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50-461

ILLINOIS POWER COMPANY



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U-10174

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

June 27, 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: 10CFR50.55(e) Deficiency 55-83-02
Counterboring of Safety-Related ASME Pipe

Dear Mr. Keppler:

On January 13, 1983, Illinois Power (IP) verbally notified Mr. F. Jablonski, NRC Region III (ref: IP memorandum Y-14090, 1605-L, dated January 13, 1983) of a potentially reportable deficiency per 10CFR50.55(e) concerning procedural controls for inspection of field counterboring/internal grinding of safety-related ASME pipe. This initial notification was followed by five (5) interim reports (Ref: IP letter U-10029, D. P. Hall to J. G. Keppler dated February 16, 1983; IP letter U-10056, D. P. Hall to J. G. Keppler dated May 31, 1983; IP letter U-10088, D. P. Hall to J. G. Keppler dated September 6, 1983; IP letter U-10111, D. P. Hall to J. G. Keppler dated December 20, 1983; and IP letter U-10137, D. P. Hall to J. G. Keppler dated April 4, 1984). Our investigation has determined that this issue represents a reportable deficiency under the provisions of 10CFR50.55(e). This letter represents a final report in accordance with 10CFR50.55(e)(3).

Statement of Reportable Deficiency

While conducting a routine inspection, the Authorized Nuclear Inspector (ANI) observed that safety-related piping weld preparations requiring field counterboring were not being inspected and documented by Baldwin Associates' (IP Contractor) Quality Control (QC) or Technical Services (T/S) Departments. Had this situation gone uncorrected, incorrect field counterbored piping in violation of ASME Code requirements would have been installed at Clinton Power Station (CPS).

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Background/Investigation Results

Subsequent to the discovery of this condition by the ANI, an IP Quality Assurance surveillance confirmed that required inspections were not always being conducted and documented for some of the field counterbored pipe. When notified of this condition, the Baldwin Associates Quality Assurance Department issued Corrective Action Request (CAR) Number 113. Closer investigation by IP revealed that project procedures and instructions did not provide clear guidance on the performance, inspection, and documentation needed for piping counter-bore/internal diameter grinding.

The investigation to date has identified 515 piping joints having a nominal internal diameter difference in excess of 1/16 inch, or where a manufacturer's shop counterbore may have been modified by Baldwin Associates, indicating the potential need for field counterboring. To determine the internal geometry of these joints, two investigation techniques were developed. The first uses an ultrasonic examination technique developed by NDT Consultants. This technique, employing transducers to measure the piping counterbore bevel angle, position, and wall thickness, was satisfactorily qualified to a test procedure. A second technique is used to measure valve-to-pipe joint counterbores. The counterbore condition of these joints is determined using vendor drawings and field measurement. To date, 95 joints have required rework. The rework was required due to incorrect bevel angle, square cut geometry, and minimum wall violations. Nonconformance Reports or Deviation Reports have been written for the joints and an engineering disposition has been established for each.

An additional review of site documentation was completed on March 31, 1984, to verify that all field counterbored piping joints have been identified and investigated to determine adequacy.

Corrective Action

The following actions have been taken to correct the problem and to prevent recurrence:

1. Further piping weld fit-up and material identification inspections were deferred until the applicable procedures and instructions were revised and training was performed.

2. On January 4, 1983, the Baldwin Associates (BA) Piping Department conducted on-the-job training for craft personnel involved with pipe counterbore.
3. On January 12, 1983, the BA TS Department conducted on-the-job training for Technical Services personnel, covering the assignment of the responsibilities for checking wall thickness and counterbore.
4. Baldwin Associates Procedure BAP 2.14 was revised to address piping counterbore. All new piping travelers contain a sequence for counterboring/internal diameter grinding. This action will preclude the possibility of counterboring being overlooked. Further, this sequence is considered a Technical Services hold point, therefore, inspection of counterbore will be performed and documented on the traveler. In-process travelers are also being amended to include this step.
5. Technical Services Procedure BTS-405 was revised to clarify the inspection and documentation requirements of piping counterbore. Further, BA Technical Services has fabricated calibrated inspection gauges to implement the counterbore inspection.
6. Quality Control Instructions QCI-302 and QCI-309 have been revised to address the inspection and documentation of piping counterbore.
7. Baldwin Associates Procedure BAP 2.24 has been revised to include the requirements of QCI-309 which directs the inspection of counterbore on fire protection piping systems.
8. Baldwin Associates Procedure BAP 2.26 was amended to include a hold point where Technical Services can verify counterbore of Augmented D piping.
9. The pipe joints identified as having questionable internal geometries have been documented on Nonconformance Reports or Deviation Reports. Resolution of these reports will assure that pipe joints welded under the previous program meet the requirements of the Architect Engineer and the ASME Code.

Safety Implications/Significance

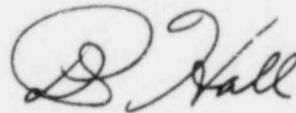
Illinois Power's investigation into the actual affects of the incorrect counterbore geometries have not conclusively shown that the weld integrity was affected. However, it can be postulated that an abrupt or square cut counterbore transition

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could result in a stress riser. Also, minimum wall violations could result in an over-stress condition. The cracking in some of the welds in question could be significant to the safety of operations of CPS. On this basis, the issue is considered to be reportable under the provisions of 10CFR50.55(e).

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

Sincerely yours,



D. P. Hall
Vice President

RDW/cah

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