**FAQ 21-01: Unplanned Scrams with Complications for AP1000**
**Final Approved**

**Plant**: Generic to AP1000 Reactors
**Date of Event**: N/A
**Submittal Date**: 01/27/2021

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**Performance Indicator**: IE04, Unplanned Scrams with Complications (USwC)

**Site-Specific FAQ (see Appendix D)?** ( )Yes or (X) No

**FAQ to become effective:** When Approved

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**Question Section:**

This FAQ seeks to implement changes to NEI 99-02 based on a whitepaper approved by the NRC at a Reactor Oversight Process (ROP) public meeting on November 18, 2020 (white paper is available in ADAMS with accession number ML20322A339; NRC meeting summary documenting the approval is available with accession number ML20339A592). The text of the FAQ describing the proposed changes below is copied from that whitepaper.

**NEI 99-02 Guidance needing interpretation (include page and line citation[1]):**
Screening questions on page 21, to be adjusted for differences in design and terminology for the AP1000.

**Event or circumstances requiring guidance interpretation:**
This FAQ implements an approved whitepaper applicable to AP1000 reactors. Because of AP1000 design and terminology differences, the wording of the screening questions in NEI 99-02, Rev. 7, needs slight adjustments to address the AP1000.

**If licensee and NRC resident/region do not agree on the facts and circumstances, explain:**
There is no disagreement on the facts and circumstances.

**Potentially relevant FAQs:** None

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**Response Section:**

**Proposed Resolution of FAQ:**
Proposed resolution is to adopt the wording and system name changes proposed in this FAQ.

**If appropriate, provide proposed rewording of guidance for inclusion in next revision:**
Proposed wording changes are described below.

1. The current screening question about losing any Engineered Safety Feature (ESF) bus (NEI 99-02, Rev. 7, page 21, line 15) should be modified to add a remark indicating this question does not apply to the AP1000:
   - **Was power lost to any ESF bus (For PWRs other than AP1000)?**

[1] Page and line numbers refer to the "line-in/line-out" version of NEI 99-02, Rev. 7, found on the NRC ROP web site and in ADAMS (ML13261A116).

2. The accompanying discussion of the question in NEI 99-02 (page 21, lines 17-33) should be copied, modified as shown below, and inserted below line 34 with a note indicating it applies only to AP1000 units:
   - **Was power lost to any battery backed Class 1E DC and UPS System (IDS) bus (For AP1000 only)**?

     During a reactor trip or during the period operators are responding to a reactor trip using reactor trip response procedures, was power lost to any battery backed IDS (Class 1E DC and UPS System) bus (e.g., IDSA-DD-1, IDSA-EA-1, IDSC-EA-3)? Operator action to re-energize the ESF bus from the main control board is allowed as an acceptable action to satisfy this metric.

     The question is looking for a loss of power at any time for any duration where the bus was not energized/reenergized within 10 minutes. The bus must have:

     - Remained energized until the Reactor Trip response procedure was exited, or
     - Been re-energized automatically (e.g., a standby diesel generator automatically restores IDSA-EA-1 when its inverter is manually bypassed to the Voltage Regulating Transformer), or
     - Been re-energized from normal or emergency sources by an operator closing a breaker from the Main Control Room.

     The question applies to all battery-backed IDS DC and 24- and 72-hour emergency AC busses. This does NOT apply to non-battery-backed IDS busses (e.g., IDSA-EA-2). It is expected that operator action to re-energize a battery backed IDS bus would not take longer than 10 minutes.

3. The current question about receiving a safety injection signal (NEI 99-02, Rev. 7, page 21, line 35) should be modified to add a note indicating this question does not apply to the AP1000:
   - **Was a Safety Injection signal received (For PWRs other than AP1000)?**

4. The accompanying discussion of the question in NEI 99-02 (page 21, lines 35-43 and page 22, lines 1-2) should be copied, modified as shown below, and inserted below line 2 on page 22 with a note indicating it applies only to AP1000 units:
   - **Was a Safeguards Actuation signal received (For AP1000 only)?**[2]

     Was a Safeguards Actuation signal generated either manually or automatically during the reactor trip response? The question's purpose is to determine if the operator had to respond to an abnormal condition that required passive safety injection or respond to the actuation of additional equipment that would not normally actuate on an uncomplicated scram. This question would include any condition that challenged Reactor Coolant System (RCS) inventory, pressure, or temperature severely enough to require passive safety injection.

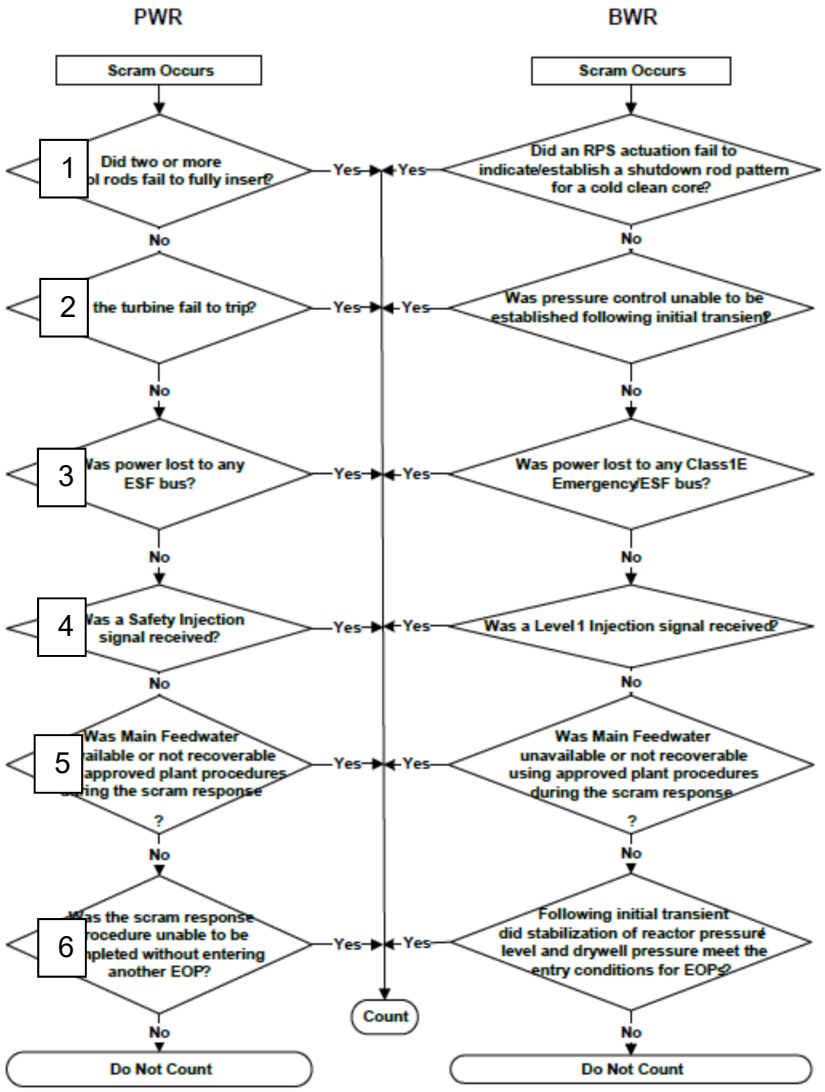
5. Conforming changes are needed in the depiction of PWR scram screening questions in Figure 2, as follows:

[2] An additional footnote would be added to this question in NEI 99-02 to explain that for the AP1000, a safeguards actuation signal is used in the initiation logic of engineered safety features.

a) For the third decision diamond, which reads, “Was power lost to any ESF bus?”, add the following footnote: “For AP1000: Was power lost to any battery backed Class 1E DC and UPS System (IDS) bus?”

b) For the fourth decision diamond, which reads “Was a Safety Injection signal received?”, add the following footnote: “For AP1000: Was a Safeguards Actuation signal received?”

1 **IE04 Unplanned Scrams with Complications – Flowchart**
2 **Figure 2**



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See footnote[3]

**PRA update required to implement this FAQ?** No.

[3] The boxed numbers to the left of each decision diamond do not appear in the original Figure 2. They were added here for ease of reference to the individual questions.

**MSPI Basis Document update required to implement this FAQ?** No.