

SRO Admin JPM-2, Verify an Estimated Critical Condition Calculation

Facility Comment

The NRC examiner questioned the validity of the exam key regarding the acceptability of the lower bounds of CEA position given at Time=1200. The facility re-evaluated the supporting reference documents and concluded the key erroneously listed the lower bounds at Time=1200 as unsatisfactory.

NRC Resolutions

The applicant was expected to evaluate whether the given lower bound CEA position was above the zero-power power dependent insertion limit (ZPPDIL), and it was above the ZPPDIL. Therefore, the key was in error in listing this lower bounds position as unsatisfactory.

Presby, Peter

From: Heiska, Jeffrey S:(Contractor - GenCo-Nuc) <Jeffrey.Heiska@exeloncorp.com>
Sent: Tuesday, February 14, 2017 1:39 PM
To: Presby, Peter
Subject: [External_Sender] Correction to SRO Admin JPM-2 Key
Attachments: Scanned from a Xerox Multifunction Printer.pdf

One of critical step standards in SRO Admin JPM-2, "Verify an Estimated Critical Condition Calculation," required the applicant to identify that the 1200 lower bound CEA position limit was not valid. However, a review of NEOP-302 step 4.5.2 on page 7 requires the applicant to determine if upper and lower bounds are valid, meaning CEA position is >ZPPDIL (Zero Power-Power Dependent Insertion Limit).

OP-2 step 6.6.O.10 page 35 which is the last step of Sect. 6.6 "Withdraw Regulating CEAs to ZPPDIL" leaves CEAs at 90" group 3 prior to moving on to Sect 6.7 "Withdraw CEAs to Criticality" which led to an error in using 90" group 3 CEAs as an administrative limit for ZPPDIL which caused the JPM key to incorrectly have the actual calculated CEA position of 85" as an invalid lower bound.

The given CEA position was higher/more withdrawn than the ZPPDIL of Group 3 at 54 inches withdrawn. Therefore, the JPM key should be changed to indicate the 1200 lower CEA bound rod position is correct as given in the estimated critical condition.

Both pages referenced are included as attachments.

Jeff Heiska
Exam Author

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4.5. Documentation and Support

- 4.5.1. Multiple attachments generated during the use of this procedure shall be sequentially numbered and registered on Attachment 1, Attachment Log Sheet.
- 4.5.2. Some calculations performed in this procedure are originated by Reactor Engineering (RE) and then reviewed by a licensed Senior Reactor Operator (SRO). If data required as an input for a certain calculation has been previously approved (i.e. previously signed off by an SRO), then it is not necessary to re-validate that data. When reviewing calculations, the SRO shall:
1. **VERIFY** that the previous critical condition is correct if not previously reviewed. [B9393]
 2. **INDEPENDENTLY VERIFY** that all recorded data and calculations in the section being reviewed are accurate. [B09560]
 3. **VERIFY** that the ECC Upper and Lower CEA Bounds are calculated correctly **AND** the established bounds are between 135 inches withdrawn on Reg Group 5 and the Zero Power PDIL, if reviewing an estimated critical condition calculation.
 4. **IF** an error is found, **THEN INSTRUCT** the preparer to make the necessary corrections, **AND REPEAT** the review.
 5. **IF** the calculations are acceptable, **THEN SIGN** the provided area to indicate approval.
 6. **CHECK** that Section 7.2 is completed for traceability and legibility.

4.6. Initial Conditions

- 4.6.1. If a Category III or Category IV event has occurred since the last startup, an evaluation of cladding fuel structural integrity with respect to radial hydriding must be performed prior to the next reactor startup. [B09564] [B09565]
- 4.6.2. A page check has been performed:

Date /

Time /

Initial

PLANT STARTUP FROM HOT STANDBY TO
MINIMUM LOAD

OP-2
Rev. 04800/Unit 2
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6.6.O WITHDRAW REGULATING CEA GROUPS ABOVE ZPDIL (Continued)

INITIALS

6. **WITHDRAW** Regulating Group 2 to the UCS in equal increments **AND PERFORM** the following:
- **ALLOW** flux level to stabilize after each incremental withdrawal
 - Alternately **SELECT** Regulating Group 3 **AND MAINTAIN** a minimum of 90 inch overlap with Regulating Group 2, by Secondary Group Position indication.
7. **PLACE** CEAs in MANUAL INDIVIDUAL.
8. Alternately **SELECT** each individual CEA in Regulating Group 2 **AND WITHDRAW** it to the UEL.
- **CHECK** the UEL Light illuminates as each CEA reaches its UEL.
 - **VERIFY** CEAPDS indicates 133"-136" for each CEA as it reaches the UEL. (TRM TNC 15.1.4.a)
9. **PLACE** CEAs in MANUAL GROUP.
10. **WITHDRAW** Regulating Group 3 to 90 inches in equal increments **AND PERFORM** the following:
- **ALLOW** flux level to stabilize after each incremental withdrawal
 - **IF** RCS boron concentration is within 100 PPM of ECC boron concentration, **THEN DECLARE** Mode 2 when Group 3 CEAs reach ZPDIL (54.4).
- P. **UPDATE** Regulating Group 1 **AND** 2 primary indications on the Plant Computer to 135 inches.

**** END ****