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SUBJECT: Submits results of quantitive statistical analysis to compare 1984 & 1985 eddy current data. No statistically measurable steam generator tube degradation found between 1984 & 1985 refueling outages.

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FLORIDA POWER & LIGHT COMPANY

JUN 3 0 1986

L-86-268

Office of Nuclear Reactor Regulation
Attention: Mr. Ashok C. Thadani, Director
PWR Project Directorate #8
Division of PWR Licensing - B
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Thadani:

Re: St. Lucie Unit 1
Docket No. 50-335
Steam Generators

Based on short-term commitments made in letter L-86-259 dated June 17, 1986, Florida Power & Light Company (FPL) has performed the following evaluations:

STATISTICAL ANALYSIS

A quantitive statistical analysis . has been performed to compare 1984 and 1985 eddy current data for a sample greater than 100 tubes containing Eddy Current indications. Based on the sample of data analyzed, there was no statistically measurable steam generator tube degradation between the 1984 and 1985 refueling outages. The methodology used for the statistical analysis is outlined below:

> The analysis treated the two values of percent degradation for a single tube location as a data pair. The difference between the 1985 and 1984 values was the variable examined.
>
> The statistical hypothesis made was that there has been no change in the measured tube degradation from 1984 to 1985. Testing this hypothesis requires two calculations:
>
> a) Examine the data, empirically determine a probability density function for the data, and test to see how well the data actually fits the empirical distribution (i.e. goodness of fit test).
>
> b) Based on the probability density function determined in a), test the data against the hypothesis that there has been no measured degradation of the tube walls from 1984 to 1985.
>
> For calculation a) above, a "goodness of fit" test was performed using the Kolmogorov - Smirnov one-sample test. The results establish that the difference in tube wall degradation is a normally distributed variable. The "t" test and paired sample test calculations were performed for calculation b) above. The results show that the hypothesis that there has been no measured degradation of the tube walls from 1984 to 1985 is correct.

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EDDY CURRENT DATA COMPARISON

1985 field data obtained from the "8x1 array coil" examination of five tubes has been compared with 1984 "bobbin coil" field data on the same tubes. The field data has also been compared with 1985 metallurgical laboratory data on two tubes (from the same 5-tube sample) that were removed during the 1984 refueling outage.

The array coil demonstrated an inconsistent detection level when compared to the bobbin coil. The lack of correlation can be attributed to the fact that the 8 x 1 pancake array coil probe was developed to identify circumferential indications, and the analysis of tube samples pulled during the 1984 Unit 1 refueling outage shows that the indications are axial in nature. Also, the lack of correlation is partially due to the characteristic that pancake coils are not a precise method, when operating in the presence of varying conditions, for characterizing depth.

The actual data are given in Attachment 1, which shows:

(1) the bobbin coil performed well with respect to the detection and sizing of flows,

(2) the bobbin coil showed flaws that the 8 x 1 coil did not show, and

(3) there were,no advantages demonstrated by the 8 x 1 coil field data over the bobbin coil field data.

Based on the above, FPL considers the near term commitments discussed in our letter L-86-259 of June 17, 1986 to be completed. Pending development of the steam generator inspection plan and continuing the administrative primary to secondary leakage limit of 0.3 gpm during cycle 7, all steam generator commitments will be considered complete. At that time we expect to remove the administrative leakage limit for cycle 8 and subsequent operations.

If you have any questions about this information, please contact us.

Very truly yours,

COWoody

C. O. Woody
Group Vice President
Nuclear Energy

COW/MAS:de

Attachment

cc: Dr. J. Nelson Grace, USNRC, Region II
Harold F. Reis, Esquire, Newman & Holtzinger
PNS-LI-86-204

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