

ILLINOIS POWER COMPANY



1605-L  
U-10146

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

April 25, 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: Reportable Deficiency 55-83-07  
10CFR50.55(e)  
Pipe Shop Welds by Southwest Fabricating & Welding Co.

Dear Mr. Keppler:

On June 14, 1983, Illinois Power Company notified Mr. F. Jablonski, NRC Region III (Ref: IP memorandum Y-15971, 1605-L, dated June 14, 1983) of a potentially reportable deficiency concerning the adequacy of shop welds on pipe spools fabricated by Southwest Fabricating and Welding Company and supplied to Baldwin Associates for use at Clinton Power Station (CPS). This initial notification was followed by three (3) interim reports (ref: IP letter U-10074, D. P. Hall to J. G. Keppler dated July 25, 1983; IP letter U-10103, D. P. Hall to J. G. Keppler dated October 27, 1983; and IP letter U-10122, D. P. Hall to J. G. Keppler dated January 25, 1984). Our investigation has determined that this issue represents a reportable deficiency under the provisions of 10CFR50.55(e). Our investigation of this issue is complete, and this letter is submitted as a final report in accordance with 10CFR50.55(e)(3).

Statement of Reportable Deficiency

During a re-review of radiographic film, rejectable indications were found in shop welds produced by Southwest Fabricating and Welding Company (SWF) and supplied to Baldwin Associates for use at CPS. The welds in question are ASME Code Class I and II found in safety-related piping systems as well as some ANSI B31.1 welds found in other CPS piping systems. Some welds were found to include cracks, lack of fusion, and slag inclusions.

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Background/Investigation Results

During examination of a field radiograph taken of a weld repair on a SWF shop weld repaired by Baldwin Associates at CPS, questionable indications were noted in the root area of the SWF shop weld away from the repair. The weld repair was necessary due to overgrinding of the shop weld while "flat topping" in preparation for in-service inspection baseline examination. The questionable indications were also noted in a re-review of SWF shop radiographic films of this weld. Further investigation of shop radiographic film identified additional shop welds with questionable indications.

These SWF shop films were originally evaluated at receipt by a Baldwin Associates Quality Control inspector who is no longer available for consultation.

Baldwin Associates performed a re-review of a sample of radiographic film originally interpreted by this inspector. Sixty-eight (68) welds were selected at random for review. Fourteen of these welds were found to contain questionable indications. The films of five (5) additional welds showed surface conditions that possibly could mask defects. As a result of these findings, Southwest Fabricating and Welding reported June 24, 1983 to the Nuclear Regulatory Commission (Region IV), under the rules of 10CFR21, of an apparent failure to comply with the requirements of ASME Section III, Paragraph NC-4424 for several of the questionable welds. The welds documented in the report included four (4) piping subassemblies with 45° lateral branch connections with reinforcing pads installed after radiography. Due to the presence of these reinforcing pads, it was not possible to determine if indications on the film were actually surface irregularities under the pads. Southwest Fabricating and Welding Company provided a final 10CFR21 report to the Nuclear Regulatory Commission (Region IV) on January 2, 1984, and concluded that only one weld was indeterminate due to surface conditions.

An Investigation Plan was developed by Illinois Power that detailed the actions necessary to achieve satisfactory evaluation of the nineteen questionable welds. This plan called for a re-radiograph of the nineteen (19) welds in the as-found condition after a visual inspection. The radiography technique duplicated the original SWF technique as closely as possible. Welds having an irregular surface were then ground smooth and re-radiographed a second time. A joint review of the radiographic film was then performed by SWF, Baldwin Associates, and an independent Designated Reviewer representing Illinois Power. This review found that three (3) welds required an engineering evaluation and disposition of the indications found, the quality of one (1) weld was indeterminate due to difficulty in interpreting the film and one (1) weld was considered acceptable, however, film density did not meet Code requirements.

As a result of indications found during the investigation of the nineteen (19) questionable welds, a revision to the investigation plan was prepared to include additional re-reviews of Southwest Fabricating radiographs on piping supplied to Baldwin Associates for use at CPS. This review included radiographs of ASME Code Class I and II and ANSI B31.1 welds for film and weld quality. This review was performed by a qualified Baldwin Associates reviewer and monitored by Illinois Power's Designated Reviewer. Radiographs for twenty nine hundred eighty (2,980) welds were reviewed and identified one hundred four (104) welds with structural discontinuities. Additionally, thirty-one (31) welds were identified that possessed software problems, such as radiographic film quality problems and weld identification problems.

#### Corrective Action

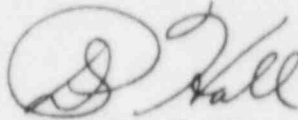
As large bore piping fabrication is essentially complete for Clinton Power Station, Illinois Power's efforts have focused on identifying the scope of this issue and on the correction of any identified weld deficiencies. Defects identified by the re-reviews were documented on Nonconformance Reports (NCRs). One hundred sixteen (116) NCRs were written to document the weld structural problems and software problems. These NCRs will be dispositioned and may require a repair and/or re-radiograph of the affected weld.

#### Safety Implications/Significance

Re-reviews of previously accepted Southwest Fabricating shop welds identified one hundred four (104) welds that do not meet ANSI or ASME Code weld acceptance criteria. In lieu of performing an extensive engineering evaluation of the specific weld defects identified, Illinois Power has postulated that the conditions identified could lead to weld failure in safety-related piping systems. Such failure could prevent the systems from performing their intended safety function. On this basis, this issue is considered significant, and therefore reportable under the provisions of 10CFR50.55(e).

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

Sincerely yours,

A handwritten signature in dark ink, appearing to read "D. P. Hall". The signature is fluid and cursive, with the first name "D." and last name "Hall" clearly distinguishable.

D. P. Hall  
Vice President

RDW/lag

cc: NRC Resident Office  
Director, Office of I&E, USNRC, Washington, D.C. 20555  
Illinois Office of Nuclear Safety  
INPO Records Center