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July 24, 2002

Rules and Directives Branch
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, DC 20555

COMMENTS ON DRAFT REGULATORY GUIDES DG-1114 AND DG-1115

Dear Sirs:

Virginia Electric and Power Company (Dominion) and Dominion Nuclear Connecticut appreciate the opportunity to comment on the subject draft regulatory guides. We have been represented and involved with the NRC/NEI Task Force on Control Room Habitability since 1999, including the development of the industry guidance in NEI 99-03 (Control Room Habitability Assessment Guidance). It is with this perspective that we provide our comments and concur with the NEI comments on DG-1114 and DG-1115.

The joint NRC/NEI Task Force was formed to address control room habitability issues. The intent was to develop an NEI guidance document and obtain NRC endorsement. NEI 99-03 is the result of significant interaction and effort on the part of the NRC, NEI and industry. However, although the draft guides reference much of NEI 99-03, the NRC staff has not fully endorsed NEI 99-03 due to significant professional differing opinions with industry in several technical areas. Several key points from our perspective are provided as follows.

DG-1114

- Section C.1.2 in conjunction with Section D implies a required voluntary commitment to the Reg Guide for future licensing actions involving control room habitability issues. Given the positions and requirements in DG-1114 and DG-1115, Dominion does not foresee a voluntary commitment. Furthermore, we consider that the proposed application of the draft guide constitutes a de facto backfit even in the context narrowly defined in Section C.1.2. To avoid this professional disagreement of opinions, we strongly recommend that a risk-informed approach be applied to the issues of control room habitability. We believe that a risk-informed assessment would conclude that the current level of operator protection is adequate and the

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proposed Technical Specification approach is not commensurate with the negligible risk benefit. The attachment to this letter further discusses a possible risk-informed approach.

- Section C.2.7.1 and Appendix A propose a change to the Technical Specifications relating to control room integrity and unfiltered inleakage. Dominion believes that the proposed change is not warranted. The control room design, existing TS surveillance requirements (periodic testing of fans, filters, and pressure boundary ΔP to adjacent spaces) and routine maintenance on other pressure boundary components provide adequate protection of the operators. Similarly, following a presentation by industry and the NRC staff in November 2000, the ACRS noted that a Technical Specification commitment for inleakage would not be necessary, provided that licensees committed to a CR habitability program with appropriate regulatory control (Ref. 1). Dominion supports development of such a program, which would include inspection, sealing, and periodic maintenance of components. A program approach to control room habitability issues also has the benefit of plant-specific flexibility, which is generically needed to address the significant variations in control room design and operation throughout the industry.

DG-1115

- Section C.1.1 would require that an integrated tracer test be performed as a baseline test of the control room envelope in accordance with ASTM E741. This method may be appropriate for some plants. However, given the significant differences in control room design within the industry, the effectiveness and accuracy of this test will not be the same for each control room. Each licensee should have the option of using an alternate method for a baseline test. The ACRS agreed that the component test procedure outlined in NEI 99-03 should be acceptable for baseline testing, provided comparisons with tracer gas testing at several control rooms correlated well (Ref 1). This has been accomplished. Testing in 2001 at Commanche Peak and Palo Verde has confirmed the adequacy of the Component Test process (Ref 2). Based on this successful demonstration of the NEI assessment and test process, the component test (or other alternate methods confirmed as adequate) should be acceptable as a baseline test without the conditions listed in Sections C.1.2 and C.2.5.
- Based on the stated position that the draft guidance is not a backfit, the control room envelope-to-adjacent area ΔP value used to demonstrate positive pressure should remain consistent with the existing, plant-specific licensing basis.

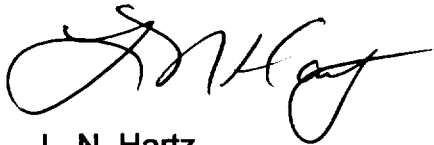
- Section C.3 would require subsequent testing at 24-month intervals. This appears to be a new requirement on licensees, which merits a cost/benefit analysis or should be considered as a potential backfit. Alternatively, the need for, and frequency of, a retest or assessment could and should be left to the licensee to determine.

If you have any questions regarding our comments, please contact

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Mr. Don Olson don_olson@dom.com or (804) 273-2830

Respectfully,



L. N. Hartz
Vice President – Nuclear Engineering

Attachment

References:

- 1) Letter dated December 14, 2000, from D. A. Powers, ACRS, to W. D. Travers, Executive Director for Operations, "NEI Draft Report NEI 99-03 – Control Room Habitability Assessment Guidance"
- 2) Letter dated June 7, 2002, from D. R. Woodlan, STARS Integrated Regulatory Affairs Group Chairman, to USNRC, "Demonstration of the Component Test Method for Determining Control Room Inleakage"

Attachment

Risk-Informed Control Room Habitability

Draft NRC Regulatory Guide 1114 "Control Room Habitability at Nuclear Power Reactors" and Draft NRC Regulatory Guide 1113 "Methods and Assumptions for Evaluating Radiological Consequences of Design Basis Accidents at Light-Water Nuclear Power Reactors" reflect traditional, deterministic engineering approaches for determining the control room habitability design features, including in-leakage limits. Many licensees have indicated that the burden associated with implementing the guidance in these draft regulatory guides could be significant based on actual experience. Most licensees recognize that: (1) the actual risk to the operators from hazards outside the control room (e.g., toxic gas, radiological releases) are very low based on the large conservatisms in the traditional, deterministic approaches and (2) the burden associated with meeting the proposed draft regulatory guidance is not commensurate with the benefit to the operators or public.

NRC Regulatory Guide 1.78 "Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release" and Standard Review Plan Section 6.4 have historically permitted the use of risk analysis to define the set of offsite chemical hazards which should be considered in the design basis of control room habitability systems. Plants susceptible to toxic gas releases from nearby onsite and offsite chemical storage and transportation facilities use the guidance in Regulatory Guide 1.78 to define the scope of chemicals which must be monitored by their control room isolation systems. Regulatory Guide 1.78 states that:

"Licensees may provide risk information to demonstrate that the radiological risk to the public from such toxic chemical releases is small, consistent with the Commission's Safety Goal Policy Statement. Release of toxic chemicals that have the potential to result in a significant concentration in the control room need not be considered for further detailed evaluation if the releases are of low frequencies (10^{-6} per year or less) because the resultant low levels of radiological risk are considered acceptable."

Furthermore, Revision 1 to Regulatory Guide 1.78 states that:

"Consistent with risk-informed regulatory decision-making, this revision encourages licensees to make greater use of risk insights in submitting applications for plant-specific changes to the licensing basis, using the guidance in Regulatory Guide 1.174."

The application of the risk-informed approach and associated acceptance criteria in Regulatory Guide 1.78 to Draft NRC Regulatory Guides 1113 and 1114 would be consistent with the NRC Commission's policy on risk-informed regulatory decision-making. Similar to the guidance in Regulatory Guide 1.78, Draft NRC Regulatory

Guides 1113 and 1114 could be modified to include risk-informed language to specify that "the total frequency of all radiological release events (i.e., scenarios) capable of causing loss of control habitability (i.e., beyond the capability of the control room habitability system to protect the operators) must be of low frequency (10^{-6} per year or less)." This would exclude most of the existing, worst-case design basis radiological release scenarios that result in unrealistically low in-leakage limits.

The calculation of the radiological release event frequencies would be very similar to that used by licensees for toxic gas habitability evaluations in Regulatory Guide 1.78. The radiological release event frequencies would be calculated from the initiating event frequencies, likelihood of fuel cladding damage, likelihood reactor coolant system pressure boundary failure or bypass, likelihood of containment failure or bypass, and likelihood of meteorological conditions (wind direction and stability class) that would concentrate sufficient radioactive material at the control room pressure boundary to challenge control room habitability, given the design basis assumptions for in-leakage, filtration, etc. Similar calculations would be used for fuel handling accidents with their unique pathways to the control room boundary. Radiological release event frequencies would be calculated from information in existing PRAs, where found suitable in accordance with Regulatory Guide 1.174 for that application.

The primary difference between the existing deterministic control room radiological habitability evaluation and that required for a risk-informed approach would be the scope of radiological hazard scenarios considered. In deterministic evaluations, only the worst case, limiting radiological release events capable of challenging control room habitability are evaluated. In a risk-informed approach consistent with Regulatory Guide 1.78, the entire range of all possible radiological release events capable of challenging control room habitability would be analyzed. Any radiological release event capable of causing a loss of control room habitability would be counted in the total frequency, which must be of low frequency (10^{-6} per year or less) in order to exclude these events from the design basis. All radiological release events which could be excluded would not be considered in the design basis of the control room habitability systems.

In summary, there is a precedent for using a risk-informed approach for evaluating control room habitability. The application of the methods and acceptance criteria in Regulatory Guide 1.78 to the evaluation of radiological hazards in Draft NRC Regulatory Guides 1113 and 1114 is consistent with the NRC Commission policy and Regulatory Guide 1.174, and requires no change to regulatory rules or requirements. The inclusion of a risk-informed approach in Draft NRC Regulatory Guides 1113 and 1114 would permit licensees to avoid unnecessary and burdensome tests and plant modifications that would have a negligible risk benefit.