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JPM Outline Comments

- **NRC:** RO Admin JPM, *Perform Calorimetric Using Process Plant Computer*, is listed as Modified on the ES 301-1. In the revision section of the JPM, it lists that a new template was used, a task standard was added, and style and format changes were made. None of these would significantly modify the content of the JPM which would impact the expected response of the applicant. Describe what is modified about this JPM.

Facility: JPM is not modified. Incorrect coding. JPM is direct from the bank.

- **NRC:** On ES 301-1, SRO Admin JPM, *Determine Rx Vessel Head Venting Time*, does not correctly state the RO/SRO Importance Ratings (should be 3.9/4.2) for KA 2.1.25.

Facility: Importance rating corrected.

- **NRC:** SRO Admin JPM, *Screen Event for Reportability – Medical*, may not meet requirements of ES 301, D.3.a which states in part, “[f]or the “Emergency Plan” topic, only those K/As related to the emergency plan and implementing procedures (not those associated with the emergency operating procedures (EOPs)) are applicable to this part of the operating test.” Reportability is not directly associated with the emergency plan.

Facility: The SRO ADMIN JPM for Emergency Plan has been replaced with “Emergency Dose Administration”, currently slotted for ADMIN #4, for Radiation Control and a new JPM for “Screen Event for Reportability – Radiation” (tied to the injury reported in the Emergency Plan) is being developed from the previous Reportability JPM.

- **NRC:** On SROU and SROI ES 301-2, In-plant JPM, *Bus Duct Response*, does not correctly state the RO/SRO Importance Ratings (should be 3.4/3.9) for KA 062A2.01.

Facility: Importance rating corrected.

- **NRC:** On SROU ES 301-2, the JPM titled, *Respond to RCP Thermal Barrier Leak with CC Valve Failure*, is incorrectly listed as JPM h. It should be JPM g as indicated on the SROI and RO ES 301-2 documents.

Facility: Listing corrected.

- **NRC:** On SROI and RO ES 301-2, JPM titled, *Restore FW per Attachment C of 1BEP ES-0.1*, should have an SRO Importance Rating of 3.3 (not 3.2).

Facility: Importance rating corrected.

- **NRC:** Potential overlap between Simulator JPM e and Dynamic Scenario 2 Event 9 which addresses manually starting the containment spray system. Please describe why there is not overlap between these test areas.

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Facility: Scenario development created overlap as scenario response and JPM task could not be resolved via different actions. JPM replaced with JPM from bank. JPM is still Safety Category 5, as discussed during phone call.

- **NRC:** Explain why RO Admin JPM titled, *Activate Everbridge notification*, is administrative in nature.

Facility: Activate Everbridge notification is administrative in that it is an activity/duty assigned under the emergency plan. The activity does not change plant/component configuration. For the purposes assigned for Emergency Plan Administrative Topic, this task is covered under operator responsibilities and emergency communications.

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Simulator Scenario Outline Comments

- **NRC:** For all D-1s and D-2s: Please provide noun names and component identifiers in the D-1 and D-2. This will help save time while we are reading and reviewing.

Facility: D-1s and D-2s will be updated to expand abbreviations and include Equipment Part Numbers (EPNs) as well as noun names for better identification.

- **NRC:** Please explain why the 1A FW pump is OOS in all scenarios.

Facility: The original intent was to have a common piece of equipment that was Out of Service (OOS) through the sets and only have it impact a single scenario. This turned out to be the 1A FW Pump. The 1A SI Pump is OOS through several scenarios.

- **NRC:** On the Form ES-301-5 for each crew, the component failures that occur after the major event are not counted. It was also noticed that they are assigned on the D-1 to the ATC or BOP and the SRO. Do you have a reasonable level of confidence that the assigned applicants will respond to the event? If so, those can be added to the Form ES-301-5 totals.

Facility: Due to the fluid motion of the crew during post major event activities, it is difficult to absolutely assign event response. While it was noted who would be expected to respond to the event, the events were not counted due to uncertainty of response. A review of the events was conducted and any event that could not be assigned with an extreme high level of confidence was assigned to the crew.

- **NRC:** The total counts of abnormal events are 5 (by my count) for all scenarios. The target range is 2-4. Is there is a way to reduce the events to this range without making it impossible for the SRO-I applicants to get the required I/C failures and major events as the ATC, or for the SROs to get the required number of TS events? The concern with exceeding the target in all scenarios is that the scenarios may run too long.

Facility: Scenarios 2 and 4 cannot be altered without dropping one or both RO candidates to less than the required events. Scenarios 1, 3, 5, and 6 were reviewed for opportunities to reduce events and maintain candidate requirements. Scenario 6 was not altered due to the possibility of it replacing any of the other scenarios and the unknown events that would need to be replaced. Scenarios 1, 3, and 5 had one to two events removed or realigned in each scenario in order to ensure run time was within 60 to 90 minutes as identified during validation.

- **NRC:** For Scenario 2, CT-17, please list all the valves that are required to isolate the 1D S/G in the D-2. This will help the exam team know what is required to complete the CT and determine whether the crew has performed the CT correctly.

Facility: The associated valves are listed specifically in the D-2 for the event.

- **NRC:** For Scenario 2, CT-3, "Restart Containment Spray Pump before transition to Z-1 Red Path," Red path would require containment pressure to exceed 50 psig. Would this scenario actually result in containment pressure exceeding 50 psig if no CS pumps were started?

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Facility: Discussion and validation of the simulator identified that the 50 psig containment pressure was not reachable with a single faulted Steam Generator. The scenario was modified to two faulted Steam Generators to provide a significant challenge. The Boundary was changed to “before transition out of 1BFR Z.1”.

- **NRC:** Scenario 2, Event 8 says, “The crew will proceed to 1BEP-2 FAULTED STEAM GENERATOR ISOLATION UNIT1 to isolate the 1D SG. Containment pressure will rise to the Phase B / Containment Spray actuation setpoint. Only 1B CS pump will automatically start. It will run for 3 minutes and then trip. The crew will identify the lack of CS pumps running above 20 PSIG containment pressure. The crew will transition to 1BFR Z-1, Orange Path BST either by the US direction or STA prompt, and manually start the 1A CS pump.” (1) Please delete “or STA prompt” since there is no STA available for this exam. (2) Also, we would like to understand the flow of this event better. Why would the crew not attempt to start the 1A CS pump as soon as the Phase B condition exists?

Facility: All references to an STA have been removed as well as booth instructions for prompts as STA. 1BEP-0 Attachment B does provide steps to actuate Containment Spray if both trains are not operating. However, after providing an additional Containment Actuation signal, the procedure is satisfied with a single train in operation. The 1A Containment Spray pump will not auto start and will require additional switch and valve alignment to manual start.

- **NRC:** Scenario 3, Event 1: on the D-1 form in the summary of the events, for Event 1, last sentence says, “Once the Generator is synched and RX power is greater than 10%, at the lead examiner’s discretion, proceed to Event 3.” Consider consolidating the summary of Events 1 and 2, or for Event 1, say instead, “Once the Generator is synched, the crew will commence Event 2.”

Facility: Removed ‘and Rx power is greater than 10%’ as redundant. Now reads ‘Once the Generator is synched, at the lead examiner’s discretion, proceed to Event 2’.

- **NRC:** Scenario 3, Event 9: Please add the criteria for when the CV112 valves are supposed to realign.

Facility: Criteria added to outline

- **NRC:** Scenario 3, Event 9: The last statement on the D-1 says, “The scenario can be terminated after completion of ECCS equipment and alignment of the 1CV112 valves.” The crew needs to transition from BEP-0 to BEP-1. Will that termination point provide sufficient time for them to enter BEP-1 and take “measurable actions” (per NUREG-1021, Rev 11, Appendix D, Page D-10)?

Facility: Added ‘after completion of BEP 1 Step 6’ to termination point to ensure measurable action after transition.

- **NRC:** Scenario 4, CT-16: when in this scenario would you expect the RCP trip criteria to be met?

Facility: RCP Trip criteria will be met approximately 1 minute and 15 seconds after the RX trip.

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- **NRC:** Scenario 4, IC on first page says 49%, but summary says 48%. Also, please add the word “start” to say, “...and finalize preps for 1B FW pump *start*” in the summary for Event 2.

Facility: The summary was changed to 49% to match the D1 first page and initial IC power level. Change Event 2 summary set sentence to read “and finalize preps to start the 1B FW pump.”

- **NRC:** Scenario 4, Event 8 and 9: The summary says the MSIVs will fail to automatically close on the spurious safety injection signal, and that the reactor and turbine will not automatically trip. Does the crew need to close them, and if so, is that a critical task? Also, why is it not a critical task to trip the reactor, too?

Facility: The original scenario had the failures of the Main Steam Isolation Valves (MSIVs) and the Main Turbine (MT) in order to satisfy the Critical Task 13. With the inclusion of the isolation of the LOCA outside of containment as a critical task, the following events have been removed, “no auto RX trip”, “Main Turbine auto and manual failure to trip”. And “All MSIVs fail to close”. This was done to reduce time of the scenario without any significant impact to the scenario or critical tasks.

- **NRC:** Scenario 4, Event 8 and 9: to count 1BCA-1.2 as an EOP entered, they will need to take “measurable actions,” so we should find a logical termination point after they have the chance to take “measurable actions,” perhaps the steps up to and including closing 1RH8716A or B and 1SI8812B to isolate the leak. If these are included, are these also CTs?

Facility: The scenario was modified to include the isolation of the leak. The isolation of the leak was added as a critical task. The critical task to close the governor valves was removed.

- **NRC:** Scenario 5, CT-A: This is the first CT I have seen in the D-1 where they must take action to prevent an automatic Rx trip. In Scenario 1, Event 4, the EH pump trips, and the standby pump fails to start, and the summary says a turbine trip will occur in 90 seconds. There is not a similar CT identified in that scenario. I recommend either adding one there or deleting CT-A from Scenario 5.

Facility: The Scenario 1 was modified to have the original Event 4 and Event 6 combined into an Event 6. This limits the impact of a RX trip in Scenario 1. The Critical Task A was removed from Scenario 5. Power level was reduced to 75% to better align the initial scenario start with a common start with Scenarios 1 and 2.

- **NRC:** Scenario 5, Events 2 and 7 – looks like they are doing two down powers in the same scenario. Can we delete Event 2 and give reactivity maneuver credit for the ATC for Event 7 (and remove component failure credit)?

Facility: The original Event 2 was eliminated from the scenario. The original Event 7 was reassigned as a reactivity maneuver and the component failure credit removed.

- **NRC:** Scenario 5, Events 8-10 summary says, “The Main Turbine will not auto trip and will require manual actuation.” Is this also a CT?

Facility: The manual trip of the Main Turbine (MT) is to comply with immediate actions and to isolate the steam flow from the Steam Generators (SG). In this case, the Main

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Steam Isolation Valves are still available. These valves will get a closure signal from SG pressure at 640 psig or rate sensitive on a rapid dropping pressure. The MSIVs closure prevents this from being a critical task.

- **NRC:** Scenario 5, Events 8-10, how far into 1BEP-1 should do they need to go to take “measurable actions?”

Facility: The crew needs to progress to 1BEP-1 LOSS OF REACTOR OR SECONDARY COOLANT UNIT 1 Step 6 to meet measurable actions. This step determines whether ECCS flow should be reduced for the current conditions. This will either allow a transition to 1BEP ES.1-1 SI TERMINATION or direct continued actions in 1BEP-1.

- **NRC:** Scenario 6, Event 3: should that be a component vs instrument failure?

Facility: Event type changed to component failure.

- **NRC:** Scenario 1, Event 6: should that be a component vs instrument failure?

Facility: Event type changed to component failure.

- **NRC:** Scenario 1, Event 7: It looks like “[CT]” should go with Event 9, “Train A Phase A fails to actuate in auto.”

Facility: Critical task aligned correctly with Event 9.

- **NRC:** Scenario 1, Event 8: If the sequence of events is correctly understood from the summary, Train A Phase A C/S failure and the PZR PORV failing open occur in 1BEP-0 before the crew must deal with the MSIVs failing to close in BEP-3, so it seems to make more sense to have “All MSIVs fail to close” become Event 9, and “PZR PORV fails open” and “Train A Phase A fails to actuate in auto” become Event 8.

Facility: The sequence of events have been reordered into a more logical flowpath. Event 6 is the failure of EH pumps which will result in a manual reactor trip. Event 7 is the PZR PORV failure and Phase A failure identified as the critical tasks. Event 8 is the failure of the MSIVs to close causing entry into 1BCA 3.1. Event 9 no longer has any failures and has been deleted.

- **NRC:** Scenario 1, CT-11: Explain why the boundary for the CT is “prior to completion of 1BCA 3.1 Step 12...”

Facility: The boundary for the Critical Task is to have one valve closed on each critical Phase A penetration before the end of the scenario. The boundary of 1BCA 3.1 Step 12 was established to limit the duration of the scenario. The stopping criteria of after 1BCA 3.1 Step 8 was to ensure measurable action was taken within 1BCA 3.1.

- **NRC:** Scenario 1, Event 3: Does the channel need to be placed in trip/bypass to move on to Event 4 (or does it not matter)?

Facility: The channel does not need to be placed in trip/bypass. The condition of the channel bistable switches does not impact the flow of events for the evaluation. OPS SOP for addressing bistables is to establish the required condition within 15 minutes.

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This requires dispatching licensed personnel to cabinets in the Aux Equipment Electric Room to change bistable status. These are not physically replicated for the simulator, but can be simulated if required. They are not required to continue with the scenario flowpath.

- **NRC:** Scenario 1, Event 8&9: last sentence says, “critical steps,” and should say “critical tasks.”

Facility: The term “critical steps” replaced with term “critical task”.

- **NRC:** Scenario 1, Event 7, last sentence in summary on D-1 (and the D-2), says, “The crew should transition to 1BEP-3 STEAM GENERATOR TUBE RUPTURE UNIT 1 to mitigate the event.” The transition to 1BEP-3 does not occur until after Events 8&9. To avoid confusion, could you please delete that statement from Event 7’s summary on the D-1 and D-2 and add it after the sentence that says, “The crew will identify the failure and manually actuate Phase A C/S or manually close all Train A valves.”

Also, what happens if the crew does not manually actuate SI? Does it actuate as expected, and if so, will the malfunctions still occur as planned?

Facility: The event summary statements for the revised Events 7 & 8 have been altered to better follow the sequence of events. The event failures are identified and addressed prior entering 1BEP-3, as expected during the scenario. If the crew fails to actuate SI, the SI will still occur automatically at a RCS pressure of 1829 psig. The malfunctions will still occur as planned. The Phase A failure is preloaded and the booth operator has instructions to manually actuate the PZR PORV failure after an auto actuation.

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Written Exam Outline/Audit Exam Outline

- **NRC:** Ensure written exam question 38 differs from Dynamic Scenario 3 Event 9 and Scenario 5 Event 9, which test the applicant's ability to determine that all ESFAS/SI automatic actions have occurred.

Facility: The valves specified in Question 38 are B Train valves and will not be specifically referenced in addressing Scenario 5 Event 9 as that is in reference to Train A valves only. There is no correlation between Scenario 3 and Question 38.

- **NRC:** Ensure written exam question 29 differs from Dynamic Scenario 3 Event 5, which tests the applicant's ability to determine the impacts of interlocks on the letdown system, specifically the 1PT131 causing letdown to isolate.

Facility: The interlocks chosen for the Question 29 are in reference to operation of the 1CV112A LETDOWN TO VCT OR HUT DIVERT VALVE. This does not overlap with Scenario 3 Event 5 which addresses the failure of 1PT-131 which is associated with the operation of valve 1CV131. Question 29 references the highest setpoint and status of the valve. Scenario 2 Event 4 does have the 1LI-112 fail high which will cause 1CV112A to realign due to the failure. Restoration per 1BOA INST-2 OPERATION WITH A FAILED INSTRUMENT CHANNEL UNIT 1 Attachment V does not specify setpoint. BAR 1-9-A2 VCT LEVEL HIGH HIGH/LOW references the level when the valve opens, but not a value for full closure.

- **NRC:** Ensure written exam question 36 differs from Dynamic Scenario 4 Event 7, which tests the applicant's ability to respond to a PZR pressure channel failing in automatic control.

Facility: Question 36 asks how the PZR pressure controller reacts to normal conditions. Due to Ovation, the PZR Pressure controller will not respond to the failure of Scenario 4 Event 7 and no overlap is noted for these topics.

- **NRC:** Ensure written exam question 43 differs from Dynamic Scenario 5 Event 7, which tests the applicant's ability to understand and respond to MFW pump automatic trips.

Facility: Scenario 5 Event 7 has the candidates respond to the trip of a feedwater pump and does not allow for the investigation into the reason for the trip. Question 43 deals with unit differences for FW pump trip criteria. There is no overlap between the two topics.

- **NRC:** Ensure written exam question 20 differs from Simulator JPM a, which tests the applicant's ability to understand and respond to failure of boration valves.

Facility: Question 20 inquiries on the knowledge of how to perform an emergency boration without the use of the Reactor Makeup Control System. The JPM deals with a failure of the Reactor Makeup Control System to stop a boration when it should

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have completed. Scenario 1 Event 6 has the ATC respond to a singular valve failure which restores a stopped boration. There is no identified overlap between the topics.