

ILLINOIS POWER COMPANY



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

October 31, 1984

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 55-83-08 10CFR50.55(e)  
Damage to Guard Pipe Bellows Assemblies

Dear Mr. Keppler:

On June 27, 1983, Illinois Power notified Mr. F. Jablonski, NRC Region III (Ref: IP Memorandum Y-17131, 1605-L, dated June 29, 1983) of a potentially reportable deficiency per 10CFR50.55(e) concerning construction damage to guard pipe bellows assemblies. This initial notification was followed by four (4) interim reports (Ref: IP letter U-10077, D. P. Hall to J. G. Keppler dated August 16, 1983; IP letter U-10113, D. P. Hall to J. G. Keppler dated December 15, 1983; IP letter U-10141, D. P. Hall to J. G. Keppler dated April 12, 1984; and IP letter U-10199, D. P. Hall to J. G. Keppler, dated August 22, 1984). Illinois Power's investigation of the above issue is complete and has determined that the issue does not represent a reportable deficiency under the provisions of 10CFR50.55(e). This letter is submitted as a final report regarding this potentially reportable deficiency. Attachment A provides the details of our investigation.

We trust that this final report provides sufficient information to perform a general assessment of this potential deficiency and adequately describes our overall approach to resolve this problem.

Sincerely yours,

D. P. Hall  
Vice President

RLC/cbs (NRC2)

cc: NRC Resident 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 Deficiency 55-83-08 10CFR50.55(e)  
Damage to Guard Pipe Bellows Assemblies

Final Report

Statement of Potentially Reportable Deficiency (Withdrawn)

Ten (10) guard pipe bellows assemblies used at Clinton Power Station (CPS) were damaged during installation and construction activities. This damage consists of small dents, nicks, scratches, and arc strikes, with one (1) assembly exhibiting a small hole in one (1) of the two (2) bellow plys. An evaluation of this issue was performed to determine the consequences of this damage and necessary actions to make the bellows acceptable.

Background

During installation of the guard pipes and associated bellows assemblies, eleven (11) Nonconformance Reports (NCRs) were written to document cases of damage to ten (10) of eleven (11) bellows assemblies. These bellows assemblies, anchored to the drywell wall and welded to the guard pipe, act as a seal isolating the drywell environment while allowing free axial thermal and seismic movement of the guard pipe. The bellows assemblies are not pressure retaining parts of either the reactor or the primary containment. The bellows assemblies were fabricated, tested, and certified in accordance with the ASME Code, Section III, Subsection NE (Class MC), to take advantage of available code specifications. The original supplier of the bellows assemblies is no longer in this type of business.

Investigation Result/Corrective Action

An evaluation of this problem was performed to determine the remedial actions necessary to establish the acceptability of the damaged bellows. Several methods were pursued, which included testing of a prototype bellows assembly and repair of the presently installed bellows. Pathway Bellows, Inc., was awarded the contract to perform testing of the prototype bellows assemblies and to supervise repairs, if required. The classification of the bellows assemblies was revised from ASME to ANSI B31.1 to facilitate any repairs; however, the bellows assemblies have retained their safety related, seismic Category I classification, and materials must meet the requirements of 10CFR50, Appendix B. Section 3.2.1 of the FSAR was changed through Amendment 29 to indicate the reclassification.

ATTACHMENT A

(continued)

A three (3) convolution prototype bellows assembly was manufactured by Metal Bellows Corporation per Sargent & Lundy (S&L) Specification K-2871 and delivered to Pathway Bellows, Inc. for testing in accordance with S&L Specification K-2871A.

The prototype bellows was damaged in a manner to duplicate the damage existing on the bellows assemblies installed at CPS. The prototype bellows was welded in a manner that simulates the repair that will be made to bellows assembly 1FW04MB due to a hole in the outer ply of the bellows caused by an arc burn.

The prototype assembly was tested by imposing greater than 10,000 cycles of calculated movement. Leak detection monitors located between the plies of the pressurized assembly indicated no loss of pressure integrity. This test was in accordance with the Code case N-315 (which was used as a guideline) and proves the method of repair welding to be valid.

The patch material that will be utilized to repair the installed assembly must be SA240 type 321 stainless steel. The material used by Pathway Bellows to patch the prototype hole had a Certified Material Test Report (CMTR), but the CMTR was not provided from an ASME qualified supplier, therefore this material was requalified by St. Louis Testing Laboratories (Ref: P.O. C47712) for physical and chemical analysis. A representative from Baldwin Associates Quality Engineering group was present to witness the testing. The material qualified as SA240 Type 321 stainless steel and will be under the control of the Baldwin Associates Quality Control (BAQC) Material Control Department. The material will be issued to the Pathway Bellows personnel who will make the necessary bellows repair at the CPS site.

Pathway Bellows has issued their report for the test program of the bellows assemblies. S&L has accepted the test report and has stamped it Status 1.

Two (2) of the ten (10) bellows will require rework. Assembly 1FW04MB will have the small hole patched/welded (NCR 5631). Assembly 1FW04MA has an arc strike that will be blended/buffed out.

Pathway Bellows personnel will effect the repairs at CPS. They will utilize their welding procedure T8-8, Rev. 9 for welding P8 to P8 material. S&L has previously accepted this procedure for use in the testing of the prototype bellows. It is anticipated that all repairs and corrective actions will be completed by December 15, 1984.

To prevent further damage, the installed bellows assemblies have been covered with protective coverings.

ATTACHMENT A

(continued)

Safety Implications/Significance

Illino's Power requested Sargent & Lundy to perform an engineering evaluation of the damaged bellows assemblies to determine the significance to safety had the conditions gone uncorrected. The test results of the prototype bellows assemblies, demonstrated that scratches and dents would not have impacted the design performance of the bellows assemblies. The prototype testing also demonstrated that the inner ply of bellows 1FW04MB was sufficient to retain its pressure sealing integrity when subjected to design conditions.

Sargent & Lundy has concluded that the existence of dents, scratches and the small hole in 1 ply would not have presented any condition adverse to the safe operation of CPS had the damage gone uncorrected.

Investigation of this potentially reportable issue is complete. Illinois Power Company has reviewed and evaluated the findings of this investigation and has determined that no significant conditions adverse to the safety of operations of CPS were found. Therefore, this issue is considered to be not reportable under the provisions of 10CFR50.55(e).