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ILLINOIS POWER COMPANY



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U-10112

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

December 22, 1983

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 Deficiency 82-12
10CFR50.55(e)
Binding of Sway Strut/Snubber
Piping Component Supports

Dear Mr. Keppler:

On October 21, 1982, Illinois Power notified Mr. H. Wescott, NRC Region III, (Ref: IP memorandum Y-13998, 1605-L, dated October 21, 1982) of a potentially reportable deficiency per 10CFR50.55(e) concerning the fabrication of sway strut type pipe supports. The location of welds on the eyelet of the sway strut interferes with the retaining bracket (clevis) such that the required motion of the sway strut may not be achieved. This initial notification was followed by four (4) interim reports (Ref: IP letter U-10011, D. P. Hall to J. G. Keppler dated November 20, 1982, 1605-L, IP letter U-10032, D. P. Hall to J. G. Keppler dated February 18, 1983, 1605-L, IP letter U-10058, D. P. Hall to J. G. Keppler dated May 31, 1983, and IP letter U-10089, D. P. Hall to J. G. Keppler dated September 8, 1983). Our investigation into this matter continues, and this letter represents an interim report per 10CFR50.55(e).

Statement of Potentially Reportable Deficiency

The welded male rod extension piece used in sway strut and snubber piping supports supplied by Basic Engineers (BE) binds in the pipe clamp and rear bracket, limiting the designed range of motion. The binding could cause extra loads on the weld attaching the rear bracket (clevis) to the structure. This additional load could result in failure of the weld. Further investigation is necessary to determine the significance of this concern, and to evaluate what actions are required to correct potential hardware deficiencies.

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Background/Investigation Results

During inspection activities of piping support installation by Baldwin Associates (IP Contractor), a sway strut type pipe support was found where metal to metal contact existed between the male rod extension piece and the pipe clamp. This condition does not conform with Baldwin Associates Procedure BAP 3.2.5 (Piping Component Supports), which requires the piece to pivot in all directions without binding. A Deviation Report (DR-3382) was initiated to document this occurrence. Further investigation found that these male rod extension pieces are also used on sway strut type supports to connect to the rear bracket (clevis), and therefore binding could also occur at this location. This concern was confirmed by a random inspection of installed sway strut supports which identified several interferences. Additionally, some mechanical snubbers utilize similar male rod extension pieces and could be subject to binding.

The problem was further investigated by the piping support supplier, Basic Engineers. Their investigation found that the interferences were due to accumulative fabrication tolerances given on BE's data sheets for these types of supports. Investigation by Baldwin Associates determined that, in some cases, overwelding of the eyelet to the threaded rod of the male rod extension piece also contributed to the interference.

In order to determine the scope of this problem on installed hardware, an inspection program was implemented at Clinton Power Station (CPS). This inspection program utilized personnel employed by Basic Engineers on site to measure the clearances available and the critical dimensions for installed sway struts and snubbers. Using the actual dimensions for each installation, the available freedom of movement is being calculated, and a course of action will be determined for each support.

Investigation has also determined that supports could exist which appear bound in the cold condition, yet adequate clearance may be available due to movement of the hanger resulting from thermal growth of the pipe. Sargent & Lundy (CPS Architect-Engineer) design standards allow the pipe support joint to move within 2° without design compensation. However, in cases where large thermal movements or short struts are involved, design compensations, such as offsetting the attachments to the pipe and structure, may have been made to accommodate this movement such that the support in its cold setting may appear bound. A list of affected supports with offset attachments has been compiled by Basic Engineers using Sargent & Lundy design drawings, and specific inspection criteria for these supports have been developed.

Corrective Action (Interim)

Although investigation of this potential deficiency is still in process, several actions have been or are being taken to identify and correct the problems, and to prevent recurrence:

1. Baldwin Associates stopped issuing welded male rod extension pieces (BE part Nos. 415-1 and 411-2) to the field and fabrication shops until after an inspection of hanger parts had been performed in each building's lay down area. Defective parts were tagged and segregated to prevent inadvertent use or installation.
2. Baldwin Associates Quality Assurance intensified its surveillance of Basic Engineers' fabrication activities at BE's shops and at CPS.
3. Quality Control Instruction QCI-300, Inspection of Piping Component Supports, has been revised and issued to include detailed instructions for making binding inspections for non-offset supports. Training was provided to Quality Control inspectors on this matter on May 13, 1983. Further revision of QC instructions were made to address the inspection requirements for offset supports and training was provided.
4. Basic Engineers has supplied Baldwin Associates Quality Control with feeler gauges to implement the binding checks detailed in QCI-300. The gauges will be calibrated in accordance with applicable procedures.
5. Sargent & Lundy drawing M09-1001N will be revised to clarify installation tolerances with regard to pipe supports.
6. A field inspection of installed sway struts and snubbers supplied by Basic Engineers was performed by BE employees to determine the number of supports affected by problems of inadequate clearance and the amount of clearance available for each support. BE's shop inspection procedure was revised by BE to address their field inspection activities at CPS. The method of measurement for interferences has been prequalified on a shop mock-up to ensure its validity.
7. Upon the completion of calculations to determine the available freedom of movement of sway strut hangers, the scope of this problem will be better defined and a decision can be made on remedial action necessary to correct any identified deficiencies. This action may include an engineering analysis of the deficiencies and/or a parts replacement/rework program.

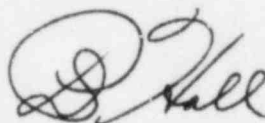
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Safety Implications/Significance

Until the results of the inspection effort are evaluated and the scope of this potential deficiency is defined, it is not possible to assess the safety implications and significance of this concern. Additionally, the extent of action necessary to correct identified deficiencies through rework/replacement of parts or engineering analysis cannot be determined until the scope of this potential deficiency is defined. It is anticipated that approximately ninety (90) days will be necessary to file a final report on this subject.

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

Sincerely yours,



D. P. Hall
Vice President

REC/km

cc: Director, Office of I&E, U.S. NRC, Washington, DC 20555
Illinois Department of Nuclear Safety
NRC Resident Office
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