potentially reportable deficiency and adequately describes our overall approach to resolve this issue.

Sincerely yours,

D. P. Hall
Vice President

RLC/lr (SW)

Attachment

cc: NRC Resident Office
Director, Office of I&E, US NRC, Washington, DC 20555
Illinois Department of Nuclear Safety
INPO Records Center

IE27

ATTACHMENT A

Illinois Power Company
Clinton Power Station

Docket No. 50-461

Potential 10CFR50.55(e) Deficiency 55-84-02
Material Traceability

Interim Report

Statement of Potentially Reportable Deficiency

A condition potentially adverse to quality was identified in the area of material traceability. This concern is based on a number of Deviation Reports (DRs), Nonconformance Reports (NCRs), and Quality Assurance audit findings, documenting problems related to identification and traceability of, primarily electrical hanger materials installed at CPS. An investigation and evaluation of this issue is being performed to determine the extent of this problem, root causes, effect on installed hardware, and significance on the safety of operation of CPS.

Investigation Results/Background

On December 20, 1983, Illinois Power Quality Assurance issued Management Corrective Action Request (MCAR) Number 07 to identify an adverse condition existing in the area of material traceability. The basis for issuance of MCAR 07 included:

1. The untimely resolution of Corrective Action Request (CAR) Number 073, which identified a material traceability problem. This problem was evidenced by a significant number of NCRs and DRs written to document electrical hanger support members installed with incorrect or missing material identification numbers. These incorrect or missing identification numbers resulted in the inability to verify that the installed materials were correct.

2. An Illinois Power Quality Assurance audit disclosed problems regarding adherence to procedures related to material identification and traceability.

An Investigation Plan was prepared and implemented by Illinois Power Company to investigate and address the concerns identified in the area of material identification and traceability. The plan included the following actions:

1. A review of historical data leading up to issuance of MCAR 07 was performed to identify the scope of past material traceability problems.

2. A review of design requirements, specifications, procurement procedures, and construction procedures was performed to evaluate adequacy of the CPS material identification/ traceability requirements and their implementation.

3. A list of specific hardware installations affected by the material traceability problem was compiled and categorized.

4. Data collected in steps 1,2, and 3 above is being analyzed to determine the scope, root causes, and the significance of the issue.

5. Corrective action for identified hardware/software deficiencies and their root causes is being determined and implemented.

The investigation has identified several areas where the implementation of material traceability requirements is unclear or is in question. These areas include:

1. Structural plates and shapes used in electrical supports

2. Electrical strut and strut fittings

3. Concrete expansion anchor bolts

4. ASTM A-307 bolts

5. Washer and shim stock material

6. ASME Section III, Subsection NF, Class 2 and 3, support materials

7. Cable finger assemblies

Corrective Action

Baldwin Associates' Procedure BAP 1.5 and appropriate subtier documents have been revised to provide clarification of the traceability requirements and preclude recurrence of the material traceability problems. Changes in the procedures include the requirement that permanent plant materials, upon receipt, will be identified by hard marking or tagging. Discipline Superintendents are required to notify QC prior to subdividing materials in order to verify that traceability is maintained through installation.

Training on the enchanced procedural controls was given to all appropriate personnel, concurrent with the revision of applicable BAP procedures.

Additional corrective actions taken to date include the following:

1. The majority of new materials (structural shapes, plates, struts, strut fittings, bolts, etc.) will be purchased as safety related only.

2. Laydown yards are being reorganized to clearly segregate materials.

3. Sampling and testing programs were developed and implemented to provide assurance that the installations made prior to the implementation of the revised BA procedures have utilized materials capable of meeting design requirements.

4. A site purge of all non-traceable structural shapes, plates, and unmarked bolting material has been performed.

Certain structural shapes and plate materials utilized in the fabrication of electrical supports were identified as having incorrect or missing heat or Receipt Inspection Report (RIR) numbers which are necessary for QC verification. This item was partially resolved by the revision of appropriate procedures to require material verification in future installations. The remaining concern is to provide assurance that the installations made prior to the implementation of the revised procedures have utilized materials capable of meeting design requirements. A sampling program has been developed and implemented utilizing MIL-STD-414 (Level V). Testing was performed on a representative population of electrical hangers with traceability problems identified on Deviation Reports (DRs) and Nonconformance Reports (NCRs). This program established that the materials met the requirements of Sargent & Lundy (S&L) Specification, K-2999 (Ref. NCR 23422). This testing also closed BA Corrective Action Request (CAR) Number 073.

NCRs 10214, 10216, and 10217 indicated that Certificates of Compliance had not been validated for the B-line, Superstrut, and Unistrut materials used in the fabrication of electrical and instrumentation supports.

The concerns related to B-Line and Unistrut were resolved through BAQA Survey Audits. However, those related to Superstrut remained, and sampling programs conducted by the electrical discipline demonstrated that Superstrut materials met the requirements of S&L Specification K-2999 (Ref. NCR 12597 & 12598). Prior to these sampling programs, any Superstrut

material used in the fabrication of an instrumentation support was replaced with Unistrut. Currently, all procurements of strut materials are made safety-related. This, in conjunction with the sampling programs, allows all strut materials on site to be considered safety-related; and as such, are exempt from heat and /or RIR number traceability.

The remaining item under investigation was a field fabricated bracket (similar to Powerstrut Part #AB-213/214-W) in which the identity of the triangular-shaped gusset plate was questioned. Of the 150 brackets fabricated under traveler #E1188, 22 have been located. On all of these, the material was identified correctly (RIR No.). This quantity/acceptance satisfies MIL-STD-105D (Level II).

Baldwin Associates Quality Engineering has qualified Hilti as a safety-related supplier utilizing documentation obtained through the Coordinating Agency for Supplier Evaluation (CASE) and other sources. Past purchase orders for Hilti bolts are currently being evaluated for upgrading in accordance with approved site procedures.

A sampling program was developed and implemented in accordance with MIL-STD-414 (Level V) for testing of electrical and HVAC unmarked (lacking manufacturers identification) A-307 bolts. The program established that the unmarked bolts met the strength requirements of A-307 (Ref. NCR 19789). The piping/ instrumentation discipline has been reviewed for the use of unmarked bolts (Ref. Letter JWH-65-84, dated 12/14/84). Although a shipment of unmarked bolts was issued to the field, testing has shown that these bolts met the strength requirements of A-307 (Ref. NCR 21931). The Civil/Structural discipline is currently being reviewed for the use of unmarked bolts. Similar testing by this discipline may also be required.

S&L has clarified the requirements for washer and shim stock with respect to documentation, identification, and traceability via their dispositions to FCRs 10556, 20742, 20988, 21476, and 24423. BA procedures will be revised to address these requirements as applicable. Shims utilized in bolted applications are acceptable, (material type is not a concern in compressive loading) however those used in welded electrical hanger installations were investigated in order to determine material weldability. Chemical analysis, as a minimum, was performed on those shims found in the electrical hanger installations removed for testing per the electrical hanger test program. This analysis demonstrated the material weldability (Ref. NCR 24659).

Although no objective evidence has been found concerning improper materials identified with pink paint, the practice of marking ASME Section III, Subsection NF, Class 2 and 3 safety related items with pink paint was discontinued. In lieu of this, items are being identified with heat numbers and RIR numbers. An evaluation of the Code requirements for material identification is being performed in order to address concerns on past installations.

Finger assemblies for which the material traceability has been identified as indeterminate and documented via an NCR were tested in conjunction with the electrical support materials. This testing has demonstrated the materials met the requirements of S&L specifications K2949/2999 (Ref. Letter Y-26007, dated 12-18-84).

In summary, the problems associated with traceability were, in part, due to the lack of clarity and consistency in procedural requirements resulting in a lack of adherence to those procedures. Therefore, several Baldwin Associates' Procedures (BAPs) (most notably BAP 1.5), associated Job Instructions (JIs), and Quality Control Instructions (QCIs) have been revised to prevent recurrence. The changes included marking or tagging permanent plant materials, upon receipt and requiring the crafts to notify QC prior to subdividing materials in order to maintain traceability through installation. In addition, most materials (structural shapes, plates, strut, strut fittings, bolts, etc.) are purchased only safety-related. This deletes the need for traceability after receipt inspection of particular items. Steps have been taken to reorganize the laydown yards to clearly segregate materials and a purging of the site has been performed to remove any non-traceable structural shapes, plates, and unmarked bolting material.

Safety Implications/Significance

Illinois Power Company's investigation of this potentially reportable deficiency is continuing. The safety implications and significance will be assessed after further background information is evaluated. It is anticipated that approximately 45 days will be necessary to complete our investigation, determine reportability and file a final report on the issue.

RLC/gs (SW)