ILLINOIS POWER COMPANY

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

October 1, 1982

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

Dear Mr. Keppler:

Potential Deficiency 82-09
10 CFR 50.55(e)
Small Bore/Instrumentation
Piping Support Design Calculations

On September 2, 1982, Illinois Power notified Mr. P. Pelke, NRC Region III, (ref: IP memorandum Y-13910, 1605-L, dated September 2, 1982) of a potentially reportable deficiency concerning discrepancies identified by Illinois Power in a sample of small bore/instrumentation piping support design calculations performed by Sargent & Lundy (CPS Architect-Engineer). Our investigation into this matter continues, and this letter represents an interim report per 10 CFR 50.55(e).

STATEMENT OF POTENTIALLY REPORTABLE DEFICIENCY

An independent review by Illinois Power Nuclear Station Engineering Department (NSED) personnel of Sargent & Lundy (S&L) calculations for small bore/instrumentation piping supports, identified errors in the calculations. Resolution of the errors could result in changes to pipe supports released for construction, or require the installation of additional supports. An evaluation is being performed to determine the magnitude and significance of these errors, their impact on installed hardware, and the potential for adverse impact on the safety of operations of Clinton Power Station.

INVESTIGATION RESULTS/BACKGROUND

During August, 1982, Illinois Power NSED personnel reviewed a sample of twelve (12) small bore piping support calculations performed by S&L's on-site small bore piping design group. The calculations are performed to determine small bore pipe hanger loads, spans between hangers, and flexibility for thermal growth. In the course of the review, NSED personnel discovered

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errors in more than half of the calculations. The type of errors identified included mathematical errors, errors in the transposition of measurements from design drawings for use in calculations, and errors in the selection of appropriate design input and rules provided in small bore pipe hanger design procedures. As a result of these findings S&L performed a review of an additional thirty (30) calculations. This review found more errors, several of which were in the non-conservative direction. Although S&L's design procedures contain a degree of conservatism which can accommodate the type of errors identified, the potential for significant errors in this case could not be discounted. A review of all completed small bore hanger calculations is presently being performed by S&L to determine the magnitude of this problem and the significance of the errors.

CORRECTIVE ACTION (INTERIM)

Although investigation of this potentially reportable deficiency is still on-going, several actions have been, or are being taken to prevent further errors in small bore piping support calculations:

1. Small bore support calculation procedures were reviewed by Sargent & Lundy for simplifications and other modifications that could be made to prevent recurrences of the errors found in the calculations. This review resulted in several changes to the procedures to clarify the design process.

2. Sargent & Lundy personnel involved in the preparation and review of small bore piping support calculations will be retrained in the various procedural requirements which control the work.

3. A checklist has been developed to specifically note the items that calculation reviewers are responsible for checking. The applicable Project Instruction for the design of small bore pipe supports (PI-CP-036) will be revised to incorporate the use of this checklist.

4. S&L Quality Assurance Division has performed an internal QA audit to evaluate the adequacy of procedures, procedure implementation, and personnel training related to small bore piping support design calculations.

5. S&L Project Management Division is performing a re-review of small bore piping support calculations to determine the extent and nature of errors in the calculations and to assess the adequacy of existing design documents.

6. Those supports which have been identified as having a potential for hardware changes have been put on "hold" via an Engineering Change Notice.

7. S&L has imposed a hold on the release of design drawings for new small bore piping supports. This hold will remain in effect until Illinois Power Quality Assurance and NSED have verified that adequate corrective action has been taken to resolve the identified problems and to prevent recurrence, and that all nonconformances identified by the S&L QA audit have been resolved.

SAFETY IMPLICATIONS/SIGNIFICANCE

A re-review of all small bore piping support calculations to determine the extent and nature of the errors is presently on-going. When the results of this re-review are complete, the identified errors will be closely analyzed to determine impact on plant hardware and significance on plant safety. The results will also be analyzed for trends which will aid in identifying root causes and evaluating the need for additional corrective action. It is anticipated that approximately ninety (90) days will be necessary to complete an investigation, to determine reportability, and to file our final report on the potential deficiency.

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

Very truly yours,

D.P. Hall
Vice President

cc: H.H. Livermore, NRC Resident Inspector
Director, Office of I&E, Washington, D.C. 20013
Illinois Department of Nuclear Safety
Director-Quality Assurance