UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

November 15, 2007

MEMORANDUM TO: Michael Corradini, Chair
Future Plant Designs Subcommittee

FROM: David C. Fischer, Senior Staff Engineer **/RA/**

SUBJECT: ANALYSIS OF EDO RESPONSE TO ACRS LETTER ON THE DEVELOPMENT OF A TECHNOLOGY-NEUTRAL REGULATORY FRAMEWORK

Attached is a copy of the EDO's November 6, 2007, letter of response to the ACRS September 26, 2007, report on the development of a technology-neutral regulatory framework. In its September 26, 2007, report to the Chairman (also attached), the Committee made five conclusions or recommendations:

1. We concur with the staff that the safety objective of the framework should be to ensure that advanced reactors, as a minimum, provide at least the same degree of protection of the public and the environment that is required for current-generation light water reactors (LWRs), and that advanced reactor designs comply with the Commission's safety goal quantitative health objectives (QHOs).

2. We concur with the staff that a set of licensing-basis events (LBEs) is needed as part of the licensing basis to structure the interactions between the staff and the applicant and to focus the conduct of mechanistic analyses. Identifying the LBEs by using the probabilistic risk assessment (PRA) reduces the risk that licensing-basis requirements will divert attention from events of real safety significance.

3. The use of a frequency-consequence (F-C) curve is an appropriate way to establish a range of regulatory requirements to limit radiation exposure to the public. However, a sequence-specific F-C curve, such as that developed in NUREG-1860 may not be a sufficient licensing criterion. A complementary cumulative distribution function (CCDF) F-C curve ("risk curve") that sums the contributions to risk from the entire spectrum of accident sequences establishes limits on risk better than the LBE F-C curve.

4. We are concerned that extension of the F-C curves to very low dose levels may unduly increase requirements for the scope and level of detail in the PRA performed to demonstrate compliance with the F-C curve. It may also detract attention from accidents which could have a more significant impact on public health and safety.

5. The framework should recognize accident prevention as a fundamental regulatory goal and should specify a quantitative limit on the frequency of an accident. In technology-neutral terms, an accident can be defined as the release of radionuclides within the plant significantly in excess of normal operating limits.

STAFF RESPONSE (IN PART):

The staff stated that it agreed with many of the Committee's conclusions and recommendations and indicated that it plans to address them within NUREG-1860. Specifically, the staff plans on publishing NUREG-1860 in December 2007 (consistent with a September 10, 2007 staff requirements memorandum on SECY-07-0101). Appendix C to NUREG-1860 will provide a list and discussion of the programmatic, policy, and technical issues (including those raised by the ACRS) that need to be addressed when and if the Agency implements the approach described in NUREG-1860. Appendix L to NUREG-1860 will summarize each issue raised by the ACRS, as well as the comments submitted by various stakeholders, and provide a staff response to each. The staff said that it would treat the additional comment appended to the Committee's September 26, 2007 letter as stakeholder comments in Appendix L to NUREG-1860.

ANALYSIS:

In general, the EDO response is satisfactory in that the staff agreed with many of the Committee's conclusions and recommendations. However, the staff's responses to the specific issues raised by the ACRS (including the additional comments provided by individual members) will be provided in Appendix L to NUREG-1860, scheduled to be published in December 2007. The Committee should consider the staff's specific responses to the Committee's conclusions and recommendations after NUREG-1860 has been published.

Attachments: As stated

cc: ACRS Members
F. Gillespie
S. Duraiswamy
C. Santos