

# GINNA 2022 Initial License Exam Outline Review Comments

## Simulator Scenario Outline Comments

- **GENERAL COMMENTS (ALL SCENARIOS)**

- **NRC:** NUREG-1021, ES-3.3, requires each Critical Task (CT) possess the four elements listed below. For the 75-Day submittal, provide a CT information page/sheet with each scenario that identifies how the individual elements are met.
  - a) Initiating Cue
  - b) Performance Feedback
  - c) Success Path
  - d) Measurable Performance Standard, specifically.
    - i. *Expected action(s)*
    - ii. *Safety-significant boundary conditions/criteria that clearly define at what point a CT must be accomplished*

**GINNA:** Each Pre-Identified Critical Task has been formatted as follows: Critical Task statement, Initiating Cue, Performance Feedback, Success Path, Measurable Performance Standard, and Safety Significance. This Critical Task format will be carried forward to the Form 3.3-2 for each scenario.

- **NRC:** Include the following statement on the Critical Task information sheets of each scenario:

*"Per NUREG-1021, ES-3.3, if an applicant's actions or inactions create a challenge to plant safety, those actions or inactions may form the basis for a Critical Task identified in the post scenario review."*

**GINNA:** This statement has been included following the Pre-Identified Critical Tasks on the Critical Task Sheet (last page of Form 3.3-1 for each scenario) and will be carried forward to Form 3.3-2 for each scenario.

- **SCENARIO #1**

- **NRC:** Scenario 1, Event 2, *"Master Pressure Controller (431K) Fails High,"* Summary Description states *"The operator will respond using the guidance in A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE, and AR-F-10, PRESSURIZER LO PRESS 2205 PSI, ..."* Identify the actions being taken by the credited position (i.e., the ATC operator) in response to the event, rather than merely stating the operator will respond using "X" procedure(s).

**GINNA:** Revised the Event 2 description as follows: **"Following this, the Master Pressure Controller (431K) will fail such that the output in AUTO goes to 100%, causing both Pressurizer Spray Valves to OPEN, and PRZR pressure to LOWER. The operator will respond by placing 431K in MANUAL to stabilize and restore PRZR pressure to the normal band using the guidance of A-503.1,**

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**EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE, AR-F-10, PRESSURIZER LO PRESS 2205 PSI, and AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE. As an alternative the operator may place both the Pressurizer Spray Valve controllers (HCV-431A and 431B) in MANUAL to stabilize and restore PRZR pressure to the normal band. The operator will address Technical Specification LCO 3.4.1, RCS PRESSURE, TEMPERATURE, AND FLOW DEPARTURE FROM NUCLEATE BOILING (DNB) LIMITS, and Technical Requirements Manual TR-3.4.3, ANTICIPATED TRANSIENTS WITHOUT SCRAM (ATWS) MITIGATION. Using Time Compression, the Master Pressure Controller (431K) will be repaired, returned to AUTO and the scenario will continue.”**

- **NRC:** Scenario 1, Event 3, “25 GPM RCS Loop A Cold Leg,” Summary Description states “The operator will respond per AR-F-14, CHARGING PUMP SPEED and enter AP-RCS.1, RCS LEAK, and control RCS inventory.” Identify the actions being taken by the credited position (i.e., the ATC operator) in response to the event, rather than merely stating the operator will respond using “X” procedure(s). What action is being taken by the ATC applicant to control RCS inventory and is the applicant also expected to perform an RCS Leak Rate Determination/Calculation?

**GINNA: Revised the Event 3 description as follows: “Subsequently, an RCS leak in the Loop A Cold Leg will occur. The operator will respond by controlling charging pump speed and flow in MANUAL to stabilize and maintain PRZR level at program per AR-F-14, CHARGING PUMP SPEED and AP-RCS.1, REACTOR COOLANT LEAK. Additionally, the operator will determine the RCS leak rate using HC-2.0, RCS LEAKRATE DETERMINATION. The operator will address Technical Specification LCO 3.4.13, RCS OPERATIONAL LEAKAGE.”**

- **NRC:** Scenario 1, Event 7, “Failure of A SI Pump to Auto Start; Trip of C SI Pump,” is closely related to a test item scripted for use on the previous NRC Exam [N20-1; Scenario 1, Event 8]. GINNA intends to use the previous NRC Exam (N20-1) as their CERT Exam. **(Duplication/overlap concern with CERT Exam)**

NUREG 1021, ES-3.1, Paragraph B.4, states “Do NOT duplicate test items (simulator scenarios or JPMs) from the applicant’s audit test. For retake examinations, do not duplicate test items from the applicant’s original test. Simulator events and JPMs that are related to those tested on the audit examination are permitted, provided that the actions required to mitigate the transient or complete the task (e.g., using an alternative path) are significantly different from those required during the audit examination.” The facility licensee shall identify for the NRC chief examiner those simulator events and JPMs that are related to those tested on the audit examination.”

**GINNA: Ginna will NOT be using Scenario #1 from the 2020 Ginna NRC Exam. Overlap issue no longer exists.**

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- **SCENARIO #2**

- **NRC:** Scenario 2, Event 1, “Swap Service Water Pumps/D Service Water Pump Trip,” Summary Description states: a) the operator will start SWP D and then stop SWP C, b) when the operator stops SWP C, its Discharge Check Valve will stick partially open, resulting in lower system pressure, and c) when SWP C is re-started, SWP D will trip. Separate Event 2 into two events, i.e., the Normal Event and the Component Failure, renumber the events, and **update Form 3.4-1 accordingly**.

**GINNA:** This Event has been separated into two separate events: Event 1 “Swap Service Water Pumps (SWP)” and Event 2 “SWP C Check Valve sticks OPEN/SWP D Trips”. Renumbered remainder of Events. Form 3.3-1 revised accordingly. Form 3.4-1 will be revised for the NRC Exam Submittal.

- **NRC:** Scenario 2, Event 6, “Automatic Rx Trip Fails,” is closely related to a test item scripted for use on the previous NRC Exam [N20-1; Scenario 2, Event 7]. GINNA intends to use the previous NRC Exam (N20-1) as their CERT Exam. **(Duplication/overlap concern with CERT Exam)**

NUREG 1021, ES-3.1, Paragraph B.4, states “Do NOT duplicate test items (simulator scenarios or JPMs) from the applicant’s audit test. For retake examinations, do not duplicate test items from the applicant’s original test. Simulator events and JPMs that are related to those tested on the audit examination are permitted, provided that the actions required to mitigate the transient or complete the task (e.g., using an alternative path) are significantly different from those required during the audit examination.” The facility licensee shall identify for the NRC chief examiner those simulator events and JPMs that are related to those tested on the audit examination.”

**GINNA:** NO overlap exists as the ability to manually trip the reactor from the Main Control Board exists for this Event; whereas, on the CERT Exam scenario manual trip is NOT available and entry is made into FR-S.1.

**Enhanced the Event description as follows: “The reactor will fail to trip automatically. The operator will be able to manually trip the Reactor using the manual pushbutton(s).”**

- **NRC:** On Outline Form 3.3-1, identify that Events 6 and 7 are associated with Critical Tasks (CT) 1 and 2 respectively, by including the CT designators (i.e., CT-1, CT-2, etc.) in the corresponding Event Description Column.

**GINNA:** Revised Form 3.3-1 to add the Critical Task designators (CT-1 and CT-2) to the associated Event Description block (Events 7 and 8).

- **NRC:** NUREG 1021, ES-2.3, Form 2.3-2, Target Quantitative Attributes per Scenario Section, specifies a Target Range of “1-2” for Table item #4, “EOPs entered/requiring substantive actions.” Review of the Scenario #2 Outline indicates that the scenario is built to directly transition from E-0 to Functional Recovery Procedure FR-H.1, “Response to Loss of Secondary Heat Sink,” and that Westinghouse Primary EOPs E-1, E-2, or E-3 will not be entered/used. Consequently, a value of “0” will be assigned for Table Attribute Item 4 on Form 2.3-

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2, which is outside of the Target Range. NUREG-1021, ES-3.3, Section B.2.g, *“EOP Operating Procedures Used,”* states *“Moreover, the primary scram response procedure that serves as the entry point for the EOPs is not counted.”* A determination of acceptability will be based upon Chief Examiner evaluation of (a) the complexity of the Scenario, *i.e., the extent to which it exercises Contingency EOP Procedure FR-H.1 for the Loss of Secondary Heat Sink*, (b) the use of alternate decision paths and prioritization of actions within the EOP to mitigate the CSFST Heat Sink Red Path condition, and (c) the measurable actions that must be taken by the crew. Ensure that Scenario 2 sufficiently addresses each of these evaluation criteria.

**GINNA: Form 2.3-2 to be revised to annotate 0 EOP and 1 Contingency EOP for the NRC Exam Submittal. The Ginna Exam Team reviewed Scenario #2 with the following comments: (a) the scenario is sufficiently complex as there are four failures prior to the major event and two post-major event failures; (b) during performance of FR-H.1, the crew has to implement several alternate paths to successfully mitigate the event; and (c) sufficient measurable actions will be performed by each board operator and several Technical Specification determinations made by the SRO. Chief Examiner will provide statement for Form 3.3-1 following Prep Week.**

- **NRC:** Critical Task CT-2 reads *“Establish RCS Bleed and Feed so that the RCS depressurizes sufficiently such that the SI Pumps inject flow into the RCS.”* CT wording and associated Bounding Criteria are potentially deficient because they appear to convey that the establishment of SI Flow, irrespective of any time element, is the only critical aspect of the task (*i.e., regardless of whether Bleed and Feed is initiated before the RCS saturates at a pressure above the shutoff head of the SI Pumps*). What do the words *“depressurizes sufficiently”* actually mean in the above CT statement? The associated CT summary paragraph states:

*“Failure to initiate RCS Bleed and Feed before the RCS saturates at a pressure above the shutoff head of the high-head ECCS Pumps results in significant and sustained core uncover. If RCS Bleed and Feed is initiated so that the RCS is depressurized below the shutoff head of the high-head pumps, then core uncover is prevented or minimized. According to Attachment 1 of OP-GI-102-106, OPERATOR RESPONSE TIME PROGRAM AT GINNA STATION, Type A Action # TCA-1203A, which requires the operator to initiate Bleed and Feed within 10 minutes of reaching the criteria in FR-H.1, will no longer be effective after approximately 22 minutes.”*

This information appears to contradict both the CT statement and the following assertion, which is the last sentence of the CT summary paragraph cited above:

*“Since SI Injection Flow can be used to determine the effectiveness of the task, SI Injection Flow, rather than the time limit, will be used as the bounding criteria.”*

Explain the CT statement and the Bounding Conditions. Resolve the apparent discrepancy between the CT as written and the time critical operator action requirement in Type A Action # TCA-1203A.

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**GINNA:** Scenario was run up to the point of FR-H.1, Step 2. At this point Bleed and Feed criteria were met; however, no action was taken to establish Bleed and Feed. The correct action would be to stop both RCPs and open both PORVs using ATT-12.0, ATTACHMENT N2 PORVS. Approximately 18 minutes later, the Pressurizer Code Safety Valves opened creating a condition in which RCS inventory was being lost without the ability to replenish. This condition demonstrates a failure by the crew to adequately mitigate the event and should establish the bounding criteria for the Critical Task. Therefore, it is proposed that the Critical Task be worded as follows: "Once FR-H.1 RCS Bleed and Feed criteria have been met, stop the Reactor Coolant Pumps and OPEN the Pressurizer PORVs before the Pressurizer Code Safety Valves OPEN". This bounding criteria supports a failure of the crew to determine that RCS Bleed and Feed criteria are met at FR-H.1, Step 2.

- **SCENARIO #3**

- **NRC:** Scenario 3, Event 1, "Leak on CCW System/CCW Pump B Trips," Summary Description states "The operator will respond in accordance with AR-A-17, MOTOR OFF RCP CCWP, and enter AP-CCW.2, LOSS OF CCW DURING POWER OPERATION." Identify the actions being taken by the credited position (i.e., the ATC operator) in response to the event, rather than merely stating the operator will respond using "X" procedure(s).

**GINNA:** Revised the Event 1 description as follows: "Shortly after taking the watch, a 30 gpm CCW System leak will develop on the Boric Acid Evaporator Air Ejector Condenser. Approximately two minutes afterwards CCW Pump B will trip, and CCW Pump A will automatically start. The operator will start a Reactor Makeup Water Pump and refill the CCW Surge Tank in accordance with AR-A-17, MOTOR OFF RCP CCWP, and AP-CCW.2, LOSS OF CCW DURING POWER OPERATION. Ultimately, the leak will be isolated by coordination between the control room and field operators. The operator will address Technical Specification LCO 3.7.7, COMPONENT COOLING WATER SYSTEM."

- **NRC:** Scenario 3, Event 2, "Feed Reg Valve A Oscillations," Summary Description states: "Using Time Compression, the FRV A Controller will be repaired, returned to AUTO, and the scenario will continue." Revise the scenario (and associated Event Summary descriptions) to repair/return the FRV A Controller following the Event 3 Rapid Power Reduction (7-8%) and prior to the Event 4 Dropped Rod, to provide the Examiner the opportunity to evaluate the ability of the applicant to Manually Control A S/G Water Level while power is being lowered.

**GINNA:** Revised the Event 1 description as follows: "After this, Feed Regulating Valve (FRV) A will start to oscillate to the point that AR-G-3, S/G A LEVEL DEVIATION  $\pm 7\%$  will alarm. The operator will take manual control of the valve and control S/G A level using the guidance of the Annunciator Response Procedure, A-503.1, EMERGENCY AND ABNORMAL OPERATING PROCEDURES USERS GUIDE, or AP-FW.1, ABNORMAL MFW PUMP FLOW

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**OR NPSH. The FRV A controller will remain in MANUAL until after the power reduction is performed in the next event."**

- **NRC:** Scenario 3, Event 4, "Dropped Rod," credits the ATC and BOP positions with a "Manual Control" competency. The actions taken by both the ATC and BOP applicants in response to the Dropped Rod Event do not meet the intent for a "Manual Control of Automatic Function" Event. Remove the "MC" designation from the Event Type Column for Event 4 and **update Form 3.4-1 to appropriately reflect the change.**

**GINNA:** Removed the "MC" designation from Event 4. Form 3.4-1 will be revised for the NRC Exam Submittal.

- **NRC:** Scenario 3, Event 4, "Dropped Rod," Summary Description states "The operator will respond using AR-C-14, ROD BOTTOM, and enter AP-RCC.3, DROPPED ROD RECOVERY." Identify the actions being taken by the credited positions (i.e., the ATC and BOP operators) in response to the event, rather than merely stating the operator will respond using "X" procedure(s).

**GINNA:** Revised the Event 1 description as follows: "Shortly afterwards, Control Rod F-2 in Control Bank A will drop into the core. The operator will respond by taking the Rod Control Switch to MANUAL and by lowering Turbine Load in MANUAL using AR-C-14, ROD BOTTOM, AR-E-28, POWER RANGE ROD DROP -5%/5SEC, and AP-RCC.3, DROPPED ROD RECOVERY. The operator will address Technical Specification 3.1.4, ROD GROUP ALIGNMENT LIMITS, and 3.2.4, QUADRANT POWER TILT RATIO (QPTR)."

- **NRC:** Scenario 3, CT-1, states "Isolate feedwater flow into and steam flow from the ruptured SG(A) so that minimum  $\Delta P$  between the B SG and A SG is not less than 250 psid once target temperature is reached (Entry into ECA-3.1 at Step 16 RNO)." Enhance the CT statement to clearly indicate that the Bounding Condition is "**Prior**" to Entry into ECA-3.1 at Step 16 RNO.

**GINNA:** Revised Critical Task #1 to "Isolate feedwater flow into and steam flow from the ruptured SG (A) BEFORE a transition to ECA-3.1 occurs."

- **SCENARIO #4**

- **NRC:** Scenario 4, CT-2, states "Establish 200 gpm AFW flow to the A Steam Generator before transitioning out of E-0, unless the transition is to FR-H.1, in which case the task must be initiated before the RCPs are tripped at Step 4 of FR-H.1." The second part of the CT statement regarding the alternative criteria associated with the transition to FR-H.1 is incorrect and needs to be deleted. The transition to FR-H.1 is the Bounding Condition that would constitute a failure of the CT.

**GINNA:** Critical Task 2 revised to "Establish 200 gpm AFW flow to the A Steam Generator before transitioning out of E-0."



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## JPM Outline Comments

- **Admin JPMs**

- **NRC:** Suggest revising the RO Admin JPM Outline as follows, to better align the tasks with the Administrative Topic Categories and enhance the associated K/A assignments:
  - Designate the Manual QTPR Calculation (JPM A.1.a) as *“Equipment Control”* JPM A2, and replace associated K/A 2.1.25 with K/A 2.2.12, *“Knowledge of surveillance procedures.”* (IR: 3.7)
  - Designate the 1/M Plot activity (JPM A2) as *“Conduct of Operations”* JPM A.1.a, and replace associated K/A 2.2.1 with K/A 2.1.7, *“Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretation.”* (IR: 4.4)
  - Change the K/A for the Xenon Reactivity Determination (JPM A.1.b) from 2.1.43 to 2.1.25, *“Ability to interpret reference materials, such as graphs, curves, and tables.”* (IR 3.9)

**GINNA:** 1. JPM A1a RO redesignated as A2 RO and the associated K/A statement changed to 2.2.12 “Knowledge of surveillance procedures (3.7)”.

2. JPM A2 RO redesignated as A1a RO and the associated K/A statement changed to 2.1.7 “Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation (4.4)”.

3. Changed the K/A statement for JPM A1b RO to 2.1.25 “Ability to interpret reference materials, such as graphs, curves, and tables (reference potential) (3.9)”.

4. Revised Form 3.2-1 RO accordingly with the changes described above.

- **NRC:** SRO Admin JPM A3 does not sufficiently test the Radiation Control Topic. The JPM, as described, does not require the SRO applicant to demonstrate specific knowledge of radiation hazards, such as the analysis or interpretation of radiation readings as they pertain to administrative, abnormal, and EOP procedures, per K/A 2.3.14. Instead, the JPM tests applicant knowledge of the facility’s emergency plan by requiring the applicant to perform an EAL Classification (SAE) based on Containment High Range Radiation Monitor readings that are provided. As an alternative, suggest revising the JPM to test applicant knowledge associated with the analysis and interpretation of RCS Specific Activity, including comparison to Tech Spec 3.4.16 limits (i.e., regulatory limits). Revise or replace this JPM.

[Note: Ensure that the revised/replacement JPM is either “New” or “Modified” to meet the minimum Quantitative Requirements of Form 3.2-1, “Administrative Topics Outline,” for the SRO set of Admin JPMs.]

**GINNA:** Replaced JPM with a Bank JPM to “Determine if a Radioactive Release is in Progress”; reference K/A 2.3.11 (4.3).

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- **NRC:** SRO Admin JPM A4, as described, is LOD=1. The SRO applicant is given Form EP-CE-114-100-F-007, “GNP NYS RADIOLOGICAL EMERGENCY DATA FORM (PART 1),” and is directed to use EP-AA-112-100-F-001, “SHIFT EMERGENCY DIRECTOR CHECKLIST,” to identify the latest time the NRC must be notified of the event and whether the ERO is required to be activated. The Classification, EAL Number, and Brief Event Description information are provided to the applicant on Form EP-CE-114-100-F-007. Shift Emergency Director Checklist Form EP-AA-112-100-F-001, also given to the applicant, provides direct “Cookbook” instruction for completing the JPM task with knowledge of the Classification and EAL Number information. Revise or replace this JPM.

[**Note:** Ensure that the revised/replacement JPM is either “New” or “Modified” to meet the minimum Quantitative Requirements of Form 3.2-1, “Administrative Topics Outline,” for the SRO set of Admin JPMs.]

**GINNA:** Replaced JPM with a Modified JPM to “Classify an Emergency Event and Complete the Notification Form”; reference K/A 2.4.41 (4.6).

- **Control Room Systems JPMs**

- **NRC:** No Comments.

- **In-Plant Systems JPMs**

- **NRC:** In-Plant Systems JPM ‘k,’ “Perform EOP ATT-16.0, Ruptured S/G,” accomplishes the local (i.e., Field) actions necessary to complete isolation of the ruptured S/G. The assigned Plant System, associated with Safety Function “4S,” is the “Main and Reheat Steam System.” It is not clear from the JPM Summary Description, whether the MSIVs are closed during the conduct of EOP ATT-16.0. If the MSIVs have been previously closed in E-3, Step 5 RNO, as part of the Initial Conditions (ICs), then the subsequent JPM actions performed in EOP ATT-16.0 will only accomplish those actions necessary to isolate the ruptured S/G upstream of the closed MSIVs, with no actions taken to perform any isolation activities associated with the “Main and Reheat Steam System.” If retaining the JPM, ensure that actions performed in accordance with EOP ATT-16.0 accomplish isolation of the “Main and Reheat Steam System.” Note that actions to locally close the MSIVs were performed on the 2019 NRC Retake Exam (i.e., Previous 2 Exams) under In-Plant JPM “i,” using a different set of ICs and a different procedure. Therefore, closure of the MSIVs using EOP ATT-16.0 would qualify as a “Previous 2 Exam” JPM and the Type Code column of Outline Form 3.2-2 would require update.

**GINNA:** JPM K modified to have the ruptured S/G MSIV as OPEN when the Operator locally checks the MSIV position. This requires the Operator to perform the actions of ATT-16.0 to locally close ‘B’ MSIV. Additionally, the JPM Steps associated with ATT-16.0 after Step 1.f have been removed.

**This JPM is now designated as a Modified Bank JPM since the previous JPM (2019 JPM I) utilized ER-FIRE.1, Attachment 3 to locally CLOSE only the MSIVs. The current JPM K has the additional Operator actions of checking**



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**CLOSED MSIV Bypass Valves and closing the TDAFW Steam Root Valve.  
This is performed using ATT-16.0.  
Form 3.2-2 has been revised accordingly.**