

ILLINOIS POWER COMPANY



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

November 12, 1982

Mr. James G. Keppler
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Docket No. 50-461

Dear Mr. Keppler:

Deficiency 82-10
10CFR50.55(e)
Safety Related Piping
Minimum Wall Violations

On October 7, 1982, Illinois Power verbally notified Mr. P. Pelke, NRC Region III of a potential reportable deficiency per 10CFR50.55(e) concerning possible minimum wall violations for safety related piping. Our investigation into this matter has determined that a reportable deficiency does exist, and this letter presents an interim report per 10CFR50.55(e)(3).

STATEMENT OF REPORTABLE DEFICIENCY

Two (2) cases have been identified where piping with less than minimum allowable pipe wall thickness was installed in ASME class 2 piping systems, as follows:

- a.) In the RHR system, line number 1RH03BB12, pipe of 0.375 inch (nominal) (0.305 inch measured minimum) wall thickness was installed; design analysis dictates the use of pipe of 0.843 inch (nominal, schedule 100) wall thickness.
- b.) In the LP system, line number 1LP21A4 and 1LP21B4, pipe of 0.237 inch (nominal, schedule 40) wall thickness was installed; design analysis dictates the use of pipe of 0.337 inch (nominal, schedule 80) wall thickness.

This condition has been determined to be a significant deficiency in final design and construction and is therefore reportable under 10CFR50.55(e).

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BACKGROUND/INVESTIGATION RESULTS

As part of the preservice inspection program, certain welds were being ultrasonically examined for weld thickness by Baldwin Associates (Illinois Power Contractor). During such examinations, it was found that the wall thickness of the pipe adjacent to several welds in the RHR system were less than required by applicable piping installation documentation. A Nonconformance Report (NCR 7618) was written to document this problem. In the process of evaluating this NCR, it was determined that the measured wall thickness (0.305 inch) was not only less than that specified in the installation documents (0.375 inch), but the information in the installation documents did not correspond to the design information (0.406 inch) supplied by Sargent & Lundy (CPS Architect/Engineer). Further investigation into this matter showed that the various design documents supplied by Sargent & Lundy to the Piping Fabricator (Southwest Fabrication and Welding) also contained inconsistencies. Accurate design information for this pipe line require a nominal wall thickness of 0.843 inch (Schedule 100).

Investigation of this matter found that several errors led to this occurrence. When the pipe was detailed and fabricated, the Sargent & Lundy piping line list correctly specified a wall thickness of schedule 100 (0.843 inch nominal) for pipe line 1RH03BB12. However, the associated Sargent & Lundy piping and instrument diagram (P&ID) (M05-1075), and the single line piping drawing (M06-1075) for this pipe erroneously specified a wall thickness of schedule 40 (0.406 inch nominal). The fabrication isometric drawing (RH-21) and spool piece detail drawing produced by Southwest Fabrication and Welding compounded the error by erroneously specifying standard wall thickness for this line (0.375 inch nominal). As a result, the pipe was fabricated and installed as standard wall pipe, in accordance with the incorrect isometric and spool piece detail drawings.

In reviewing the history of the design of this pipe line, it was determined that the original design was properly performed and all design documents consistent. However, in late 1978 and early 1979, new loads evaluation had proceeded to the point that suppression pool swell under LOCA conditions developed additional, external, loads on the pipe that was not considered in the original design basis. The resulting re-analysis required that pipe wall thickness for certain lines be increased. This required wall thickness increase was not properly transferred to all affected design documents.

Further investigation of other piping affected by this redesign has shown that one (1) additional system, line numbers 1LP21A4 and 1LP21B4, have wall thickness problems. In the case of line numbers 1LP21A4 and 1LP21B4, the line list and P&ID (M05-1073) specified schedule 80 (0.337 inch nominal wall thickness), but the piping drawing (M06-1073) specified schedule 40 (0.237 inch nominal wall thickness), and the isometric (LP-5) shows schedule 40. Schedule 40 pipe was subsequently installed.

CORRECTIVE ACTION (INTERIM REPORT)

Illinois Power is taking a number of steps to address this issue and determine the scope of this deficiency:

1. Sargent & Lundy is reviewing their design information for safety-related piping subject to external loading to insure that the design documents are consistent and adequate. This review thus far has identified no additional inconsistencies other than those previously identified in this interim report.
2. Sargent & Lundy is reviewing and statusing safety-related, augmented D, and Fire Protection related isometric drawings to insure that the correct wall thickness has been specified for fabrication and installation. This review also includes comparison of the of the S&L documents for consistency. The schedule for the isometric drawing review is based on priorities established to meet site needs and is estimated to be complete by April 1, 1983.
3. Upon completion of No. 2 above, remedial action for the identified design and fabrication document inconsistencies (and associated installed piping) will be evaluated and determined. Potential actions may include external protection of piping, additional hangers, engineering analysis of the as-installed piping, or replacement of the pipe. The determination of remedial action for those lines, which do not meet requirements and which are subject to external loads, will be delayed until after resolution of Safety Evaluation Report (SER) open issue #9, "Pool Dynamic Loads", which addresses the definition of loads due to pool swell. Until this issue is resolved, an accurate engineering evaluation of identified inconsistencies cannot be performed.
4. Illinois Power is formulating plans to increase its review activities of Sargent & Lundy's large bore pipe design. The exact scope of this effort has not been established, but it will follow, and expand upon, IP's present reviews. It is expected that the scope will be determined by January, 1983 and implementation of the plan will be early in February, 1983.

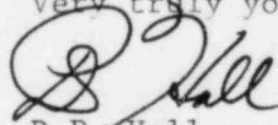
SAFETY IMPLICATION/SIGNIFICANCE

The pipe lines in question are subject to pool swell impact which produces significant external loads on the piping. Failure of the RHR piping could potentially result in less emergency core cooling flow to the reactor than required by design. Failure of the LP piping in question could result in degraded containment integrity. Although additional investigation and analysis are necessary to

determine the scope of the deficiency, evaluate identified problems, and determine necessary corrective actions to correct this deficiency and to prevent recurrence, this deficiency does present an adverse impact on the safety of operations of CPS, and is, therefore, considered reportable under 10CFR50.55(e).

It is anticipated that approximately six (6) months will be necessary to complete our investigation and analysis of this reportable deficiency and to provide a final report on this matter. Illinois Power intends to provide an update of our investigation and status of corrective actions taken in approximately ninety (90) days. We trust that this interim letter provides sufficient information to perform a general assessment of this deficiency, and overall approach to resolution of the problem.

Very truly yours,



D.P. Hall
Vice President

cc: Director, Office of I&E, US NRC, Washington, DC 20555
NRC Resident Inspector
Illinois Office of Nuclear Safety
Director-Quality Assurance