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QA

January 19, 1990

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

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
NRC Inspection Report 50-382/89-39

Gentlemen:

The purpose of this letter is to clarify an apparent misunderstanding by the NRC regarding an LP&L letter for open item 382/8632-08, reference NRC Inspection Report 50-382/89-39.

The issue concerns the use of open terminal blocks installed at the Conax penetrations for the Core Exit Thermocouples (CETs). LP&L prepared and issued LP&L letter W3B87-0222 in response to IEN 84-47. IEN 84-47 discussed a Sandia National Laboratories (SNL) LOCA/MSLB simulation test which showed that a moisture film will form on the surface of terminal blocks reducing insulation resistance between terminal points and ground, and thus allowing some leakage current to flow to ground. LP&L letter W3B87-0222 in assessing the applicability of the SNL test results to Waterford 3 made some statements about the conditions and configuration of the SNL test (NUREG CR-3691). Specifically, LP&L letter W3B87-0222 stated:

"The NUREG CR-3691 analysis assumes the reference junction inside containment which is not the case for Waterford 3. It also assumed a cable routing configuration that is less conservative than the Waterford 3 design. The resulting temperature readouts show a range of error of $\pm 300^{\circ}\text{F}$ using the worst case arrangement closest to Waterford 3 design. The actual Waterford 3 error is expected to be much less than this."

Apparently, the NRC inspector misunderstood the statement of the $\pm 300^{\circ}\text{F}$ error to mean this was the magnitude of the error at Waterford 3 when in fact the statement was referring to the magnitude of the error for the SNL test configuration. The interpretation by the NRC is documented in inspection report 50-382/89-39 section 3.a which states:

"During this inspection, the licensee provided a response to IEN 84-47 stating that the maximum exit thermocouple temperature error would be less than $\pm 300^{\circ}\text{F}$ and that this value was sufficient for the application."

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LP&L letter W3B87-0222 in fact stated that the actual Waterford 3 error is expected to be much less than $\pm 300^{\circ}\text{F}$. LP&L also notes that nowhere in LP&L letter W3B87-0222 is any statement made that the $\pm 300^{\circ}\text{F}$ error is sufficient for Waterford 3 application as documented in section 3.a of inspection report 50-382/89-39.

Subsequent to LP&L letter W3B87-0222, LP&L issued LP&L letter W3P87-0543. The letter discussed the result of a Waterford 3 plant specific analysis utilizing the SNL test and analysis.

The assumptions used by SNL in their analysis of thermocouple circuits were based on worst case design features employed at other nuclear power plants. The conservative design used at Waterford 3 mitigates every concern raised by SNL. The use of larger wire sizes, the location of the cold reference junction outside containment, the absence of dissimilar metal connections, the neutral pH of the containment spray, and the significantly lower post accident containment temperature combine to eliminate any concern about the accuracy of the information generated by the core exit thermocouples. The maximum CET temperature errors were determined to be 6% at 550°F with a spurious EMF of 0.5 volts, 3% at 1000°F with a spurious EMF of 0.5 volts, and in all cases 0% if no spurious EMFs are generated. LP&L thus concluded in LP&L letter W3P87-0543 the CETs will perform their design function in postulated post-accident environments. The NRC inspector was apprised of and provided a copy of the Waterford 3 plant specific analysis and LP&L letter W3P87-0543.

LP&L finally notes that inspection report 50-382/89-39 section 3.a states, "The licensee acknowledged the inspectors' concern and will reanalyze the effect of this error (meaning $\pm 300^{\circ}\text{F}$) on system operation." Although a member of our staff acknowledged that a $\pm 300^{\circ}\text{F}$ error would be significant, the nature of the follow-up action conveyed to the NRC inspector was to review the matter with cognizant LP&L personnel. However, there was no intent to convey that LP&L would perform additional analysis. An analysis of the $\pm 300^{\circ}\text{F}$ error would not be appropriate based on the facts concerning this issue.

LP&L respectfully requests that based on this letter and other information provided to the inspector open item 382/8632-08 should be closed by the NRC.

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Please contact me or Robert J. Murillo should there be any questions concerning this matter

R.F. Burst

RFB/RJM/ddd

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