

## NRR-PMDAPEm Resource

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**From:** Saba, Farideh  
**Sent:** Wednesday, January 14, 2015 12:54 PM  
**To:** ken.frehafer@fpl.com; Lewis, Atanya (Atanya.Lewis@fpl.com)  
**Cc:** eric.katzman@fpl.com; Dietrich, Allison; Rezai, Ali  
**Subject:** RAIs - St. Lucie Unit 2 Fourth Inspection Interval Relief Request 2  
**Attachments:** StLucie-2 2 RAI MF4538.docx

**Importance:** High

Ken and Atanya,

By letter dated August 1, 2014 (Accession Number ML14224A010), Florida Power and Light Company (FPL) requested relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (B&PV Code). This relief request (RR 2) pertains to the repair and/or replacement of the Alloy 600 small bore nozzles on the hot leg reactor coolant system (RCS) piping and the pressurizer, and the Alloy 600 heater sleeves on the pressurizer at the St. Lucie, Unit 2.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the information provided by FPL and has determined that additional information is needed to complete the review. On December 17, 2014, the NRC staff forwarded, via an electronic mail, a draft of the requests for additional information (RAIs) to the FPL staff. The attachment to this electronic mail contains the finalized RAIs. On January 12, 2015, your staff agreed to respond to the finalized RAIs no later than February 18, 2015.

Please don't hesitate to contact me or Alison Dietrich, if you have any additional questions or concerns.

Thanks,

Farideh

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**From:** Saba, Farideh

**Created By:** Farideh.Saba@nrc.gov

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**Options**

**Priority:** High  
**Return Notification:** No  
**Reply Requested:** Yes  
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**Expiration Date:**  
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REQUEST FOR ADDITIONAL INFORMATION  
FOURTH TEN-YEAR INTERVAL RELIEF REQUEST NO. 2  
FLORIDA POWER AND LIGHT COMPANY  
ST. LUCIE, UNIT 2  
DOCKET NUMBER 50-389

RAI-1

Clarify the reason for submitting this relief request:

- a. The affected components listed in Table 1 of Attachment to Relief Request 2(RR 2)were previously repaired by either the “half-nozzle” or the “sleeve” technique.The remnant of the flaw(s) in the primary water stress corrosion cracking (PWSSC) susceptible weld or base material was left in service. Therefore, to permit the affected components and remnant flaws to remain in service, a relief is requiredfor the fourth 10-year inservice inspection (ISI) interval.
- b. The othersmall diameter nozzles or heater sleeves in the hot leg piping or the pressurizer may need repair in the fourth 10-year ISI interval; therefore,a contingency relief request is needed.
- c. Both a. and b.
- d. Other

RAI-2

The NRC staff notes that in the “sleeve” repairs performed in 1989, the licensee used Alloy 82/182 weld pad and fillet weld instead of Alloy 52/152 to attach the Alloy 690 small diameter replacement nozzle to the outside surface of the hot leg piping or the pressurizer.

- (a) Discuss whether there exists any plant-specific or industry operating experience regarding any active degradation of the new Alloy 82/182 weld pad and fillet weld in this particular type of the “sleeve” repair that may result in a breach of the pressure boundary.
- (b) Discuss the nondestructive examinations that have been performed since repair in 1989 and the results of those examinations.

RAI-3

The NRC staff notes that in paragraph A, Section 5 of Attachment to RR 2, the licensee stated, in part, that,

An assessment of operating data for PSL-2 from 1/1/1995 through 2/28/2014 shows a time split of 90.5 percent at operating conditions, 2.0 percent at intermediate temperature startup conditions, and 7.5 percent of plant time at low temperature outage conditions.

In another paragraph, the licensee stated, in part, that,

There is no need to track plant operating conditions during the remainder of the current inspection interval, as there is sufficient wall thickness in the more limiting hot leg piping to maintain the limiting allowable diameter until this reassessment is made.

The NRC staff also notes that in the January 4, 2006, letter (Accession Number ML060090296), on pages 5 and 6 of Attachment to relief request 5, the licensee stated in one paragraph, in part,

FPL Response: The overall general corrosion rate was determined using the calculation methods in the TR and St. Lucie Unit 2 generation data from 1/1/95 to 12/31/04. The percentage of total plant time spent at each of the temperature conditions follows:

High temperature conditions	93.5%
Intermediate temperature conditions	1.5%
Low temperature conditions	5%”

In another paragraph in the January 4, 2006, letter, the licensee stated, in part,

The plant operating conditions will be reassessed for the resubmittal of this relief request at the start of the next inspection interval, which begins in August 2013. There is no need to track plant operating conditions during the remainder of the current inspection interval as there is sufficient wall thickness in the more limiting hot leg piping to maintain the limiting allowable diameter until this reassessment is made.

(a) If the licensee had not tracked the plant operating conditions from 12/31/04 to 2/28/2014, clarify how the percentages for different modes of operation from 1/1/1995 through 2/28/2014 were obtained.

(b) It is the staff's belief that continued tracking of operating conditions will continue to be necessary for future relief requests on this subject. Alternatively, the staff believes that the licensee may have intended to state that there is no need to evaluate the effects of operating condition on corrosion rate for the remainder of this inspection interval because even if the plant remained in a shutdown condition, where corrosion is worst, for the remainder of the interval, the amount of corrosion would be within analyzed limits. Please comment on the staff's interpretation of the above statement and whether operating conditions for the plant will continue to be tracked.

#### RAI-4

The NRC staff notes that in Section B of Attachment to RR 2, the licensee did not discuss whether the plant-specific Charpy upper shelf energy (USE) data for the hot leg piping satisfies a USE value of at least 70 foot-pounds (ft-lb) to bound the USE value used in the analysis. Provide a discussion to demonstrate that the plant-specific hot leg piping will maintain a Charpy USE data of at least 70 ft-lb. If not, provide justification.