RS 917-4

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PROPOSED RULE PR misc notice Reg Guide

October 31, 1980

Mr. Edward C. Wenzinger, Chief
Reactor Systems Standards Branch
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Sir:

Enclosed are our comments on Draft 3 of Revision 2 to Regulatory Guide 1.97. "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," dated October 15, 1980.

We appreciate having been given the opportunity to comment.

Yours very truly,

J. S. Loomis, Head
Nuclear Safeguards &
Licensing Division

JSL:LAL:dmw
Fnclosure
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Acknowledged by card 11/12/80

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Sargent & Lundy
Comments on Regulatory Guide 1.97
Draft 3 of Revision 2 "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident" and Value Impact Statement dated October 8, 1980

Specific:

1. Page 11, Section C.1.3.2(1)

Guidance should be provided for qualification of instruments whose ranges are required to extend beyond requirements of the most severe design basis accident. The guidance in Section 6.3.6 of ANS 4.5 (Draft 6A, March 1980) is inadequate as it cannot be sensibly applied to the upper limits specified for many of the radiation monitoring instruments.

Section 6.3.6 of ANS 4.5 requires that the monitored variable be assumed to approach the range upper limit at the rate obtained by extrapolating the most severe initial ramp associated with design basis accidents. Application to BWR post-LOCA SGTS effluent leads to absurd requirements as shown below:

a) If the calculated initial ramp of SGTS effluent noble gas radioactivity is extrapolated linearly (0.2 μCi/cc per 10 min.), the required upper limit of 10^5 μCi/cc is not reached for 10 years.

b) If the calculated initial ramp is extrapolated logarithmically (6 decades per 10 minutes), the required upper limit is reached in 20 minutes. However, approximately 8 times the core inventory of noble gases would be exhausted in the 24-hour period before the calculated activity begins to decay. (Basis: Core inventory = 1.2×10^9 Ci: SGTS flow rate = 2300 cfm; noble gas radioactivity in effluent = 10^5 μCi/cc).

Similar problems would result for other secondary containment radiation or radioactivity monitors and for the environs radiation monitors.

We suggest radiation qualification for a design-basis accident plus a specific time (e.g., 30 minutes) at the range maximum.

2. Page 18, Section D

The implementation guidance for plants currently operating or scheduled to be licensed is not clear. The requirements of this draft of Regulatory Guide 1.97 are not fully consistent with those of the letter "Preliminary Clarification of TMI Action Plan Requirements" issued by D. G. Eisenhut, September 5, 1980. For example, post-accident sample analysis requirements differ. Will equipment purchased to satisfy NUREG-0578 be deemed to satisfy Regulatory Guide 1.97? Or will NUREG-0578 equipment ultimately have to be modified or scrapped if it doesn't meet Regulatory Guide 1.97 criteria?

3. Page 20, Table 1, and Page 36, Table 2 "RCS Soluble Boron Concentration"

Clarify whether continuous measurement of boron concentration is required or whether the requirement can be met by periodic collection and analysis of a grab sample.

4. Page 28, Table 1, "Reactor Building or Secondary Containment Area Radiation"

The variable is "radiation," but the units (μCi/cc) are those of radioactivity. If the units given are correct, do they pertain to noble gases or gross airborne activity? Will this requirement be satisfied by an SGTS effluent monitor covering this range for noble gases?

5. Page 28, Table 1, and Page 46, Table 2, "Radiation Exposure Rate (...where access is required...")

The criteria for selecting locations need to be stated. Which locations require stationary monitors and which fall into the category of Footnote 15 to Table 1?

6. Page 32, Table 1, and Page 50, Table 2,"Accident Sampling Capability"

These requirements differ from those in the September 5, 1980 clarification letter by D. G. Eisenhut. Clarify.

7. Page 54 and 55, Section 1.3.3

Two important considerations appear to have been omitted from the cost estimates:

a) Many of the Type E instruments have ranges extending well beyond the consequences of design basis accidents. (For example, the SGTS effluent noble gas monitor exceeds the design basis requirements by a factor of 5000.) Therefore, the cost of these instruments should be included in the

"delta" added by Revision 2.

b) To meet NUREG-0578 requirements, many utilities have already purchased instrumentation which will not meet requirements of Draft 3 of Revision 2 of Regulatory Guide 1.97. If utilities will be required to upgrade NUREG-0578 equipment purchased prior to issuance of Revision 2 of 1.97, then the cost of this upgrading should be included. This cost may be substantial as some vendors are unable to provide IEEE-323 environmental qualification data on equipment sold to meet NUREG-0578 requirements.