



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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February 26, 1991

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and Quality Evaluation, NRR

THRU: *RWJ*
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2/26 William Dean, Chief
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FROM: John Munro, Panel Chairman
Regional Support and Oversight Section
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SUBJECT: SIMULATOR SCENARIO ASSESSMENT

In a memorandum dated January 24, 1991, William Dean directed the review of selected simulator scenarios to evaluate simulator scenario consistency. Enclosure 1 details the methodology utilized in the assessment. A panel consisting of six certified examiners (J. Munro, J. Pellet, L. Miller, I. Kingsley, F. Victor and D. Draper) reviewed sixty-six (66) scenarios representative of eleven requalification examinations. The requalification scenarios were assessed for consistency by evaluation of the following content areas:

- o ISCT identification per NUREG-1021, Rev. 6 criteria
- o Malfunctions, number and sequencing
- o Events, abnormal and major
- o EOPs, number and time of usage

The results of this assessment are tabulated in Enclosure 2. By reviewing the data and incorporating judgements on the scenarios by the panel of examiners, several important conclusions are highlighted.

- o Scenario complexity varies by facility rather than by Region. Note the difference in data between Facilities A and B.
- o The panel concluded that counting ISCTs, malfunctions or other discrete scenario variables was not always indicative of complexity. Scenario complexity was determined to be a function of event sequencing and requirements for operator action(s) in the EOPs. Specifically, activation of malfunction(s) after initial EOP entry complicates the mitigation strategy and increases operator usage of

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EOPs and associated contingency procedures. Enclosure 3 provides a comparison of the evaluation scenarios provided by two facilities for a Design Basis Accident LOCA.

- o Many ISCTs are not being properly identified in accordance with the most recent Examiner Standards guidance. ISCTs are tasks which, if omitted or incorrectly performed by an operator, will result in adverse consequence(s) which significantly alter the event mitigation strategy to the detriment of plant or public safety. The panel identified numerous tasks that did not meet this definition or the criteria for critical tasks detailed in ES-604, Rev 6, Attachment 1. The panel also identified some additional scenario tasks that met the criteria for ISCTs. In many instances, the tasks had been identified for evaluation but not as critical, e.g., trip of RCPs during LOCA. Enclosure 4 provides a sample of ISCTs that the panel determined should be either deleted or added to the reviewed scenarios.

The panel recommends that the following programmatic changes and clarifications be implemented to better assure examination consistency.

- o Specify that one scenario have the operators enter and perform safety related tasks (ISCTs) in AOPs and EOP contingency procedures. Specify that the second scenario also perform ISCTs in AOPs and EOPs; however, entry into the EOP contingency procedures "by design" would be precluded. Two scenarios will normally provide an adequate scenario set for a four person operating crew consisting of two SROs and two ROs. Perform both scenarios with the operators manning their normal shift positions.
- o Specify that the scenario planned for the usage of EOP contingency procedure(s) expend 50 - 60 percent of scenario run time or twenty--five to thirty (25 - 30) minutes in the usage of these EOPs. The second scenario should be designed to expend 30 - 40 percent of scenario run time or fifteen to twenty (15 - 20) minutes in the usage of EOPs.
- o Specify that scenario sets be reviewed for sufficient tasks to allow for evaluation of all rating factors (1, 2 or 3) associated with each competency on the Simulator Crew Evaluation Form. Specifically, the tasks should be designed such that improper crew action(s) (or omission of crew action(s)) will result in some degree of degradation of the facility or adverse effect to the public.
- o Review the rotation practices for a staff crew of four to five SROs. Currently, the operators rotate through all crew positions. Requiring four to five scenarios exposes each operator to a high number of ISCTs and requires extensive simulator examination time.
- o Specify that the safety significance or adverse consequence(s) be provided with the scenario for all identified ISCTs. Reemphasize to all examiners and facilities that all ISCTs must possess the four criteria discussed in ES-604, Attachment 1.

- o Add clarification to the existing Standard to preclude "generic" designation of ISCTs. Indicate the following examples of generic tasks to be unacceptable as critical tasks:
 - Verification of automatic actions.
 - Enter and perform EOPs and EOP transitions.
 - Enter and classify the Emergency Plan for an Unusual Event.
 - Enter and take action in accordance with Technical Specifications.

All of the above operator tasks may be considered ISCTs when the specific actions are listed and the task is evaluated for safety significance within the context of a particular scenario. The following examples of tasks are acceptable as ISCTs:

- SRO directs initiation of Drywell Sprays when torus pressure exceeds 13 psig in accordance with EOP-2.
- Transfer Terry Turbine steam supply from steam generator #1 to #4.
- Declare a Site Area Emergency based on RCS leak greater than make-up capacity.

The Examiner Standards specify that the NRC and facility evaluators review scenarios to assure they are neither too complex nor too simple. The guidance was written with sufficient latitude to incorporate differences in EOP content, simulator capability and professional judgements on depth of coverage. The result has been an inconsistent approach to simulator scenario development. This problem is exemplified by the identification of ISCTs that in 45 percent of the cases did not adhere to the guidance in ES-604, revision 6. The recommended corrective action is to provide more specific guidance, as stated above, thereby improving the objectivity and consistency of examination scenarios.

JSI

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Enclosures:

As stated

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