



fax

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Cc:

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Pages: 3 TOTAL (AFTER COVER SHEET)

INFORMATION REGARDING:

- 1) EVALUATION of crew response times
- 2) EVALUATION of operator WORKAROUNDS
- 3) PSA Model UPDATE

Discussion of Week 1 Validation Times/Operator Workaround

Evaluation of Week 1 Crew Response Times:

The operating crew for Week 1 of the SGTR time validations failed to meet the required operator response time for the following actions:

- Isolate AFW to ruptured SG
- Isolate steam flow from the ruptured SG (shut the MSIV)

The crew for Week 1 met all other operator response times and the crews for Weeks 2 – 5 met all operator response times. The difference in the response times was due primarily to differences in the procedures used by the crews, not to any inadequacy in the performance of the Week 1 crew. This conclusion is supported by the following:

- The Week 1 crew completed the transition to the SGTR EOP (EOP-PATH-2) at 10 ½ minutes into the scenario. The step to isolate AFW was moved to just prior to this transition for the Week 2 – 5 crews. This means that had the Week 1 crew used the same set of procedures, they would have reached the isolation step approximately 10 minutes into the scenario consistent with the allowed time.
- The Week 1 crew initiated the cooldown 17 minutes into the scenario which is consistent with the allowed time.
- The overall timeline for the competing the remaining operator actions was consistent with the Week 2 – 5 crews.

In addition to moving the instructions to isolate AFW to the ruptured SG forward in the step sequence, the following enhancements were made to eliminate and/or bypass steps that were redundant or not applicable to the design basis SGTR scenario:

- A redundant (and unnecessary) check on the status of the AFW pumps was deleted.
- A redundant (and unnecessary) instruction to continue monitoring the operation of the PRZ PORVs and spray valves was deleted.
- A check for satisfaction of the criteria to trip the RCPs was revised to transition around the checks if the RCPs were not in service (as would be the case for design basis SGTR)
- A check for the status of emergency AC power was revised to check simply that the buses were energized regardless of the source consistent with the corresponding check in ERG E-3. (Previously the step first checked to determine if the buses were energized by offsite power. A second check was necessary to determine if the buses were energized by the emergency diesel generators.)
- Instruction for monitoring seal injection flow was moved to later in the procedure consistent with its placement in ERG E-3.

Prior to implementation of the revised procedures additional changes were made to the EOPs to enhance operator response times during the initial response to any entry into the EOPs. Operators received detailed classroom and simulator training on the revised EOPs including the procedure for response to SGTR. The validation results, the additional enhancements and detailed training should provide assurance that all operating crews can achieve the response times specified in the SGTR overfill analysis.

Discussion of Week 1 Validation Times/Operator Workaround

Evaluation of Current Operator Workarounds:

A review was performed of the current Operator Workarounds to determine if they could individually or in combination adversely impact the operator response times for a design basis SGTR event. No item currently exists that could potentially impact these times. This is expected since the design basis SGTR accident analysis employs only safety related equipment to mitigate the event (i.e., safety related PRZ PORVs). Any deficiency of these components would most likely result in the component being declared INOPERABLE and entry being made into the respective LCO.

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Statement Regarding PSA Model Update:

If new or changes to risk-important operator actions are identified as a result of the proposed power uprate, they will be evaluated for inclusion in the HNP PSA model. Any changes that require the PSA model to be updated will be incorporated in our on-line risk model (EOOS) prior to entering Mode 3 after the PUR/SGR outage.

SRG/PUR SGTR Simulator Validation (Week-1)

Action	Time from initiation of SGTR (minutes)
Initiation of SGTR	0 min 00 s
Manual Trip/SI	2 min 35 s
Finish Immediate Actions	3 min 55 s
Foldout Review Complete	4 min 30 s
Start RCS Temperature Control Step	6 min 10 s
Start check of PRZ PORVs and Spray	8 min 30 s
Start check for Secondary Broad	9 min 50 s
Transition to PATH-2	10 min 30 s
Isolate <u>AFW</u> to ruptured SG	12 min 30 s
Isolate steam flow from ruptured SG	14 min 00 s
Start C/D	17 min 00 s
Reach target temperature	24 min 00 s
Start depressurization	27 min 30 s
Stop depressurization	29 min 30 s
Start SI termination	31 min 30 s

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SRG/PUR SGTR Simulator Validation (Week-2)

Action	Time from initiation of SGTR (minutes)
Initiation of SGTR	0 min 00 s
Manual Trip/SI	1 min 30 s
Finish Immediate Actions	2 min 15 s
Foldout Review Complete	3 min 30 s
Start RCS Temperature Control Step	4 min 00 s
Start check of PRZ PORVs and Spray	5 min 00 s
Start check for Secondary Break	5 min 30 s
Isolate AFW to ruptured SG	6 min 00 s
Transition to PATH-2	7 min 00 s
Isolate steam flow from ruptured SG	8 min 00 s
Start C/D	11 min 00 s
Reach target temperature	17 min 00 s
Start depressurization	19 min 00 s
Stop depressurization	21 min 00 s
Start SI termination	22 min 30 s

SRG/PUR SGTR Simulator Validation (Week-3)

Action	Time from initiation of SGTR (minutes)
Initiation of SGTR	0 min 00 s
Manual Trip/SI	1 min 25 s / 1 min 40 s
Finish Immediate Actions	2 min 15 s
Foldout Review Complete	2 min 35 s
Start RCS Temperature Control Step	4 min 10 s
Start check of PRZ PORVs and Spray	6 min 40 s
Start check for Secondary Bread	7 min 10 s
Isolate AFW to ruptured SG	7 min 55 s
Transition to PATH-2	8 min 15 s
Isolate steam flow from ruptured SG	11 min 00 s
Start C/D	15 min 30 s
Reach target temperature	23 min 20 s
Start depressurization	25 min 20 s
Stop depressurization	28 min 00 s
Start SI termination	29 min 55 s

SRG/PUR SGTR Simulator Validation (Week-4)

Action	Time from initiation of SGTR (minutes)
Initiation of SGTR	0 min 00 s
Manual Trip/SI	1 min 45 s
Finish Immediate Actions	2 min 15 s
Foldout Review Complete	2 min 40 s
Start RCS Temperature Control Step	3 min 40 s
Start check of PRZ PORVs and Spray	7 min 25 s
Start check for Secondary Bread	7 min 55 s
Isolate AFW to ruptured SG	8 min 35 s
Transition to PATH-2	9 min 00 s
Isolate steam flow from ruptured SG	10 min 30 s
Start C/D	12 min 15 s
Reach target temperature	22 min 30 s
Start depressurization	24 min 00 s
Stop depressurization	26 min 30 s
Start SI termination	28 min 30 s

SRG/PUR SGTR Simulator Validation (Week-5)

Action	Time from initiation of SGTR (minutes)
Initiation of SGTR	0 min 00 s
Manual Trip/SI	1 min 55 s / 2 min 10 s
Finish Immediate Actions	3 min 00 s
Foldout Review Complete	3 min 25 s
Start RCS Temperature Control Step	4 min 30 s
Start check of PRZ PORVs and Spray	6 min 35 s
Start check for Secondary Bread	7 min 00 s
Isolate AFW to ruptured SG	7 min 55 s
Transition to PATH-2	8 min 30 s
Isolate steam flow from ruptured SG	11 min 10 s
Start C/D	14 min 15 s
Reach target temperature	24 min 45 s
Start depressurization	27 min 25 s
Stop depressurization	29 min 40 s
Start SI termination	31 min 40 s