

ILLINOIS POWER COMPANY

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

July 2, 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 10CFR50.55(e) Deficiency 55-84-05
Incorrect Material Substitutions of Large Bore Pipe

Dear Mr. Keppler:

On January 27, 1984, Illinois Power Company (IPC) notified Mr. F. Jablonski, NRC Region III, (ref: IPC Memorandum Y-18562) of a potentially reportable deficiency per 10CFR50.55(e) concerning improper substitution of 12" standard wall pipe in place of 12" schedule 40 wall pipe, in the main steam downcomers. This initial notification was followed by one (1) interim report (ref: IP Letter U-10131, D. P. Hall to J. G. Keppler dated March 7, 1984).

Our investigation of this issue is continuing, and this letter represents an interim report in accordance with the requirements of 10CFR50.55(e).

Deficiency 82-10 10CFR50.55(e), Safety Related Piping, Minimum Wall Thickness Violation also reports installation of piping with less than minimum allowable pipe wall thickness. The causes, however, are different. In the latter case, inconsistent or improper design information had been supplied to a fabricator, or a fabricator had transferred design data improperly. Because the causes are different, these deficiencies will be resolved and reported separately.

Statement of Potentially Reportable Deficiency

During a review of piping isometric drawings and spool modification drawings for all ASME safety related large bore pipe, it was discovered that sections of 12" nominal standard weight pipe ($t_n = 0.375"$) had been installed in the main steam

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downcomers and hanger trunnions in place of 12" schedule 40 ($t_n = 0.406"$) pipe. The review has further identified another substitution in a different system where 14" schedule 40 pipe ($t_n = 0.438"$) was installed when 14" standard weight pipe ($t_n = 0.375"$) was required.

There have been two cases identified where ASME III, Class 2 pipe (SA106 Gr. B) has been improperly installed in a Class 1 system. The engineer's (Sargent & Lundy) design specification requires that the piping material be normalized for the Class 1 application, but not for Class 2 use. The material installed is certified for Class 2 use only.

An evaluation of these issues is continuing to determine the extent of the problems and their significance to the safety of operations at CPS.

Investigation Results/Background

Illinois Power Company presently is completing an investigation under 10CFR50.55(e) into the matter of Inspection of Piping Counterbore (ref: 55-83-02). The investigation requires the Baldwin Associates (BA) Piping Engineering Department to identify all weld joints where internal diameter mismatch may require inside diameter grinding or counterboring. The review of the isometric drawings and spool modification drawings requires verification of sizes and wall thickness, especially when BA was required to modify spool pieces manufactured off site by the piping fabricator. Out of this review, cases were identified where standard weight pipe was installed in place of schedule 40 pipe and vice versa.

The wall thickness for standard weight and schedule 40 pipe is the same for pipe sizes up to and including 10" nominal. At 12" nominal, the wall thickness for the classes diverge. It has been learned that the 12" diameter pipe was correctly requisitioned from the warehouse as schedule 40; however, standard weight pipe was issued and installed.

The identification of incorrect site substitution of material gave cause to initiate a separate 10CFR50.55(e) investigation for the matter.

The installation travelers for the main steam downcomers had been through a review by the Document Review Group (DRG). The substitution of pipe with incorrect wall thickness had not been identified. The procedure BQAI-110-11, Rev. 1, Final Review of Piping/Mechanical Record Packages, requires the reviewer to verify that the material used conforms to Code/Class/ Specification. It does not specifically address the attribute of wall thickness or ASME Code Class.

Nonconformance Reports have been written to obtain resolution of the hardware irregularities and evaluate their significance.

To date, the Resident Engineer's Office has completed the review of all ASME large bore safety-related isometrics and safety-related travelers. All material additions by the constructor have been verified against the Architect/Engineer's design document for compliance with the specification. All heat numbers and Receiving Inspection Report (RIR) numbers which are shown in the piping travelers, for the material added, have been verified against vaulted Certified Material Test Reports (CMTRs) to assure that material description in the traveler accurately documents the installed material. Travelers, currently in-process, that may be modified, will be similarly verified when they are submitted for final review. All incorrect substitutions have been identified and Nonconformance Reports (NCRs) have been written where required. Three (3) NCRs have required rework. Sargent & Lundy (S&L) has evaluated the safety significance of each of these NCRs, and concluded that, although incorrect material was substituted, the systems would have functioned to their design intent. No condition adverse to safety has been identified.

Additional Nonconformance Reports (NCRs) have been written to document the installation of incorrect schedule swage nipples. The designs specify 2- $\frac{1}{2}$ " and 3" Schedule 80 X 2" Schedule 80 Swage nipples; however, 2- $\frac{1}{2}$ " and 3" Schedule 40 X 2" Schedule 80 fittings are installed. The swage nipple substitutions were identified when reviewing isometrics that showed large bore butt weld fittings with transitions to small bore socket weld pipe. Disposition of these NCRs and review of safety significance is pending.

Four (4) NCRs have been written on material used for shear lugs on Class 1 piping. In one case, the piping drawing calls for SA516 Gr. 70 material, but the Status I isometric indicates SA516 Gr. 60, 65 or 70 is acceptable. In this and in the other cases, the lug material used, also may not have been supplied by a qualified vendor, and/or the requirements for impact and ultrasonic testing may not have been met. These conditions are still under investigation.

Corrective Action

1. The Piping Engineering Department has reviewed all ASME large bore safety-related isometrics and spool modification drawings and travelers for incorrect material substitutions. Nonconformance Reports have been written for all discrepancies.

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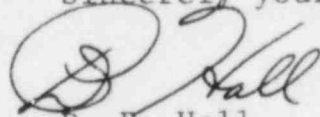
2. Only a small amount of large bore pipe remains to be installed at Clinton Station. To preclude any further incorrect material substitution, however, Baldwin Associates Quality Control Department will establish additional checks at the issue point and/or fit up point to verify wall thickness and class.
3. The procedure BQAI-110-11 has been revised to include the specific attributes for verification of piping wall thickness and material classification.
4. Further training with revised lesson plans has been conducted for Document Review Group personnel on the requirements of material verification and the problems inherent in wall thickness/material classification changes.
5. Measurements of installed pipe wall thickness are being performed in accordance with the Baldwin Associates Field Verification/Illinois Power Overinspection Programs to assure that piping of adequate wall thickness has been installed at CPS.

Safety Implications/Significance

Illinois Power Company's investigation of this potentially reportable deficiency is continuing. The safety implications and significance of this issue will be assessed after all remaining NCRs have been dispositioned and evaluated. Illinois Power Company intends to provide you with a final report on this investigation in approximately ninety (90) days.

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

Sincerely yours,



D. P. Hall
Vice President

RLC/cah

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