

CCF Susceptibility Analysis

CCF Malfunction Results Analysis

Assessment

Likelihood Conclusion

Assessment

Malfunction Results Conclusion

Limited degree of defensive measures exist. Limiting measures (e.g., watch dog timer) may exist to force a specific failure mode. **When assessing 50.59 Q2, CCF may increase the likelihood of a malfunction.**

CCF is **as likely or the same order of magnitude as** a CCF due to a single random hardware failure. CCF is expected during the life of the plant (~100 years). **CCF is within the plant's design basis.**

CCF malfunction result needs to be analyzed with conservative methods and acceptance criteria. Method of coping is limited to safety systems.

CCF could produce same type of accidents (a 'No' answer to 50.59 Q5). CCF could be bounded by previous AOOs (a 'No' answer to 50.59 Q6). **or** CCF could require a new analysis, FSAR update, **and LAR under 50.90.**

Likelihood Reduction Measures exist:

- Qualitative defensive measures to reduce likelihood of failure source, AND
- Deterministic measures to reduce likelihood that failure will propagate to become a CCF.

Limiting measures may exist to force a specific failure mode. **When assessing 50.59 Q2, CCF likelihood is an insignif. contributor.**

CCF is **significantly less likely than** a CCF due to a single random hardware failure. CCF is not expected during the life of the plant. **CCF is Beyond Design Basis.**

CCF malfunction results can be analyzed with best estimate methods and acceptance criteria. Method of coping can employ high quality non-safety systems.

CCF could be bounded by previous AOOs or PAs (a 'No' answer to 50.59 Q5 and Q6), **or** could require a new analysis, FSAR update, **and LAR under 50.90.**

For the rows above, the CCF aspect of the SSC level malfunction is previously analyzed in the FSAR.

For the row below, a CCF malfunction result analysis is not required (a 'No' answer to 50.59 Q5 and Q6).

Preventive Measures exist:

- Deterministic measures to eliminate failure source, OR
- Deterministic measures to ensure failure source does not become a CCF.

When assessing 50.59 Q2, there is no likelihood contribution from CCF.

CCF is **much lower than** single random hardware failure and is as unlikely as other sources of CCF that are not considered in deterministic accident analysis (e.g., earthquake/EMI exceeding design basis, maintenance error). **CCF is "sufficiently low."**

CCF is never expected (a 'No' answer to 50.59 Q5 and Q6). **50.59 Criteria are satisfied.** A CCF malfunction result analysis is **not required.** The effects of a CCF should still be analyzed (accounted for) in the plant's Probabilistic Risk Assessment.