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ILLINOIS POWER COMPANY



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

September 24, 1984

Docket No. 50-461

Mr. James G. Keppler
Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 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 dated January 27, 1984) 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 two (2) interim reports (ref: IP Letter U-10131, D. P. Hall to J. G. Keppler dated March 7, 1984, and IP letter U-10166, D. P. Hall to J. G. Keppler, dated July 2, 1984).

Illinois Power's investigation of the above matter 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 you sufficient background information to perform a general assessment of this potentially reportable deficiency and adequately describes our overall approach to resolve the issue.

Sincerely yours,

D. F. Hall
Vice President

RLC/cbs (NRC)

cc: NRC Resident Office
Director, Office of I&E, US NRC, 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

Subject: Potential 10CFR50.55(e) Deficiency 55-84-05
Incorrect Material Substitutions of Large Bore Pipe

Final Report

Statement of Potentially Reportable Deficiency
(Withdrawn)

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 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 three 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 was performed to determine the extent of the problems and their significance to the safety of operations at CPS.

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 were resolved and reported separately.

ATTACHMENT A
(continued)

Investigation Results/Background

Illinois Power Company completed an investigation under 10CFR50.55(e) into the matter of Inspection of Piping Counterbore (ref: 55-83-02). The investigation required 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, required the reviewer to verify that the material used conformed to Code/Class/Specification. It did not specifically address the attribute of wall thickness or ASME Code Class.

Nonconformance Reports were written to obtain resolution of the hardware deficiencies and evaluate their significance.

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 were 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, were 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 were identified and Nonconformance Reports (NCRs) were written where required.

ATTACHMENT A
(continued)

Additional Nonconformance Reports (NCRs) were 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 were 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, and one (1) case of incorrect schedule swage nipple substitution was identified by DRG during review of purchase orders and Receiving Inspection Reports (RIR). Also, four (4) NCRs were written on material used for shear lugs on Class 1 piping. In one case, the piping drawing called for SA516 Gr. 70 material, but the status I isometric indicated SA516 Gr. 60, 65 or 70 was acceptable.

Corrective Action

Illinois Power prepared and implemented an investigation plan to determine the extent of this problem at CPS. The investigation plan included:

1. The Piping Engineering Department reviewed all ASME large bore safety-related isometrics and spool modification drawings and travelers for incorrect material substitutions. Nonconformance Reports were written for all discrepancies identified.
2. Only a small amount of large bore pipe remains to be installed at Clinton Station. To preclude any further incorrect material substitution, Baldwin Associates Quality Control Department has established additional checks at the issue point to verify wall thickness and class.
3. Appropriate site procedures were revised to include the specific attributes for verification of piping wall thickness and material classification.
4. Training with revised lesson plans was 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.

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(continued)

In addition to the review by the Resident Engineer's Office, the Document Review Group (DRG) of the BA Quality Assurance Department has an ongoing review of all safety related travelers. Training has been given to DRG personnel who do final review of piping/mechanical record packages and materials verification. The revised procedure BAP 2.1.1, Rev. 3, Verification of BA Records, directs the process for DRG review of travelers and Material Take Off. The checklists for this process are now controlled by BAP 2.1.3, QA Final Review Checklists. The DRG will review the travelers and pertinent documentation to confirm compliance with the design requirements.

The revision to BAP 1.5 (Rev. 10, Change E), Material Identification, requires the marking of schedule number on 10" and larger stainless steel pipe and fittings and 12" and larger carbon steel pipe and fittings as well as heat number and RIR number. The Piping Department Material Requisition Form JV-490 was revised to include an entry to specify ASME Class. When the material is requisitioned, the QC inspector must verify the material class, wall thickness/schedule, etc., prior to release of the material and prior to his signing of the requisition form under QC verification. Illinois Power Company Quality Assurance Department Surveillance is committed to perform surveillance of the process of QC verification and release of piping prior to installation. This will assure continued compliance with the commitment for additional hold points/verification of pipe size for the remainder of large bore pipe installation.

Safety Implications/Significance

Illinois Power requested Sargent & Lundy (S&L) to review all NCRs written as a result of this investigation and to perform an evaluation of the conditions identified for safety significance. Although some of the NCRs required rework of the piping, S&L has stated that none of the material substitutions identified would have adversely affected the safe operation of CPS.

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