



ARKANSAS POWER & LIGHT COMPANY

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July 15, 1985

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Director of Nuclear Reactor Regulation  
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U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Director of Nuclear Reactor Regulation  
ATTN: Mr. James R. Miller, Chief  
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Washington, DC 20555

SUBJECT: Arkansas Nuclear One - Units 1 & 2  
Docket Nos. 50-313 and 50-368  
License Nos. DPR-51 and NPF-6  
Post Accident Sampling System, NUREG Ø737  
Item II.B.3

Gentlemen:

In a conference call on May 7, 1985 between Ms. Margaret Snow of AP&L and Mr. Jim Wing of the NRC, AP&L was requested to provide information pertaining to the accuracy of the manual boron and chloride sampling methods to be used for post accident sampling at Arkansas Nuclear One.

The post accident boron sampling and analysis will be performed by AP&L at Arkansas Nuclear One. The boron analysis method to be used in a post accident situation is a manual titration. This post accident sampling method uses the same titration method used for determination of boron concentrations during normal plant operation. The differences between the two methods involve sample size, potential range of boron concentrations, and health physics considerations.

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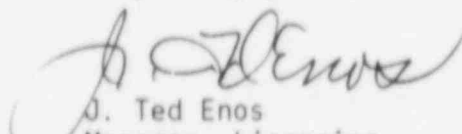
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The boron concentrations determined using the normal plant sampling and titration method have an accuracy of  $\sim \pm 1\%$ . When the differences in the size of sample and range of possible boron concentrations are considered, the post accident determination of boron is expected to be slightly less accurate, but yet meet the NRC guidelines of  $\pm 5\%$  above 1000 ppm boron and  $\pm 50$  ppm below 1000 ppm. To confirm this expected accuracy the post accident method was tested using the standards utilized in calibration of the normal titration method. When the results of the post accident method were compared to the results obtained using the normal sampling method, accuracies ranging from  $\pm 0.5\%$  to  $\pm 3\%$  were achieved using the post accident sampling method. These results confirmed that the manual post accident sampling method for boron met the NRC guidelines. To further confirm this accuracy, two actual reactor coolant samples were taken and analyzed using the post accident sampling method. These results were compared to results obtained using the normal boron sampling techniques. The first sample using the manual post accident sampling and analysis method resulted in a concentration of 156 ppm boron. This result compared favorably with a concentration of 126 ppm boron obtained using the normal sampling and analysis method. At a later date a second sample was analyzed resulting in a concentration of 1220 ppm boron versus a concentration of 1268 ppm boron using the normal sampling method. Therefore, based upon the results of these tests as well as the past accuracy of this analysis technique as used during normal operation, we conclude that the manual post accident boron sampling method meets the NRC guidelines of  $\pm 5\%$  above 1000 ppm boron and  $\pm 50$  ppm below 1000 ppm boron.

The chloride sampling for a post accident situation would be performed at Oak Ridge Laboratories. Therefore, the accuracy of the chloride sampling method must be obtained from Oak Ridge. We have requested this information from Oak Ridge and will forward this information to you as soon as it is available.

Very truly yours,



J. Ted Enos  
Manager, Licensing

JTE/MCS/sg