



March 6, 2000

L-2000-59
10 CFR 50.4
10 CFR 50.55a

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

Re: St. Lucie Unit 2
Docket No. 50-389
Inservice Inspection Plan
Second Ten-Year Interval
Relief Request 27

Pursuant to 10 CFR 50.55a(a)(3), Florida Power & Light Company (FPL) requests approval of Relief Request (R/R) 27, *Reactor Vessel Nuts*. FPL has determined pursuant to 10 CFR 50.55a(a)(3)(i) that the proposed alternatives would provide an acceptable level of quality and safety.

The relief request proposes an alternative to the Code required surface examinations of the reactor pressure vessel (RPV) closure head nuts as specified in Table IWB-2500-1 of the 1989 edition of ASME Section XI. In lieu of the Code requirements, FPL will perform a visual VT-1 on the RPV closure head nuts. The IWB-3517 acceptance criteria of the 1989 edition of Section XI will be used for evaluation of indications. This request for relief is identical to St. Lucie Unit 1, Third Ten-Year Interval, R/R 9 that was approved by NRC safety evaluation (TAC NO. MA0965) dated June 18, 1999.

Approval is requested by February 28, 2001 to support the fall 2001 St. Lucie Unit 2 refueling outage (SL2-13). Please contact us if there are any questions about this submittal.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Rajiv S. Kundalkar', is written over a horizontal line.

Rajiv S. Kundalkar
Vice President
St. Lucie Plant

RSK/GRM

Attachment

cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, St. Lucie Plant

A047

**St. Lucie Unit 2
SECOND INSPECTION INTERVAL
RELIEF REQUEST NUMBER 27**

A. COMPONENT IDENTIFICATION:

Class: 1

Reactor Pressure Vessel Nuts

B. EXAMINATION REQUIREMENT:

Rules for Inservice Inspection of Nuclear Power Plant Components, Section XI, 1989 Edition

Exam Cat.	Item no.	Examination Requirements
B-G-1	B6.10	Essentially 100% surface examination of entire surface of closure head nuts

C. RELIEF REQUESTED:

Pursuant to 10 CFR 50.55a (a)(3)(i), FPL requests an alternative to the Code required surface examinations of the reactor pressure vessel closure head nuts as specified in Table IWB-2500-1 of the 1989 Edition of ASME Section XI.

D. BASIS FOR RELIEF:

The reactor pressure vessel closure head nut configuration is such that only the outside surface is readily accessible for surface examination. The threaded area on the inside of the nuts is very difficult to adequately clean for both liquid penetrant and magnetic particle examination. The cleaning and preparation of the nuts for surface preparation could result in additional damage. Pooling of penetrant and magnetic particle material at the bottom of the nut (which must be placed on its side for examination) could mean additional cleaning time for proper examination of this area. This additional examination may further damage the nuts due to handling.

The 1989 Edition of Section XI does not provide acceptance criteria for Code Category B-G-1 surface flaws found during the examinations. FPL has used engineering evaluations on every indication noted in order to determine whether a nut is acceptable for continued service. This results in more costs and handling (with the possibility of more damage) of the nuts as the engineers determine whether an indication is acceptable.

Beginning in the 1989 Addenda of ASME Section XI, the examination requirement for RPV closure head nuts was changed from surface to visual VT-1. In addition, the acceptance standards of IWB-3517 were adopted, which is the same standard as for Code Category B-G-2 bolting. A review of later Codes and Addenda shows this examination technique and acceptance standard has not changed.

Conditions that require corrective measures prior to placing the RPV Closure head nuts back in service include corrosion, damaged threads, or deformation. Surface examinations are qualified for the detection of linear indications, and surface examination acceptance criteria mention only rejectable linear flaw lengths. The 1989 Code does not provide any acceptance criteria for linear indications found during surface examination of RPV closure head nuts, because the acceptance criteria were still being developed at the time the Code edition was published.

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By using the IWB-3517 acceptance criteria, FPL would have definite rules that could be followed for evaluation of indications found during examinations. The indications would be compared against published standards.

Footnote 3 of IWB-3517 clearly states that only relevant conditions must be evaluated. This would preclude scratches, fabrication marks, roughness, etc. from being recorded (except as a general condition). These types of indications are often seen during surface examination, and may be considered non-relevant, which requires the areas in question to be cleaned and re-examined.

VT-1 visual examination acceptance criteria include requirements for evaluation of crack-like indications and other relevant conditions requiring corrective action, such as deformed or sheared threads, localized corrosion, deformation of part, and other degradation mechanisms. Therefore, it can be concluded that the VT-1 visual examination provides a more comprehensive assessment of the condition of the closure head nut than a surface examination. By performing a visual VT-1 examination of the RPV closure head nuts, an acceptable level of quality and safety is provided.

This request for relief is identical to St. Lucie Unit 1 Third Ten-Year Interval Relief Request 9 that was approved by NRC safety evaluation dated June 18, 1999.

E. ALTERNATIVE EXAMINATIONS:

FPL will perform a visual VT-1 on the RPV Closure Head Nuts. The IWB-3517 acceptance criteria of the 1989 Edition of Section XI will be used for evaluation of indications.

F. IMPLEMENTATION SCHEDULE:

Second Inservice Inspection Interval

G. ATTACHMENTS TO THE RELIEF:

None