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ILLINOIS POWER COMPANY

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

October 26, 1984

Docket No. 50-461

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

Subject: Potential 10CFR50.55(e) Deficiency 55-84-12: Installation of Concrete Expansion Anchors in Floors with Finishing Slabs

Dear Mr. Keppler:

On June 4, 1984, Illinois Power Company notified Mr. D. Keating, NRC Region III, (Ref: IP Memorandum Y-20647 dated June 4, 1984) of a potentially reportable deficiency concerning the installation of concrete expansion anchors in floors with finishing slabs. This initial notification was followed by one (1) interim report (Ref: IP letter U-10177, D. P. Hall to J. G. Keppler, dated July 13, 1984). Our investigation of this issue is continuing, and this letter is submitted as 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/cbs (NRC)

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

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ATTACHMENT A

Illinois Power Company
Clinton Power Station

Docket No. 50-461

Potential 10CFR50.55(e) Deficiency 55-84-12:
Installation of Concrete Expansion
Anchors in Floors with Finishing Slabs

Interim Report

Statement of Potentially Reportable Deficiency

Baldwin Associates Resident Engineering (BARE) provided Illinois Power Company (IPC) with a list, identifying supports installed on finishing/topping slabs. The concern expressed that the installation of the concrete expansion anchors for these supports may not meet the embedment length as required by the Sargent & Lundy (S&L) Specification.

Background

In February, 1984, Baldwin Associates Resident Engineering (BARE) provided Illinois Power Company with a listing of supports installed on finishing/topping slabs. This listing identified the support, the length of the installed anchor, the thickness of the finishing/topping slab, and the amount of anchor installed in rough concrete. Several of the expansion anchors identified have an effective embedment length of zero (0) inches (i.e., if the thickness of the finishing/topping slab is subtracted from the required effective embedment length).

Specification K-2944 requires the effective embedment length of concrete expansion anchors to be determined from the surface of the rough concrete.

Illinois Power Company (IPC) requested that S&L evaluate for adequacy the mechanical component supports identified by BARE. Based on the data submitted, S&L has stated that none of the expansion anchors associated with the identified mechanical supports met the specification requirement for effective embedment.

S&L evaluated 58 installed supports for adequacy with regards to design loads. Of the 58 supports evaluated, 14 were evaluated as inadequate for design loads. Nonconformance Reports (NCRs) for these 14 installed supports will be generated when the finalized composite drawings of the associated finishing slabs are reviewed.

ATTACHMENT A

(continued)

Investigation Results

Illinois Power has prepared and is implementing an investigation plan to determine the extent of this problem at Clinton Power Station (CPS). The investigation plan includes:

1. A review of construction procedures governing the installation/inspection of concrete expansion anchors is being made to determine adequacy and compliance.

2. Based on the rough as-built drawings already generated, a complete listing of all potentially affected equipment/components will be compiled.

3. A complete set of composite as-built drawings is being generated which identifies all equipment/components installed on finishing/topping slabs which utilize concrete expansion anchors for installation.

4. The equipment/components identified by the listing generated in item 2, will be entered into the computer in a "search" for all documentation (i.e., NCR, FCR, etc.) that may have addressed these components. The documents identified by the "search" will be reviewed to identify those documents which address the problem of expansion anchor embedment.

5. All components with expansion anchors that violate the effective embedment criteria and do not have prior approval documentation, will be documented on Nonconformance Reports (NCRs) and will be resolved in accordance with approved site procedures.

Corrective Action

The corrective action taken on this issue to date includes:

1. To aid site personnel in locating finishing slabs, a stencilling program was implemented. The placement of the stencilling is such that individuals involved with installation/inspection of expansion anchors can easily recognize areas where effective embedment would require additional consideration due to the thickness of the finishing slabs.

2. Baldwin Associates (BA) has issued Memo MA-31-84, dated June 6, 1984, reminding supervisory personnel of the requirement to install expansion anchors into the structural slab in order to achieve full embedment per S & L Specification K-2944, Form CPS-1-CEA.

3. Several procedures and checklists have been revised to ensure proper installation and verification of the embedment depth:

   a) QAI-710.11, Rev. 2: Concrete Expansion Anchor Checklist, was issued on August 3, 1984, and step V specifically states the term "rough concrete (with no finishing slab)" and adds the formula for concrete embedment with finishing slabs.

   b) BQAI-190-1, Rev. 4: Concrete Expansion Anchors Field Verification, was issued on August 3, 1984, and Exhibit 2, Concrete Expansion Anchor Field Verification Checklist, requires the minimum effective embedment of expansion anchors be based on the amount of anchor length embedded in rough concrete.

   c) BAP-2.16: Concrete Expansion Anchor Work - This addresses that embedment will be measured from the rough concrete surface.

   d) QCI-105: - Inspection/Concrete Expansion Anchor Installation - Step 7.2.4.1 requires that embedment be measured from the surface of the rough concrete.

4. Sargent & Lundy has provided a listing, identifying all the safety-related finishing/topping slabs at CPS.

5. A review is being performed to identify all documents relating to installations utilizing concrete expansion anchors on safety-related finishing/topping slabs. These documents will be utilized in conjunction with the drawings to establish adequate anchor bolt installation.

6. To date, 31 of 40 required composite as-built drawings have been generated from the individual discipline oriented rough drawings. The as-built drawings identify all equipment/components which have utilized expansion anchors for installation and are located on safety-related finishing slabs. Three (3) of the 40 as-built floor drawings have been finalized and QC verified. The QC review involves the verification of all anchor bolt installations and their dimensional location on the finishing slab. The three (3) drawings that have been verified, represent the finishing slab in the Auxiliary Building at elevation 762'. A listing

of all installations identified on the drawings has been completed. A review of documentation associated with these installations is being performed to identify any violation of required effective anchor embedment. Nonconformance Reports (NCRs) will be generated to document identified violations or indeterminate conditions. These NCRs will be resolved in accordance with approved site procedures.

Safety Implications/Significance

Illinois Power'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 five (5) months will be necessary to complete our investigation and to file a final report on the matter. Illinois Power intends to provide you an update on the investigation progress in approximately ninety (90) days.