August 15, 2005

MEMORANDUM TO: Julie A. Olivier, Acting Chief
                            Fuel Manufacturing Section
                            Fuel Cycle Facilities Branch
                            Division of Fuel Cycle Safety
                              and Safeguards
                            Office of Nuclear Material Safety
                              and Safeguards

                            Melanie Galloway, Chief
                            Technical Support Group
                            Division of Fuel Cycle Safety
                              and Safeguards
                            Office of Nuclear Material Safety
                              and Safeguards

FROM: Mary Adams, Senior Project Manager   **/RA/**
                            Fuel Manufacturing Section
                            Fuel Cycle Facilities Branch
                            Division of Fuel Cycle Safety
                              and Safeguards
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                            Christopher Tripp, Senior Nuclear Safety Engineer **/RA/**
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SUBJECT: RECORD OF TELEPHONE CONFERENCE WITH WESTINGHOUSE
                     ELECTRIC COMPANY ABOUT MARGIN OF SUBCRITICALITY, JULY 25, 2005,
                     TAC NO. L31869

On July 25, 2005, Chris Tripp and Mary Adams participated in a conference call with Nancy
Parr and Ralph Winiarski of Westinghouse Electric Company (WEC), Columbia Fuel
Fabrication Facility (CFFF), to discuss NRC's review of WEC's submittals related to the margin
of subcriticality. This was a followup to the July 21, 2005, conference call on the same subject.
At the July 21, 2005, call, Dr. Tripp presented his questions about the logic that gets from WEC
draft procedure RA-312 to the conclusion that a k-effective of 0.98 is adequate to assure safety.

Mr. Winiarski said that the approach was one that he had presented at an American Nuclear Society meeting a couple of years ago. The logic is that if the parameter change required to move from normal to USL is greater than the parameter change required to go from USL to critical value, then the rate of change of the parameter is so unlikely to happen that there is high confidence that k-effective of 0.98 is acceptable. Dr. Tripp stated that he understands the examples' demonstration of sensitivity of k-effective to the parameter, but questioned how that logic supports a USL of 0.98.   Dr. Tripp had plotted mass vs. k-effective curves of the examples in procedure RA-312, using the 3 data points in each example, and questioned how the procedure logic would apply if the curves were a different shape.   He also questioned how the approach applies if there is more than one control on a parameter, or if more than one parameter is controlled. [NOTE: These are two separate situations.] Dr. Tripp emphasized that this procedure needs to be flexible and general enough to apply to other parameters besides mass and to other curve shapes.

Mr. Winiarski acknowledged that the 0.02 margin of subcriticality is arbitrary, as is a margin of subcriticality equal to 0.05. He proposed that WEC demonstrate, during the site visit, one WEC process system that is in operation and do tabletop exercises of some other process systems. Dr. Tripp proposed that WEC demonstrate the procedure as it would be applied to multiple systems of different kinds, (e.g., solutions, powder, pellets, and using different controlled parameters). The demonstration examples could be hypothetical but should be realistic and typical of what WEC normally models.

Mr. Winiarski asked if it was possible to make this margin of subcriticality argument based on validation of the codes. Dr. Tripp said that other licensees have done so, but their models were very conservative and they had larger margins of subcriticality.

WEC agreed to give these issues more thought and to call Ms. Adams or Dr. Tripp later this week. They agreed that the week of August 15 is good for a site visit by Dr. Tripp and Ms. Galloway.

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Docket 70-1151

	ML052220670		*see previous concurrence	
OFC	FCFB	FCFB	TSG	
NAME	MAdams*	VCheney	CTripp	
DATE	08/11/05/05	08/15/05	08/15/05	

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