

NRR Public Meeting NUMARC 93-01 Endorsement in RG 1.160

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Purpose

1. NEI and NRC discuss information and perspective regarding FLEX equipment
2. Understand path forward for NUMARC 93-01 endorsement in RG 1.160

Topics for Discussion

1. Should Mitigating Strategies equipment , i.e., FLEX, be monitored by 10CFR50.65 Maintenance Rule (MR) paragraph (b) if directed emergency operating procedure (EOP) via flex support guideline (FSG)?
2. Use of FLEX equipment for MR (a)(4) risk evaluations, does it meet the requirement of 10CFR50.65 paragraph (b)?

Background:



- Originally the language change in NUMARC 93-01 was discussed as the proposed rule 10CFR50.155 b(1) requires integration of strategies and guidelines to mitigate beyond design basis external events into EOPs.
- 10CFR50.65 (b), one of the criteria for scoping into the Maintenance Rule is, “Non-safety-Related SSCs that are used in the Emergency Operating Procedures”
- April 2015 public meeting NEI proposed change to NUMARC to exclude FLEX equipment from scoping into the Maintenance rule if it is used in EOPs as directed by the proposed rule 10CFR50.155 b(1).
- NRC agreed to review NUMARC 93-01 revision if FLEX equipment is used for BDBEE as directed by 10CFR50.155 b(1) then it would be excluded from the scope of the Maintenance Rule as the FLEX has a separate maintenance and testing program.

NUMARC 93-01 Rev. 4d



Section 8.2.1.3: Non-safety-Related SSCs that are used in Emergency Operating Procedures

Any non-safety-related SSC or equipment that is relied upon by the licensee solely to support the execution of the FLEX Support Guidelines (FSGs), Severe Accident Management Guidelines (SAMGs), and Extensive Damage Management Guidelines (EDMGs), even if directed by an EOP, is not considered to be used in the EOPs unless relied upon to mitigate accidents or transients as described in Section 8.2.1.2 (FSAR chapter 6 or 15).

NRC Concern

- NEI language only covers section 8.2.1.2. However, it could meet other scoping criteria.
 - Non-safety related SSCs whose failure prevents safety-related SSCs from fulfilling their safety-related function.
 - Non-safety related SSCs Whose failure causes a reactor scram or actuates safety systems

Examples

- A plant EOP FR.H.1 calls out FLEX CST via FSGs for use as back up to primary CST instead of River Water (2nd Credited Source) for providing water to steam generators. This change is in the chapter 10 of the FSAR.
 - Pressure differential between the two CSTs could result in FLEX CST injecting before the primary CST rendering the primary CST Inoperable.
 - Non-safety related SSCs whose failure prevents safety-related SSCs from fulfilling their safety-related function.

FSGs

- NEI 12-06, “Diverse and Flexible Coping Strategies (FLEX) Implementation Guide”
- Section 11.4.1, “Objectives”: This approach is intended to provide guidance for responding to BDBEE
 - Clear criteria for entry into FSG will ensure that FLEX strategies are used only as directed for BDBEE conditions, and are not used inappropriately in lieu of existing procedures.

NRC Recommendation



- Any non-safety related SSC or equipment that is relied upon by the licensee solely to support the execution of the strategies and guidelines required by 10CFR50.155, b(1) or EA-12-049 (until the 10CFR50.155 rule becomes effective) (i.e. Diverse and Flexible Coping Strategies (FLEX) Support Guidelines (FSGs)), or Extensive Damage Management Guidelines (EDMGs) (10CFR50.155, b(2)), even if directed by an EOP, is not considered to be in scope unless otherwise required by paragraph 10CFR50.65 (b).
- Note: In the event FLEX components are used and approved under 50.59 screening process and are being utilized for normal plant operation and/or abnormal events operation the non-safety SSCs would be scoped into the maintenance rule if required by paragraph 50.65(b).
- Request industry examples

NEI Proposal

Section 9.4.2 Monitoring

Proposed Change:

- If the plant specific safety analysis (i.e., FSAR) or PRA used to address a regulatory issue (e.g., IPEs) takes credit for any existing **in-scope** components in the system/train, then those components supporting that function should be monitored under the **maintenance rule consistent with the analysis**. ~~If credit is not taken, they could be considered installed spare components which do not require monitoring under the maintenance rule.~~

10CFR 50.65 (a)(4)

- Rule partly states: Before performing maintenance activities the licensee shall assess and manage the increase in risk. The scope of assessment may be limited to SSCs that a risk-informed evaluation process has shown to be significant to public health and safety.

Crediting FLEX in 50.65(a)(4) NEI Provided Example:



- One station EDG is out for planned maintenance, a FLEX EDG is connected to the electrical lineup in the event a second EDG fails to improve risk.
- Should this be excluded from scope of Maintenance Rule paragraph (b)?.
- Connecting the electrical line up could potentially cause:
 - If FLEX EDG is tied to safety related bus and if there is a fault on FLEX EDG then the whole bus may go down.
 - As the FLEX EDG is on the grid and it could possibly load prior to station EDG rendering station EDG inoperable.
 - This would meet the Maintenance rule scoping criteria of : Non-Safety Related SSC whose failure prevents safety related SSCs function.

Crediting FLEX in 50.65(a)(4) NEI Provided Example:



- Past Refueling outage had a 53 hour period of increased YELLOW risk for maintenance until all fuel assemblies were off-loaded and the refueling pool and SFP were isolated. The licensee connected the FLEX RCS make up pump as the 3rd ECCS pump. The risk was reduced from YELLOW to GREEN and justified as increased defense-in-depth in the areas of Reactivity Control Safety Function and the RCS Inventory Control Safety Function.
- NRC's concern is FLEX equipment is being used in the normal/shutdown operation.
 - Is FLEX pump providing the safety function of the ECCS pump?

NRC's Concern with Industry's Intension to use FSGs during Maintenance - Example



- In 2015 the licensee changed strategy to rely on FLEX diesels to provide backup power to hydrogen igniters for ice condenser.
- Flex support guideline did not provide steps to energize the hydrogen igniters
 - It did provided steps to open the breakers which fed the hydrogen igniters but did not include steps to close the breakers to ensure the hydrogen igniters would be energized when needed.
 - It did not provide guidance to operators on what actions to complete if the hydrogen igniters were not energized.