Attachment 4

Westinghouse Electric Company LLC

Calculation Note CN-CI-02-56 Rev. 00
Section XI Flaw Evaluation of Florida Power and Light Units 1 & 2 Hot Leg Instrumentation Nozzles – J Weld
(Non-Proprietary Version)
(7 Pages)

Calculation Note CN-CI-02-56 Rev. 00
Section XI Flaw Evaluation of Florida Power and Light Units 1 & 2 Hot Leg Instrumentation Nozzles – J Weld
(Proprietary Version)
(180 Pages)

Westinghouse Non-Proprietary Class 3

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Calculation Note Number		Revision	Charge Number	Page
CN-CI-02-56-NP		000	110658	1
Project	**Releasable (Y/N)**	**Shop Order Number**	**Microfiche Attached (Y/N)**	**Total No. Pages**
FP&L/Westinghouse Alloy 600 Program	Y			7

Title: Section XI Flaw Evaluation of Florida Power and Light Units 1 and 2 Hot Leg Instrumentation Nozzles J-Weld

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Westinghouse

Record of Revisions

Rev	Date	Revision Description
0	On Cover Sheet	Original Issue

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1.0 Introduction

1.1 Background / Purpose

Typical small-bore nozzles are fabricated from Alloy 600 material and are attached to the piping and vessels with 82/182-weld material. This material is subject to Pressurized Water Stress Corrosion Cracking (PWSCC) and often results in cracks and leaks in these nozzle assemblies. Identified nozzle leaks must be addressed and several techniques are available such as Mechanical Nozzle Seal Assemblies (MNSAs) and half-nozzle repairs. The nature of these repairs is such that it is convenient to leave the crack in place, if it can be demonstrated that the crack and any potential future growth of the crack is acceptable.

The objective of this calculation is to present the results of an ASME Code Section XI Appendix A flaw evaluation for the Alloy 600 small bore nozzle J-welds in the Hot Leg piping of St. Lucie Units 1 & 2. This evaluation considers an assumed double-sided crack that has propagated through the J-Weld and is beginning to encroach on the carbon steel material that comprises the pressure boundary. Since the intent is to not repair this flaw if found, the flaw configuration must be evaluated in accordance with ASME Code Section XI to demonstrate continued integrity of the pressure boundary during plant operation for the postulated plant life.

2.0 Summary of Results and Conclusions

Information for Sections 2.0 – 2.4 is proprietary to Westinghouse Electric.

3.0 Assumptions and Open Items

Information for Sections 3.0 – 3.1 is proprietary to Westinghouse Electric.

4.0 Acceptance Criteria

Information for Section 4.0 is proprietary to Westinghouse Electric.

5.0 Computer Codes Used in Calculation

Information for Section 5.0 is proprietary to Westinghouse Electric.

6.0 Calculations

Information for Sections 6.0 – 6.3 is proprietary to Westinghouse Electric.

7.0 References

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