

material in excess of 10 CFR part 100 guidelines even in the absence of severe accident conditions.

(11) The SSC is relied upon to control or to mitigate the consequences of transients and accidents.

If any of these conditions is true, the IDP should use a qualitative evaluation process to determine the impact of relaxing requirements on SSC reliability and performance. This evaluation should include identifying the functions being supported by SSC operation, the relationship between the SSC's failure modes and the functions being supported, the SSC failure modes for which the failure rate may increase, and the SSC failure modes for which detection could become or are more difficult. The IDP can then justify low safety significance of the SSC by demonstrating the following:

- The categorization is consistent with the defense-in-depth philosophy (per Section V.4.3 below).
- Operating experience indicates that degradation mechanisms (*e.g.*, for piping flow accelerated corrosion or microbiologically-induced corrosion), for passive and active SSCs are not present, relaxing the requirements will have minimal impact on the failure rate increase, and degradation in the ability of the SSC to perform its safety function can be detected in a timely fashion.
- Relaxing the requirements will have a minimal impact on the expected onsite occupational or offsite doses from transients and accidents that do not contribute to CDF or LERF.

#### V.4.3 Section 50.69(c)(1)(iii) Maintaining Defense-in-Depth Philosophy

Section 50.69(c)(1)(iii) requires that the categorization process maintain the defense-in-depth philosophy. To satisfy this requirement, when categorizing SSCs as low safety-significant, the IDP must demonstrate that the defense-in-depth philosophy is maintained. Defense-in-depth is considered adequate if the overall redundancy and diversity among the plant's systems and barriers is sufficient to ensure the risk acceptance guidelines discussed below in Section V.4.4 are met, and that:

- Reasonable balance is preserved among prevention of core damage, prevention of containment failure or bypass, and mitigation of consequences of an offsite release.
- System redundancy, independence, and diversity is preserved commensurate with the expected frequency of challenges, consequences of failure of the system, and associated uncertainties in determining these parameters.

- There is no over-reliance on programmatic activities and operator actions to compensate for weaknesses in the plant design, and

- Potential for common cause failures is taken into account.

The Commission's position is that the containment and its systems are important in the preservation of the defense-in-depth philosophy (in terms of both large early and large late releases). Therefore, as part of meeting the defense-in-depth principle, a licensee should demonstrate that the function of the containment as a barrier (including fission product retention and removal) is not significantly degraded when SSCs that support the functions are moved to RISC-3 (*e.g.*, containment isolation or containment heat removal systems). The concepts used to address defense-in-depth for functions required to prevent core damage may also be useful in addressing issues related to those SSCs that are required to preserve long-term containment integrity. One way to do this would be to show that these SSCs are not relied on to prevent late containment failure during core damage accidents. An alternative method would be to demonstrate that a potential decrease in reliability of RISC-3 SSCs that support the containment function does not have significant impact on the estimate of late containment failure probability. In essence, what the NRC expects is for a plant-specific understanding of the effects of containment systems on large late releases and an understanding of the credit given to these systems in maintaining the conditional probability for these releases. A licensee or applicant can qualitatively argue that an SSC is not relied upon to prevent large late containment failure and is thus low safety-significant from this standpoint. If an SSC plays a role in supporting the containment function in terms of large late releases, and if the licensee wants to categorize these SSCs as low safety-significant (for example, because of available redundant systems or trains or because failure is dominated by factors not related to the SSC), NRC would find acceptable the use of sensitivity studies to show that the effects on (*i.e.*, change in) the late containment failure probability is small (*i.e.*, less than a 10 percent increase from the base value) and that factors such as common cause failures or other dependencies are not important. Where a licensee categorizes containment isolation valves or penetrations as RISC-3, the licensee will need to address the impact of the proposed change in treatment on a case-by-case basis to ensure that the defense-

in-depth principle continues to be satisfied.

V.4.4 Section 50.69(c)(1)(iv) Include Evaluations To Provide Reasonable Confidence That Sufficient Safety Margins Are Maintained and That Any Potential Increases in CDF and LERF Resulting From Changes in Treatment Permitted by Implementation of § 50.69(b)(1) and § 50.69(d)(2) Are Small

Section 50.69(c)(1)(iv) specifies that the categorization process include evaluations to provide reasonable confidence that as a result of implementation of revised treatment permitted for RISC-3 SSC, sufficient safety margins are maintained and any potential increases in CDF and LERF are small. Safety margins can be maintained if the licensee maintains the functionality of the SSCs following implementation of the revised requirements and if periodic maintenance, inspection, tests, and surveillance activities are adequate to prevent, detect and correct significant SSC performance and reliability degradation. Later sections of this SOC provide discussion on the proposed treatment processes the licensee will implement to provide reasonable confidence that RISC-3 SSCs remain capable of performing their safety functions under design basis conditions. The requirements of the rule to show that sufficient safety margins are maintained and that potential increases in risk are small are discussed below.

As part of their submittal, a licensee (or applicant) is to describe the evaluations to be conducted for purposes of meeting the requirement that there would be no more than a small (potential) increase in risk. For SSCs included in the PRA, the Commission expects that sensitivity studies (evaluations) would be done to provide a basis for concluding that even if reliability of these SSC should degrade because of the changes in treatment, the potential risk increase would be small. Satisfying the rule requirement that the risk increase is small presumes that the increase in failure rates assumed in the PRA sensitivity study bounds any reasonable estimate of the increase that may be expected as a result of the proposed changes in treatment.

The categorization process encompasses both active and passive functions of SSCs. Section 50.69(b)(2)(iv) includes the requirement that the change-in-risk evaluations performed to satisfy § 50.69(c)(1)(iv) must include potential impacts from known degradation mechanisms on both active and passive functions. It is