

RATING FACTOR 3.A.: CONTROL BOARD OPERATIONS, LOCATE &  
MANIPULATE

1. Examiner comment on 303 form p. 18 of 32, related to Scenario 7, Event 1

A. FACTUAL SEQUENCE OF EVENTS

-During the simulator scenario, the initial event (a normal evolution) directed the operators to raise reactor power.

-At time 07:26:?? [REDACTED] directed Carla to maintain Tave-to-Tref within  $\pm 2$  degrees F and AFD within  $\pm 3$  AFD units.

-At time 07:28:40, Carla, as Reactor Operator (RO), moved control bank 'D' rods out 2.5 steps (ending with 'D' bank at 157 steps on both groups)

-At time 07:32:10, [REDACTED] as Senior Reactor Operator (SRO) directed a 8-12 MWe turbine load increase.

-At time 07:36:50, Carla, as Reactor Operator (RO), moved control bank 'D' rods out 3 steps (ending with 'D' bank at 160 steps on both groups)

-At time 07:39:48, [REDACTED] as Senior Reactor Operator (SRO) directed a 8-12 MWe turbine load increase.

-At time 07:43:57, event 2 was initiated, a #4 SG steam flow channel failing high. At this time Tave-to-Tref deviation was  $-0.566$  °F.

-During event 2, there was no additional rod motion, and no examiner has any record of a communication between the RO and SRO regarding temperature control.

-At time 07:54:54, event 3 was initiated, where TE-0130 fails low. At this time, Tave-to-Tref deviation was  $-1.156$  °F.

-During the operator actions for event 3, the entire team of applicants was physically located in front of the control panel with the controller for TE-0130. The NRC exam team noted that Carla was standing in front of the TE-0130 controller throughout event 3. P. Capehart and M. Bates conducted a short discussion questioning the allowable duration of time for the OATC position to be away from monitoring the key reactor plant parameters. P. Capehart also noted that Carla was not monitoring reactor coolant temperature trends via the IPC computer trend screen.

-During event 3, there was no additional rod motion, and no examiner has any record of a communication between the RO and SRO regarding temperature control.

-At time 08:11:20, event 4 was initiated, which was a trip of an NSCW cooling fan, a malfunction which contained no operator actions for the control board personnel. At this time, Tave-to-Tref deviation was  $-1.481$  °F.

- At approximately time 08:18 Carla began what was intended as a 3-step outward rod pull. Rods were only moved by 1 step due to initiating event 5.
- At time 08:18:02 event 5 was initiated, where pressurizer pressure channel PI-456 failed high.
- At time 08:18:17, Carla released the in-hold-out switch and informed [REDACTED] of the pressurizer pressure malfunction.
- At time 08:37:??, Carla moved rods out 3 steps. Just before the rod move, Tave-to-Tref deviation was -2.297 °F. Tave-to-Tref was outside the established control band for approximately 4.8 minutes.

During post-scenario follow-up questions, the examiner asked Carla “what was your temperature control band?” Carla answered that it was plus or minus 2 degrees. The examiner asked Carla what the maximum Tave-to-Tref difference had been during the scenario. Carla responded that the maximum difference had been 2.3 degrees F.

## B. EXAMINER EVALUATION AND COMMENTS

The examiner determined that the root cause deficiency was a result of poor control board operations. NUREG 1021, Appendix D 2.c. states for the competency *Operate the Control Boards* that “This competency involves the ability to *locate* and *manipulate* controls to attain a desired plant and system response or condition.” ES-303 form ES-303-4 further specifies that the 3.a. rating factor determines if “...the applicant LOCATE AND MANIPULATE CONTROLS in an accurate and timely manner.” For this event, Carla, as a control board operator, failed to manipulate the controls in a timely fashion to obtain the desired system response of maintaining Tave-to-Tref deviation between the ordered 2 degree band. Based on post-scenario follow-up questions, there was no deficiency in understanding; furthermore, there was no element of taking manual control of automatic functions because rods were in manual from the initiation of the scenario. Vogtle does not operate with automatic rod withdrawal capabilities, only automatic rod insertion.

There is a further element of poor communications during this event. There is no record from any NRC examiner of any communications during an approximate 40 minute period of time where Carla notified the SRO of the Tave-to-Tref value and trend. This is a clear example of a deficiency in rating factor 4.b., “Did the applicant keep crew members ... informed of plant status?”

2. Examiner comment on 303 form p. 19 of 32, related to Scenario 7, Event 5

#### A. FACTUAL SEQUENCE OF EVENTS

-At approximately time 08:18 Carla, as Reactor Operator (RO) began what was intended as a 3-step outward rod pull. Rods were only moved by 1 step due to initiating event 5.

-At time 08:18:02 event 5 was initiated, where pressurizer pressure channel PI-456 failed high.

-PI-456 failing high caused pressurizer PORV 456 to OPEN. As part of the scenario design, the PORV block valve, HV-8000B, automatic closure feature on low pressurizer pressure was disabled.

-At time 08:18:17, Carla released the in-hold-out switch and informed [REDACTED] of the pressurizer pressure malfunction.

-As part of immediate operator actions, Carla verified the pressurizer spray valves were closed, and then mis-operated the pressurizer PORV 456 handswitch by taking it to the OPEN position.

-Carla then turned to look at [REDACTED] without taking further actions.

-[REDACTED] pointed at the PORV handswitch, and loudly stated: "Carla, shut that valve!"

-Carla then correctly closed the PORV using the handswitch on the control board.

During post-scenario follow-up questions, the examiner asked Carla "what were your immediate operator actions?" Carla correctly stated the immediate operator actions for a pressurizer channel failure. During her statement, Carla indicated that she had initially turned the PORV handswitch in the wrong direction.

#### B. EXAMINER EVALUATION AND COMMENTS

During the review of Carla Smith's 303 documentation following the issuance of the exam report, the exam team identified that this event had been mis-graded, because it was a failed critical task.

In accordance with NUREG 1021, Appendix D, D.1.a states that a critical task in a simulator scenario must have safety significance:

In reviewing each proposed CT, assess the task to ensure that it is essential to safety. A task is essential to safety if its improper

performance or omission by an operator will result in direct adverse consequences or significant degradation in the mitigative capability of the plant.

If an automatically actuated plant system would have been required to mitigate the consequences of an individual's incorrect performance, or the performance necessitates the crew taking compensatory action that would complicate the event mitigation strategy, the task is safety significant.

Examples of CTs involving essential safety actions include those for which operation or correct performance prevents the following:

- degradation of any barrier to fission product release

Because the automatic closure of the PORV block valve had been defeated, manual action was required to prevent breaching a fission product barrier (*i.e.*, the Reactor Coolant System via the PORV, essentially creating a small-break LOCA).

NUREG 1021 Appendix E, Part E 4. gives clear guidance as to how the examiners are required to grade the applicant if an error that the applicant makes is corrected by a team member:

4. If you recognize, but fail to correct, an erroneous decision, response, answer, analysis, action, or interpretation made by the operating team or crew, the examiner may conclude that you agree with the incorrect item.

Members of the operating team or crew (whether applicants or surrogates) should perform peer checks in accordance with the facility licensee's procedures and practices; non-crew members and NRC examiners will not perform this function. However, if you begin to make an error that is corrected by a peer checker, you will be held accountable for the consequences of the potential error without regard to mitigation by the crew.

Therefore, because Carla had to be corrected by a crew member to close the PORV, she should have been held accountable for the consequences of the potential error, which entails failure of a critical task. During the analysis of her grading, this should be considered an error related to a critical task, further reinforcing the rating factor of "1" assigned for 3.a. Furthermore, in her cover letter to the appeal, Carla contended that none of her errors were related to a critical task or critical step. In light of this additional consideration, the NRC examiners believe that the applicant's contention is not correct.

3. Examiner comment on 303 form p. 20 of 32, related to Scenario 7, Event 6

#### A. FACTUAL SEQUENCE OF EVENTS

-During the simulator scenario, at approximately time 08:53:30, RWST LO LEVEL alarmed for event 6, a RWST leak.

-At time 08:55:00, Carla, as Reactor Operator (RO) informed [REDACTED] (SRO) that RWST level was 93.8% and lowering.

-At time 08:56:24, [REDACTED] mentioned a 1-hour Tech Spec action associated with RWST operability.

- At time 09:00:10, [REDACTED] instructed [REDACTED] (Balance-of-Plant operator) to call Clearance and Tagging (C&T) to commence make-up to the RWST.

-At time 09:02:00, C&T called [REDACTED] and informed him that the operator dispatched to the field could not determine the position of the valves due to the excessive water leakage in the valve gallery. (this was a cue developed by the NRC exam team on-the-spot)

-At time 09:04:18, [REDACTED] asked [REDACTED] could they isolate sludge valves from in here? [REDACTED] did not respond to the SRO.

-At time 09:05:09, C&T called [REDACTED] and informed him that it appeared that the RWST leak was coming from downstream of the sludge mixing valves.

-At time 09:06:47, [REDACTED] quietly stated to Carla, "sludge mixing should have isolated on RWST level." Carla then had a discussion with [REDACTED] concerning closing manual valves.

-At time 09:08:40, RWST level was 88.5% and lowering.

-At approximately this point in the event, [REDACTED] directed [REDACTED] to reference the normal operating procedure for the SI system to determine if there was applicable guidance for the team.

-At time 09:12:25, C&T called [REDACTED] and informed him that the leak was downstream of the sludge mixing valves, but that the operator could not get close enough to the valves to operate due to the leakage.

-At approximately this point in the event sequence, [REDACTED] informed [REDACTED] that there was no instruction in the SI OP for closing sludge mixing valves.

-During the discussion with [REDACTED], [REDACTED] referenced a plant piping ECCS diagram (P&ID) that included the RWST and associated piping and valves. It appeared that [REDACTED] determined that the sludge mixing valves could be operated from the QPCP panel from referencing this print. [REDACTED] pointed to the sludge mixing valves on the print when talking with [REDACTED], because the print shows the location of the valve handswitches (panel QPCP).

-At time 09:13:??, [REDACTED] closed the RWST sludge mixing valves using the handswitches on the QPCP. The RWST sludge mixing pump subsequently automatically tripped. (These two statements are based upon memory of M. Meeks and P. Capehart).

-At time 09:15:??, [REDACTED] reported to [REDACTED] that sludge mixing valves had been closed.

-At time 09:15:41, Carla stated to [REDACTED] that RWST level was 86.3%.

-At time 09:16:40, [REDACTED] instructed C&T to have a field operator check the RWST leak.

-Shortly after the preceding communication, the field operator informed [REDACTED] that the leak had stopped.

## B. EXAMINER EVALUATION AND COMMENTS

The examiner downgraded Carla in rating factor 3.a. because she did not know the location of the handswitches to close the RWST sludge mixing valves.

The following applicants were documented as not demonstrating adequate knowledge of the location of the handswitches to close the RWST sludge mixing valves: [REDACTED], Carla Smith, [REDACTED], [REDACTED], [REDACTED], and [REDACTED].

The signed statements from the applicants in Carla's appeal package, providing information concerning this event do not appear to be complete and accurate in all material respects.