



March 31, 2003

L-2003-085
10 CFR 50.4

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: St. Lucie Unit 2
Docket No. 50-389
NRC Information Request
Steam Generator Tubesheet Inspection Practices

Based on discussions and conference calls among the NRC, Nuclear Energy Institute (NEI), and the industry on steam generator (SG) tubesheet inspections for plants with mill annealed Alloy 600 SG tubes, St. Lucie Unit 2 was among the plants requested by NEI letter dated February 28, 2003, to submit the attached information by the end of March 2003.

Last spring, the NRC questioned two PWR licensees on the inspection methods used for steam generator tubes at locations within the tubesheet. The NRC challenged inspection practices that do not expand tube sample selections deeper within the tubesheet when degradation is found or expected below a specific depth. Instead of expanding the inspection within the tubesheet under these circumstances, some licensees justify limiting the depth inspected with rotating probes on the basis that degradation below the specified depth is not an operational or safety concern. The NRC believes that technical specifications require each licensee to apply inspection methods capable of detecting the type of flaws, which may potentially exist at each tube location where a tube inspection is required. The industry is in general agreement with the staff's position regarding the need to ensure tube integrity, but holds that the technical specifications do not specify the type of eddy current probe that should be used. The industry believes the adequacy of inspections, and therefore the type of eddy current probe used, is dictated by 10CFR50 Appendix B considerations. The industry and NRC have met numerous times in an attempt to reach a common understanding on this issue.

The NRC has been working on a generic communication on this subject since last summer. In the early part of this year the NRC staff started contacting licensees who they believed were most susceptible to tube cracking within the tubesheet (i.e., plants with mill annealed Alloy 600 tubing.) By letter dated February 28, 2003, NEI requested

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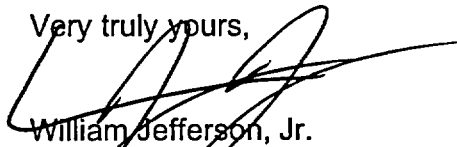
the applicable utilities to provide the requested information using the format in Enclosure 2 of the NEI letter.

On January 23, 2003 by letter L-2003-002, Florida Power & Light Company (FPL) submitted a contingency license amendment request to change the Technical Specification definition of steam generator tube inspection. The proposed amendment addresses the extent of planned hot leg tubesheet inspections, and their bases, for the SL2-14 inspection in April/May 2003. FPL's planned inspection scope for SL2-14, has been modified to exceed the scope described in the subject PLA as follows:

- The depth of the inspection with Plus Point probes inside the tubesheet will be a minimum of 7 inches, as referenced from the bottom of the tube expansion transition for all active hot leg tubes.
- Any detected degradation within or below this inspection zone will be plugged.

This revised scope is reflected in the attached information. Please contact George Madden at 772-467-7155 if there are any questions about this submittal.

Very truly yours,



William Jefferson, Jr.
Vice President
St. Lucie Plant

Attachment

WJ/GRM

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Industry Template
For Submittal of Information on
Steam Generator Inspection within the Tubesheet

REFERENCE: NEI Letter to Administrative Points of Contact, "Steam Generator Tubesheet Inspections," February 28, 2003, Enclosure 2

Florida Power & Light Company St. Lucie Unit 2 Tubesheet Inspection Practices
Plant Information Plant Name: Florida Power & Light, St. Lucie Unit 2 T _{hot} : 599°F Normal Steady State Full Power DP: 1435 psid (2250 psia - 815 psia) Model of Steam Generator: CE 3410 Tube Material: High Temperature Mill Annealed Alloy 600 (Inconel) Tube Diameter: 0.750" Tube Wall Thickness: 0.048" Nominal Expansion Process and Extent: Full depth explosive Tubesheet Thickness: 21.5" (plus 0.25" cladding)
Susceptible to degradation below expansion transition region: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, provide basis for non-susceptibility determination:
Historical Inspection Practices and Results Most recent outage: Cycle # : SL2-13, Nov. 2001 Inspection techniques used: Bobbin and Plus Point Probes Extent of inspections (be specific on landmarks used to determine inspection extent): Bobbin extent is full depth of all active tubes (hot leg and cold leg tubesheet) Plus Point extent is +3"/-5" minimum from the top of the hot leg tubesheet Results (degradation mechanisms identified and orientation): Note: Reference FPL PowerPoint presentation to NRR on 2-20-03 for further details No circumferential indications below the hot leg tube expansion transition 2 Axial IDSCC indications up to 2.1" below the hot leg top of tubesheet Bases for inspection technique and inspection extent: EPRI Qualified & Site Validated Techniques. CEOG Task 1154 WCAP-15720, Rev. 0 "NDE Inspection strategy for the Tubesheet Region in CE Designed Units." Technical Document reference (Generic or Plant Specific?): Generic CEOG Task 1154 WCAP-15720, Rev. 0, NDE Inspection strategy for the Tubesheet Region in CE Designed Units. If generic, provide statement that plant conditions and design are bounded by Technical Document inputs and assumptions: Generic CEOG Task 1154 WCAP-15720, Rev. 0 bounds St. Lucie Unit 2 operating conditions and inspection experience.

**Florida Power & Light Company
St. Lucie Unit 2
Tubesheet Inspection Practices**

Historical Inspection Practices and Results (Continued)

Previous outages:

Cycle # : SL2-12, April 2000

Inspection techniques used: Bobbin and Plus Point Probes

Extent of inspections (be specific on landmarks used to determine inspection extent):

Bobbin extent is full depth of all active tubes (hot leg and cold leg tubesheet)

Plus Point extent is +3"/-2" minimum from the top of the hot leg tubesheet

Results (degradation mechanisms identified and orientation):

Note: Reference FPL presentation materials to NRR on 2-20-03 for further details

No circumferential indications below the hot leg expansion transition

1 Axial IDSCC indication 0.17" below the hot leg top of tubesheet

Bases for inspection technique and inspection extent:

EPRI Qualified & Site Validated Techniques and accepted Industry practice regarding extent of rotating probe inspection within the tubesheet. Pending Generic CEQG Task 1154 Report.

Previous outages:

Cycle # : SL2-11, Nov. 1998

Inspection techniques used: Bobbin and Plus Point Probes

Extent of inspections (be specific on landmarks used to determine inspection extent):

Bobbin extent is full depth of all active tubes (hot leg and cold leg tubesheet)

Plus Point extent is +3"/-1" minimum from the top of the hot leg tubesheet

Results (degradation mechanisms identified and orientation):

No circumferential indications below the hot leg expansion transition

No axial indications below the hot leg top of tubesheet

Bases for inspection technique and inspection extent:

EPRI Qualified & Site Validated Techniques and accepted Industry practice regarding extent of rotating probe inspection within the tubesheet.

Previous outages:

Cycle # : SL2-10, April 1997

Inspection techniques used: Bobbin and Plus Point Probes

Extent of inspections (be specific on landmarks used to determine inspection extent):

Bobbin extent is full depth of all active tubes (hot leg and cold leg tubesheet)

Plus Point extent is +2"/-1" minimum from the top of the hot leg tubesheet

Results (degradation mechanisms identified and orientation):

No circumferential indications below the hot leg expansion transition

1 Axial indication 1.1" below the hot leg top of tubesheet

Bases for inspection technique and inspection extent:

EPRI Qualified Techniques and accepted Industry practice regarding extent of rotating probe inspection within the tubesheet.

**Florida Power & Light Company
St. Lucie Unit 2
Tubesheet Inspection Practices**

Planned Inspection for Next Outage

Anticipated date of outage

SL2-14, April 21, 2003

Techniques to be used: Bobbin and Plus Point Probes

Extent of inspections (be specific on landmarks used to determine inspection extent):

Bobbin extent is full depth of all active tubes (hot leg and cold leg tubesheet)

Plus Point extent is +3"/-7" minimum from the bottom of the expansion transition for all active hot leg tubes. Any detected degradation within or below the inspection zone will be plugged. This inspection plan exceeds the recommendations of WCAP-15975-P, Rev. 0, and the commitment made by FPL in our recent proposed license amendment (see Bases for inspection below)

Bases for inspection technique and inspection extent:

- WCAP-15975-P, Rev. 0, NDE Inspection Strategy for the Tubesheet Region in St. Lucie Unit 2.
- Florida Power & Light, St. Lucie Unit 2 Proposed License Amendment, "Contingency Change to the Definition of Steam Generator Tube Inspection," FPL letter L-2003-002, January 23, 2003.