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AUTH. NAME AUTHOR AFFILIATION
WOODY, C. O. Florida Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION
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SUBJECT: Informs that util intends to develop new fluence vs RTNDT shift curve (Tech Spec Figure B3/4 4-1) using Reg Guide 1.99, Rev 2 methodology w/Unit 2 reactor vessel matl properties.

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L-87-150

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

Gentlemen:

Re: St. Lucie Unit 2
Docket No. 50-389
Surveillance Capsule Withdrawal Sequence

By letter L-86-486, dated December 2, 1986, Florida Power & Light Company (FPL) provided FPL's justification that the current surveillance capsule withdrawal sequence of the St. Lucie Unit 2 Technical Specification Table 4.4-5, "Reactor Vessel Material Surveillance Program - Withdrawal Schedule", is acceptable based upon projected $RT_{NDT}$ shift over plant life. In a conference call with the NRC Staff on January 30, 1987, FPL clarified its plans with regard to the St. Lucie Unit 2 reactor pressure vessel material surveillance program. This clarification is summarized below.

Figure B3/4 4-1 of the St. Lucie Unit 2 Technical Specifications, and the associated Updated Final Safety Analysis Report (FSAR) Figure 5.3-5, were developed using typical reactor pressure vessel materials data available in 1977. The result was a bounding curve which was developed from the limited data available. In the years since that time, the effect of high energy neutron radiation on reactor pressure vessel materials has been studied extensively using data from operating reactor surveillance capsules and data obtained from NRC, Nuclear Steam Supply System (NSSS) vendors and industry research. This data has been applied to the development of the NRC Regulatory Guide 1.99, Revision 2 (draft) which is generally agreed to be the most representative, yet conservative, calculation of $RT_{NDT}$ shift versus fluence currently available.



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The established material properties of the critical material from the St. Lucie Unit 2 reactor pressure vessel yields an end of life (EOL) $RT_{NDT}$ shift of less than 200°F using Regulatory Guide 1.99 criteria. The NRC Safety Evaluation "Projected Values of Material Properties for Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events", forwarded by letter dated February 10, 1987 (E. G. Tourigny to C. O. Woody) verifies FPL's EOL $RT_{PTS}$ of 179°F at $4.79 \times 10^{17}$ n/cm$^2$ (E> 1 MeV). This Safety Evaluation supports FPL's surveillance capsule removal schedule for St. Lucie Unit 2.

FPL intends to develop a new fluence vs. $RT_{NDT}$ shift curve (Technical Specification Figure B3/4 4-1) for St. Lucie Unit 2 using Regulatory Guide 1.99, Rev. 2 (Draft) methodology with St. Lucie Unit 2 reactor vessel material properties. EOL fluence projections will be used to determine the long-term adequacy of the current surveillance capsule removal schedule. If the number of capsules to be withdrawn per ASTM E 185-82 is different from the number of capsules currently scheduled for withdrawal per Technical Specification Table 4.4-5, or if FPL determines that the withdrawal sequence should be revised to give better indication of material properties, a Technical Specification amendment will be proposed. A determination of this need will be made by September 1, 1987. In any case, Bases Figure B 3/4 4-1 will be revised at some time following the update of the FSAR.

If additional information is required on this topic, please contact us.

Very truly yours,

C. O. Woody
Group Vice President
Nuclear Energy

COW/EJW/gp

cc: Dr. J. Nelson Grace, Region II, USNRC
USNRC Resident Inspector, St. Lucie Plant

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