

Enclosure 1
Applicability of the Seven Criteria for Generic Issues to PRE GI-21

1. The issue affects public health and safety, the common defense and security, or the environment (with respect to radiological health and safety). For issues that are not amenable to quantification using risk assessment, qualitative factors may be developed and applied as necessary to assess safety/risk significance.

The NRC Probabilistic Risk Analysis (PRA) staff performed an evaluation (Enclosure 2) to determine the risk significance of having the non-critical protective trips bypassed on the emergency diesel generator (EDG) for a loss of off-site power (LOOP). The staff determined the quantitative risk impact was not significantly high or low. The risk-significant assessment was performed based on the two assumptions below:

1. Bypassing of non-critical protective trips could lead to non-recoverable EDG failures.
2. Bypassing of non-critical protective trips could have an impact on EDG performance.

The PRA evaluation concluded that for the majority of plants, assuming no EDG recovery credited, the risk increase is expected to be very small; and there is no clear indication of higher failure rates or unavailability. The quantitative risk was near the threshold defined in Office Instruction TEC 002. "Generic Issues Program" (ADAMS ML18283A564) for determining whether the generic issue should proceed forward in the program or exit the program. Therefore, the staff evaluated additional deterministic attributes to determine whether the issue should or should not continue in the Generic Issues Program.

Maintaining Sufficient Defense in Depth

All plants are configured to bypass protective trips upon receipt of a safety injection actuation signal (SIAS). Therefore, threats to core damage will actuate SIAS while at power and trips are bypassed; hence the threats to core damage are mitigated and this issue is not a factor.

The times this issue impacts the safety of the plant is when a LOOP is received and an SIAS is not received. During these times SIAS not active, if the EDGs fails to operate, it does not necessarily mean immediate fuel damage and release of radioactivity. It does require the plant operators to act in accordance with their emergency procedure for loss of all AC. Every plant is required to have a station blackout (SBO) strategy in case of the loss of all AC power. Every plant's strategy was reviewed and approved by the NRC to meet the requirements of 10 CFR 50.63, "Loss of all alternating current power." 10 CR 50.63(2) requires that an alternate ac power source(s) with the capability to withstand station blackout is provided, and an analysis is performed demonstrating the plant has the capability from onset of the station blackout until the alternate ac source(s) and required shutdown equipment are started and lined up to operate. The staff finds that there is sufficient defense in depth in the event the EDGs are lost during a LOOP.

Maintaining Sufficient Safety Margins

To provide reasonable assurance that sufficient safety margins are maintained in the event of a loss of off-site power to the station emergency busses:

- Plants have redundant EDGs to energize the on-site emergency power supply system

- Plants have SBO alternate power systems to energize station busses on-site emergency power supply system.
- Plants have FLEX equipment, e.g., portable generators and pumps that can be utilized for maintaining core cooling.

The staff finds that there are sufficient safety margins in the event the EDGs are lost during a LOOP.

The staff has evaluated the quantitative risk and deterministic factors associated with bypassing the non-critical protective trips on station EDGs and concluded that the risk is not of significance to meet this criterion, where there would be risk to public health and safety.

Therefore, this criterion is **NOT** met.

2. The issue applies to two or more facilities and/or licensees/certificate holders, or holders of other regulatory approvals.

The submitter provided a table titled “EDG Trips Bypass at Various Plants, Based on plant technical specifications (TSs) and updated Final Safety Analysis Reports (UFSARs)” (ML22048B593). This table shows both mechanical and electrical trips (considered critical and non-critical) at various plants. The table shows at least two plants that bypass and two plants that don’t bypass the protective relays on the EDGs.

Therefore, this criterion is met.

3. The issue is not being addressed using other regulatory programs and processes; existing regulations, policies, or guidance.

Currently, there is no other NRC program or process that is addressing this issue at this point in time. The NRC staff is participating in Institute of Electrical and Electronics Engineers (IEEE) committee meetings that are discussing whether IEEE Std 387-2017, “IEEE Standard for Criteria for Diesel Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations,” should be changed to address this issue. However, no decision has been made by the staff at this time on endorsement.

Therefore, this criterion is met.

4. The issue can be resolved by new or revised regulation, policy, or guidance.

This issue could be resolved by licensees taking actions to change the design basis of their plants along with physical plant equipment changes. In addition, interaction within the nuclear industry, Nuclear Energy Institute, and the IEEE Committee on IEEE 387 guidance can produce guidance that is agreed upon by the industry.

Therefore, this criterion is met.

5. The issue’s risk or safety significance can be adequately determined in a timely manner (i.e., it does not involve phenomena or other uncertainties that would require

long-term study and/or experimental research to establish the risk or safety significance).

The NRC PRA staff risk determined the risk to be in the vicinity of threshold established in Office Instruction TEC 002. Hence, the staff exhibited the capability to determine the risk associated with non-critical protective trips bypassed. (See Enclosure 2)

Therefore, this criterion is met.

6. The issue is well defined, discrete, and technical.

As described in the submittal of NRC form 833 (ML22048B595), this issue was well defined, discrete and technical.

Therefore, this criterion is met.

7. Resolution of the issue may involve review, analysis, or action by the affected licensees, certificate holders, or holders of other regulatory approvals.

Resolution of the issue could be addressed by additional reviews and analyses that result in nuclear plant licensees taking actions to change their design bases and modify their plant equipment configurations.

Therefore, this criterion is met.