

**Exam Comment Sheet**

Date: 07/31/2019

Submitted By: Buckingham, Story, Whitman

☒ RO ☒ SRO

Exam Section(s): ☒ Written / ☐ Walk-Through / ☐ Simulator Scenario

Test Item (Question/JPM/Scenario, etc.)	Concern or Problem	Recommended Resolution	Reference	Remarks
<b>Question #2</b> <b>Caroline Buckingham (55-73009)</b>	'B' is incorrect. A containment isolation from the control board gives a T-signal to close 427, which then reopens on the loss of air to containment caused by the same signal. Initiating a CI from the control board would have an end result of 426 being open.	CI does not prevent 427 from being re-opened, as its failure position on a loss of air is "open".  There is no correct answer, remove question from Exam	ATT-11.0 33013-1887	The stem clearly states that the question is asking what signal prevents OPEN operation, <b>NOT</b> valve operation on loss of Instrument Air.  Enhance wording in 2 <sup>nd</sup> part of question statement by changing "re-open" to "operate"  Recommend <b>NO</b> change to Exam.  Question to be revised prior to entering into Ginna Exam question bank.
<b>Question #8</b> <b>John Whitman (55-63285)</b>	Multiple correct answers since S/G pressure less than RCS pressure results in S/G temperature less than RCS temperature	Accept both answers (B and D) as correct	ECA-1.1	Recommend changing Exam to both answers 'B' and 'D' as correct.  Question to be revised prior to entering into Ginna Exam question bank.
<b>Question #37</b> <b>Tim Story (55-73018)</b>	Selected backup heaters are energized because the question stem discusses change in	Accept both answers (A and D) as correct	P-10, 5.3.3.3.c.5	NO changes, question stem provides all the requisite data, including rate of change for PRZR

**Exam Comment Sheet**

Test Item (Question/JPM/Scenario, etc.)	Concern or Problem	Recommended Resolution	Reference	Remarks
	PRZR level, but controller 428 is failing high and in accordance with P-10, 5.3.3.3.c.5 Backup Heaters ON if level fails greater than 5% above programmed.			level and pressure, required to correctly answer Recommend <b>NO</b> change to Exam. Question to be revised prior to entering into Ginna Exam question bank.
<b>Question #61</b> <b>Caroline Buckingham (55-73009)</b>	'C' is incorrect. The siphon break is NOT at approximately normal SFP level. In accordance with UFSAR, 9.1.3.4.2, the siphon break hole is "located approximately 18 in. below the normal SFP water level." The answer for 'C' and UFSAR definition do not match.	There is no correct answer, remove question from Exam	UFSAR, 9.1.3.4.2 33013-2835 33013-0638 S-9M, Att 1, NOTE page 13 AR-K-29	Question wording is not specific enough; therefore, there is no correct answer. UFSAR, Section 9.1.3.4.2 states "a 1/4-in diameter drilled hole in the discharge piping, located approximately 18 in. below the normal spent fuel pool (SFP) water level, anti-siphoning protection" UFSAR, Section 9.1.3.2.2 states "The SFP cooling water return line, which terminates at the bottom of the SFP, contains a passive siphon breaker device near the normal SFP water level so that the pool water cannot be

**Exam Comment Sheet**

Test Item (Question/JPM/Scenario, etc.)	Concern or Problem	Recommended Resolution	Reference	Remarks
				<p>siphoned.” Recommend <b>NO</b> change to Exam. Question to be revised prior to entering into Ginna Exam question bank.</p>
<p><b>Question #67</b> <b>John Whitman (55-63285)</b></p>	<p>The NOTE on page 10 of O-1.2 gives examples of alternate power level indications, but is not intended to be an all inclusive list. Step 6.8.1 shows that RCS temperature is an acceptable indication of power.</p>	<p>All answers are correct, remove question from Exam</p>	<p>O-1.2</p>	<p>Steam Dumps are placed in service in pressure control mode at 1005 psig in step 6.7.9 of O-1.2, the difference between Tavg and 547F gives an alternate indication of Reactor power. Furthermore, step 6.8.1 of O-1.2 states “WHILE monitoring diverse indications of Reactor power level (pressure, flows AND temperature), CONTINUE power ascension using control rods AND steam dumps.” specifically calling out temperature as a diverse indication of Reactor power. This means that all four indications presented in the question stem are indications that can be used to confirm</p>

**Exam Comment Sheet**

Test Item (Question/JPM/Scenario, etc.)	Concern or Problem	Recommended Resolution	Reference	Remarks
				Reactor power. Recommend <b>NO</b> change to Exam. Question to be revised prior to entering into Ginna Exam question bank.
<b>Question #81</b> <b>Caroline Buckingham (55-73009)</b>	'D' is also correct. ECA-1.1, Step 7 directs the operator to "establish and maintain cooldown rate in cold legs less than 100°F/HR" to cold shutdown conditions, per the header of the step. Therefore, it is maintained and monitored continuously, including during the depressurization.	Accept both answers (B and D) as correct	ECA-1.1, Step 7	ECA-1.1, Step 7.a states "Establish and maintain cooldown rate in RCS cold legs – LESS THAN 100°F/HR". A-503.1, Section 3.3 states "Maintain" implies a continuing action. Therefore, Tcold would also be monitored during S/G depressurization. Recommend changing Exam to both answers 'B' and 'D' as correct. Question to be revised prior to entering into Ginna Exam question bank.
<b>Question #100</b> <b>Caroline Buckingham (55-73009)</b>	'B' is a responsibility delegated to the Communicator. Also, verbiage in stem of question asks about designating authority, versus the procedure	Accept both answers (B and D) as correct	EP-AA-1000	Per EP-AA-1000 Section B.4, "Non-delegable responsibilities include the following functions: <ul style="list-style-type: none"> <li>• Event classification.</li> <li>• Protective Action</li> </ul>

**Exam Comment Sheet**

Test Item (Question/JPM/Scenario, etc.)	Concern or Problem	Recommended Resolution	Reference	Remarks
	EP-AA-1000, where it asks if the responsibility itself can be designated. Communicator does perform notifications.			<p>Recommendations (PARS) for the general public.</p> <ul style="list-style-type: none"> <li>• Notification of offsite authorities (approval of state/local and NRC notifications).</li> <li>• Authorization of emergency exposure controls in excess of 5 Rem TEDE and the issuance of potassium iodide (KI), for Exelon Nuclear emergency workers per EPA-400."</li> </ul> <p>Because the parenthetical "approval of state/local and NRC notifications" is left off Answer 'B', it changes the meaning of the statement, changing it from a non-delegable approval function to a delegable notification function. The actual state/local and NRC notifications are performed by the</p>

**Exam Comment Sheet**

Test Item (Question/JPM/Scenario, etc.)	Concern or Problem	Recommended Resolution	Reference	Remarks
				Communicator. Recommend changing Exam to both answers 'B' and 'D' as correct. Question to be revised prior to entering into Ginna Exam question bank.

Additional comments: Facility will be submitting additional comments

Exam Analyzer comments: Applicant comments reviewed and resolution determined by QRC

Final Resolution: Submit recommended changes to NRC Chief Examiner and make revisions to questions, as necessary, prior to entry into Ginna VISION

Reviewed by: David Eckert      08/06/2019  
Facility Author      Date

Approved by: Don Dettman      08/06/2019  
Facility Representative      / Date

## **RO Question #8**

### **Applicant comment:**

Both Answer 'B': "(1) water level is maintained in the intact Steam Generator (2) pressure" and Answer 'D': "(1) water level is maintained in the intact Steam Generator (2) temperature" should be considered correct.

### **Discussion:**

ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION Background document states that Reflux cooling is the mechanism by which steam that is generated in the Reactor Coolant System (RCS) enters the Steam Generator (S/G) tubes and is condensed by the cold water on the Steam Generator's secondary side. This liquid then remains in the primary system and promotes cooling. In order for condensing to occur, the temperature of the secondary water must be less than the temperature of the RCS water. This makes answer 'D' correct. However, the second part of the question specifically references the ruptured Steam Generator. The dynamics of the interaction between the ruptured Steam Generator and the Reactor Coolant System must be considered. If the ruptured Steam Generator pressure was at a pressure greater than the Reactor Coolant System, water from the ruptured Steam Generator would flow through the rupture into the Reactor Coolant System. This would create a cooling effect on the Reactor Coolant System, but the mechanism would no longer be reflux cooling as defined by the ECA-1.1 background. Therefore, for reflux cooling to occur as the question asks, ruptured Steam Generator pressure must remain less than Reactor Coolant System pressure, which makes Answer 'B' also a correct answer.

### **Facility comment:**

The questions asks for the mechanism by which Reflux cooling would occur in the ruptured Steam Generator tube following a Loss of Coolant accident. The question states that a Loss of Coolant Accident is occurring coincident with a Steam Generator Tube Rupture. If this was occurring, then one of the cooling mechanisms would be due to loss of inventory out through the Reactor Coolant System break. The other method of cooling would be the reflux condensation occurring in the ruptured Steam Generator. The question is recommended for acceptance of two answers because a pressure differential across the tube in the ruptured Steam Generator would cause flow into the Reactor Coolant System due to the inventory of feedwater in the ruptured Steam Generator secondary side through the ruptured tube and down the hot leg. If Steam Generator pressure is not maintained less than Reactor Coolant System pressure, reflux cooling would no longer be occurring, backflow would be occurring. Ruptured Steam Generator pressure must be maintained less than Reactor Coolant System pressure to cause reflux cooling to occur in the ruptured Steam Generator. Answer B is also a correct answer. The question is recommended for acceptance of two correct answers, answers 'B' and 'D'. The facility concurs with the Applicant's comments.

### **References:**

ECA-1.1, Loss of Emergency Coolant Recirculation (Revision 029)

ECA-1.1, Loss of Emergency Coolant Recirculation Background Document (Revision 014)

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	EPE 038 EK1.04	
	Importance Rating	3.1*	

**Knowledge of the operational implications of the following concepts as they apply to the SGTR: Reflux boiling**

**RO Question #8**

Given the following plant conditions:

- A LOCA has occurred
- Concurrently, one S/G has experienced a tube rupture
- Multiple electrical grid issues are also occurring
- The core is being cooled by reflux cooling

Which ONE of the following correctly completes the statements below?

- 1) The Operator must take action to ensure \_\_\_\_ (1) \_\_\_\_ in order to promote reflux cooling.
- 2) Reflux cooling will occur in the ruptured S/G as long as the ruptured S/G \_\_\_\_\_ (2) \_\_\_\_\_ remains less than that of the RCS.

- A. (1) the intact S/G is fully depressurized  
(2) pressure
- B. (1) water level is maintained in the intact S/G  
(2) pressure
- C. (1) the intact S/G is fully depressurized  
(2) temperature
- D. (1) water level is maintained in the intact S/G  
(2) temperature

**Answer: D**

**Explanation:**

- A. **INCORRECT.** The first part is plausible since ECA-3.1, a potential procedure to deal with a SGTR, and subsequent large break LOCA, contains actions to depressurize the intact S/Gs to atmosphere in an effort to promote any kind of core cooling. Incorrect since reflux occurs



independently of secondary side pressure control. The second part is plausible since the Operator may mis-interpret how Reflux Boiling works and/or when evaluating whether or not the Steam Generators are required as a secondary heat sink in FR-H.1, the pressures of both the RCS and intact S/Gs are considered. Incorrect since Reflux cooling will occur in the ruptured S/G as long as the ruptured S/G temperature, not pressure, remains less than that of the RCS.

- B. **INCORRECT.** The first part is correct. The second part is plausible since the Operator may mis-interpret how Reflux Boiling works and/or when evaluating whether or not the Steam Generators are required as a secondary heat sink in FR-H.1, the pressures of both the RCS and intact S/Gs are considered. Incorrect since Reflux cooling will occur in the ruptured S/G as long as the ruptured S/G temperature, not pressure, remains less than that of the RCS.
- C. **INCORRECT.** The first part is plausible since ECA-3.1, a potential procedure to deal with a SGTR, and subsequent large break LOCA, contains actions to depressurize the intact S/Gs to atmosphere in an effort to promote any kind of core cooling. Incorrect since reflux occurs independently of secondary side pressure control. The second part is correct.
- D. **CORRECT.** If the RCS is not full of liquid, it is especially important to keep the secondary system adequately full of water to promote reflux cooling. Reflux cooling is the mechanism by which steam that is generated in the RCS enters the S/G tubes and is condensed by the cold water on the S/G's secondary side. This liquid then remains in the primary system and promotes cooling. Refluxing is a heat and mass transfer process. Some of the steam produced by the core is condensed in the Steam Generator tubes, flows back down the hot legs to the core, thus transferring energy from the core to the Steam Generators. Refluxing will continue until the RCS temperature drops below the Steam Generator temperature, resulting in a loss of condensation.

Technical Reference(s): ECA-1.1, Loss of Emergency Coolant Recirculation  
Background (p74; Rev 014)

Proposed references to be provided to applicants during examination: None

Learning Objective: RTA05C 1.0

Question Source: Bank # X  
Modified Bank #   
New

Question History: Last NRC Exam 2016 Robinson ILT

Question Cognitive Level: Memory or Fundamental Knowledge X  
Comprehension or Analysis

10 CFR Part 55 Content:	55.41	.5, .8
	55.43	

Comments:

STEP: Maintain RCS Heat Removal:

PURPOSE: To ensure RCS heat removal

BASIS:

This step instructs the operator to maintain RCS heat removal either by continued RHR System operation (if available) or by dumping steam, since at this time no SI flow is being provided to the RCS. If no intact S/Gs are available for dumping steam and the RHR System is not in service, the operator is instructed to use a faulted S/G to maintain RCS heat removal.

SUPPLEMENTAL INFORMATION:

If the RCS is not full of liquid at this time, it is especially important to keep the secondary system adequately full of water to promote reflux cooling. Reflux cooling is the mechanism by which steam that is generated in the RCS enters the S/G tubes and is condensed by the cold water on the S/Gs secondary side. This liquid then remains in the primary system and promotes cooling.

STEP DIFFERENCES FROM GENERIC ERG:

Added other plant specific means to steam S/Gs if steam dump and ARVs are unavailable.

ECA-1.1	TITLE: LOSS OF EMERGENCY COOLANT RECIRCULATION	REV: 029 PAGE 38 of 40
---------	---	---------------------------

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
42	Maintain RCS Heat Removal:	
a.	Use RHR system if in service	
b.	Dump steam to condenser from intact S/Gs	b. Manually or locally dump steam from intact S/G(s):
		o Use S/G ARVs
		-OR-
		o Open steam supply valves to TDAFW pump
		-OR-
		o Dispatch EO to perform the following:
		1) Open S/G MSIV bypass valves.
		2) Open priming air ejector steam supply root valve, V-3578.
		3) Open priming air ejector steam isolation valves
		• V-3580
		• V-3581
		<u>IF</u> no intact S/G available and RHR system <u>NOT</u> in service, <u>THEN</u> use faulted S/G.

## SRO Question #81

### Applicant Comments:

The stem of the question asks, "what parameter is monitored/maintained during S/G depressurization?" Both 'B' and 'D' are correct answers as they both include parameters that are being continuously maintained until the intended conditions are reached in ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION. Both action statements in the procedure use the action verb "maintain" only; "monitor" is not used in either step. Therefore, they are both continuous action statements as defined per A-503.1, EMERGENCY AND ABNORMAL PROCEDURES USER GUIDE. While Reactor Vessel Level Indicating System (RVLIS) level is being maintained during the depressurization, RCS cold leg temperatures are also being maintained during that step and throughout the procedure until cold shutdown conditions are met.

### Discussion:

Step 36 of ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION states "Depressurize intact Steam Generators to 260 psig slowly to inject Safety Injection accumulators: a) dump steam to condenser to maintain appropriate RVLIS indication." Therefore, RVLIS level is being maintained in this step as identified on the answer key.

In addition, Step 7 of ECA-1.1 states "Initiate RCS cooldown to cold shutdown: a) Establish and maintain cooldown rate in RCS cold legs – less than 100°F/HR." The definition of the action "maintain" is defined in A-503.1 as "to operate components to control a specific parameter to a procedure requirement. This implies a continuing action." Therefore, RCS cold leg temperature will be maintained continually throughout the remainder of the procedure until cold shutdown conditions (< 200°) are reached, including during the Steam Generator depressurization at step 36. It is proven that cold shutdown conditions have not yet been reached during step 36 because Core Exit Thermocouple temperature is checked to be above 200°F in step 26. If cold shutdown conditions had already been reached, the Results Not Obtained (RNO) column action directs the reader to step 41, which bypasses the Steam Generator depressurization entirely. Therefore, it is evident that RCS cold leg temperature cooldown rate is still being maintained in addition to RVLIS level in step 36, as it was a continuing action from step 7.

**Facility Comment:** The question asks what parameter is being monitored/maintained during the depressurization step 36 in ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION. Due to rules of usage contained in A-503.1, EMERGENCY AND ABNORMAL PROCEDURES USER GUIDE, with respect to action verbs, steps which occur prior to the depressurization step which are continuous action steps are still required to be monitored and maintained. Answer D contains a set of conditions which are valid and correct for the question which is asked. A previous step (step 7) establishes and maintains a cooldown rate in the Reactor Coolant System cold legs less than 100 degrees per hour. This step is in effect and requires continuous actions related to monitoring and maintaining Reactor Coolant System cold leg temperatures. The question is recommended for acceptance of two correct answers, answers 'B' and 'D'. The facility concurs with the Applicant's comments.

### References:

ECA-1.1, Loss of Emergency Coolant Recirculation (Revision 029)

A-503.1, Emergency and Abnormal Procedures User Guide (Revision 052)

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	EPE W/E11 G2.4.3	
	Importance Rating		3.9

**Ability to identify post-accident instrumentation. (Loss of Emergency Coolant Recirculation)**

**SRO Question #81**

Given the following plant conditions:

- The operating crew has implemented ECA-1.1, Loss of Emergency Coolant Recirculation
- Crew is performing the Step which directs the crew to depressurize intact S/Gs to 260 psig slowly to inject SI Accumulators
- Both RCPs are OFF
- CNMT pressure is 6 psig and stable
- RVLIS level is 59% and stable
- Loop 'A' T<sub>COLD</sub> is 408°F and slowly lowering
- Loop 'B' T<sub>COLD</sub> rapidly lowered to 280°F and is currently 330°F and slowly rising
- Both S/G pressures are 300 psig and slowly lowering

(1) What parameter is monitored / maintained during S/G depressurization;

**AND**

(2) Based on plant conditions, what transition, if any, is required?

NOTE: FR-P.1, Response to Imminent Pressurized Thermal Shock Condition  
FR-C.2, Response to Degraded Core Cooling

- A. (1) RVLIS level  
(2) transition to FR-C.2
- B. (1) RVLIS level  
(2) remain in ECA-1.1
- C. (1) RCS Cold Leg temperature  
(2) transition to FR-P.1

- D. (1) RCS Cold Leg temperature  
(2) remain in ECA-1.1

**Answer: B**

Explanation:

- A. **INCORRECT**. The first part is correct. The second part is plausible since the Applicant may determine that an ORANGE path exists on Core Cooling CSFST. Incorrect since with RCPs secured and RCS temperature less than 700°F, with RVLIS greater than 55% FR-C.2 is NOT required.
- B. **CORRECT**. In accordance with ECA-1.1, Step 36 "Depressurize Intact S/Gs to 260 psig slowly to inject SI Accumulators: Dump steam to condenser as necessary to maintain appropriate RVLIS indication". Additionally, according to F-0.2, Core Cooling CSFST with both RCPs secured, RCS temperature less than 700°F, and RVLIS greater than 55%, only a YELLOW path to FR-C.3 exists and the Operator would remain in ECA-1.1,
- C. **INCORRECT**. The first part is plausible since RCS Cold Leg temperatures are monitored during intact S/G depressurization to atmospheric pressure in the following Steps. Incorrect since this Step depressurizes intact S/Gs slowly to maximize time of Accumulator injection by monitoring RVLIS level. The second part is plausible since the Applicant may determine that since 'B' Loop T<sub>COLD</sub> lowered below 284°F momentarily, that a RED path exists on Integrity CSFST. Incorrect since A-503.1, Section 5.2.P.3.g states "If RED or ORANGE priority comes in and clears intermittently, the FR procedure should not be performed. If conditions degrade, the status of the safety function will become a continuous RED or ORANGE condition at which time the appropriate FR procedure should be implemented."
- D. **INCORRECT**. The first part is plausible since RCS Cold Leg temperatures are monitored during intact S/G depressurization to atmospheric pressure in the following Steps. Incorrect since this Step depressurizes intact S/Gs slowly to maximize time of Accumulator injection by monitoring RVLIS level. The second part is correct.

Technical Reference(s):

ECA-1.1, loss of Emergency Coolant Recirculation (p32; Rev 029)

F-0.2, Core Cooling CSFST (Rev 00600)

F-0.4, Integrity CSFST (Rev 00400)

A-503.1, Emergency and Abnormal Operating Procedures Users Guide (p33; Rev 052)

Proposed references to be provided to applicants during examination: None

Learning Objective: REC11C 2.01

Question Source: Bank # \_\_\_\_\_  
Modified Bank # \_\_\_\_\_  
New X

Question History: Last NRC Exam \_\_\_\_\_

Question Cognitive Level: Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 .5

Comments:



ECA-1.1	TITLE: LOSS OF EMERGENCY COOLANT RECIRCULATION	REV: 029 PAGE 8 of 40
---------	---	--------------------------

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><u>NOTE:</u> Shutdown margin should be monitored during RCS cooldown (Refer to FIG-2.0, FIGURE SDM).</p>	
7	Initiate RCS Cooldown To Cold Shutdown:	
	<p>a. Establish and maintain cooldown rate in RCS cold legs - LESS THAN 100°F/HR</p> <p>b. Dump steam to condenser from intact S/G(s)</p>	<p>b. Manually or locally dump steam from intact S/G(s):</p> <ul style="list-style-type: none"> <li>o Use S/G ARVs</li> </ul> <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> <li>o Open TDAFW pump steam supply valves.</li> </ul> <p style="text-align: center;">-OR-</p> <ul style="list-style-type: none"> <li>o Dispatch EO to perform the following: <ul style="list-style-type: none"> <li>1) Open S/G MSIV bypass valves.</li> <li>2) Open priming air ejector steam supply root valve, V-3578.</li> <li>3) Open 1A and 1B priming air ejector isolation valves. <ul style="list-style-type: none"> <li>• V-3580</li> <li>• V-3581</li> </ul> </li> </ul> </li> </ul> <p><u>IF</u> no intact S/G available, <u>THEN</u> use faulted S/G.</p>

ECA-1.1	TITLE: LOSS OF EMERGENCY COOLANT RECIRCULATION	REV: 029 PAGE 32 of 40
---------	---	---------------------------

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p><u>NOTE:</u> The intent of the next Step is to depressurize S/Gs more slowly, but at a rate that will maintain required RVLIS level.</p>	
36	Depressurize Intact S/Gs To 260 PSIG Slowly To Inject SI ACCUMs:	
	a. Dump steam to condenser as necessary to maintain appropriate RVLIS indication:	a. Manually or locally dump steam from intact S/G(s) to maintain appropriate RVLIS indication:
	<ul style="list-style-type: none"> <li>o Level (no RCPs) - BETWEEN 77% <u>AND</u> 82% [82% <u>AND</u> 85% adverse CNMT]</li> </ul>	<ul style="list-style-type: none"> <li>o Use S/G ARVs</li> </ul>
	<p style="text-align: center;">-OR-</p>	<p style="text-align: center;">-OR-</p>
	<ul style="list-style-type: none"> <li>o Fluid fraction (any RCP running) - BETWEEN 84% <u>AND</u> 90%</li> </ul>	<ul style="list-style-type: none"> <li>o Open steam supply valves to TDAFW pump</li> </ul>
	<p style="text-align: center;">-OR-</p>	<p style="text-align: center;">-OR-</p>
		<ul style="list-style-type: none"> <li>o Dispatch EO to perform the following:             <ul style="list-style-type: none"> <li>1) Open affected S/G MSIV bypass valve.</li> <li>2) Open priming air ejector steam supply root valve, V-3578.</li> <li>3) Open priming air ejector steam isolation valves                 <ul style="list-style-type: none"> <li>• V-3580</li> <li>• V-3581</li> </ul> </li> </ul> </li> </ul>
	b. Check S/G pressures - LESS THAN 260 PSIG	b. Return to Step 36a.
	c. Stop S/G depressurization	

**Evaluate:** To examine and decide

- Example - Evaluate long-term plant status

**Faulted:** Condition in which a steam generator has experienced a steam or feedwater break of sufficient size to require SI

**Go to:** To transition to a different procedure. The new procedure becomes the controlling document.

- Example - Go to ES-0.1.

**Identify:** To distinguish a component or parameter, with unique characteristics, from a group

- Example - Identify faulted steam generator.

**Implement:** To begin and maintain a prescribed course of action

- Example - Implement plant recovery procedures

**Improving:** Changing the value of a parameter to a more acceptable value

- Example - Condenser vacuum is improving.

**Intact:** Condition in which a steam generator is neither ruptured nor faulted, or a condition in which a component or system has no abnormal leakage.

- Examples - Both S/Gs are intact. RCS intact inside CNMT.

**Isolate:** To separate a component or portion of a system from the remainder of the system

- Example - Isolate feed flow to faulted S/G.

**Large Area Loss:** The usefulness of a broad area has been lost due to an impact or large area fires, or natural event beyond design basis.

**Locally:** Operations performed in the field

- Example - Locally open MOV-856 (implies disengage motor and open using handwheel).

**Lower:** To reduce in value

- Example - Dump steam to slowly lower temperature to 547°F.

**Maintain:** To operate appropriate components to control a specific parameter to a procedure requirement. This implies a continuing action.

- Example - Maintain steam generator narrow range level between 17% and 50%.

5.2.1 (Continued)

7. Occasionally, the operator directing recovery actions may make an error in usage of the procedures. This could occur if incorrect information were communicated, or if the operator implemented the wrong step or steps. If an error occurs, it is generally expected the operating crew will stop, evaluate plant conditions, correct any actions taken due to the error, then resume correct procedure implementation.

**J. Continuous Actions**

1. Those steps identified by an asterisk preceding the step number are designated as continuous action steps. A continuous action is an action that is applicable from the point at which it is first encountered until superseded by alternate guidance. A continuous action generally remains applicable throughout its associated procedure, and still applies after a transition is made to another procedure, provided it does not contain actions that are inappropriate for the subsequent procedure.
2. Action verbs such as Monitor, Maintain, Control, and Try may be used to imply a continuous action even though the step is not marked with an asterisk. These Implied Continuous Action steps are to be treated as if they had an asterisk. Actions using these verbs require the operator to periodically manipulate controls to maintain parameter values, or frequently determine parameter values or continue attempts to restore plant equipment. Implied continuous actions may be contained in steps, notes or cautions. Similar to WHEN, THEN logic statements, these implied continuous action steps will remain applicable following a transition to another guideline based on the nature of the guideline entered, until alternate guidance is given.
3. Continuous action steps provide guidance for monitoring and controlling parameters important for normal plant recovery.
4. Identification of continuous actions is an attempt to assist the operator in remembering actions which may enhance recovery.

**K. Foldout Pages**

1. Direction to use a foldout page is provided by a NOTE within the procedure, generally at the beginning. Once its use is directed, the foldout page should be monitored throughout the time the EOP is in use.
2. Foldout page items do not carry forward when a procedure is exited unless they are preceded by a NOTE stating when they are applicable in other procedures.
3. There are multiple copies of each foldout page located in the right hand foldout portion of the appropriate EOP binders. When using procedures, one foldout copy should remain in the binder for use by the US. The other copies may be given to other shift members and to the Shift Technical Advisor (STA).
4. The US will review foldout page items with the shift. Since the shift crew members are each given a copy of the foldout page, the US may paraphrase each item, and repeat backs are not required. When the foldout page items have been reviewed, and crew members' questions resolved, the US may continue in the procedure.

## SRO Question #100

### Applicant Comments:

Both Answer 'B' "Notification of offsite authorities (state, local, and NRC)" and Answer 'D' "Assuming the position of Decision Maker when a transition to Severe Accident Management Guidelines (SAMG) is initiated" should be considered correct.

### Discussion:

Per EP-AA-1000, STANDARDIZED RADIOLOGICAL EMERGENCY PLAN Section B.4, "Non-delegable responsibilities include the following functions:

- Event classification.
- Protective Action Recommendations (PARS) for the general public.
- Notification of offsite authorities (approval of state/local and NRC notifications).
- Authorization of emergency exposure controls in excess of 5 Rem TEDE and the issuance of potassium iodide (KI), for Exelon Nuclear emergency workers per EPA-400."

Because the parenthetical "approval of state/local and NRC notifications" is left off Answer 'B', it changes the meaning of the statement, changing it from a non-delegable approval function to a delegable notification function. Normally the actual state/local and NRC notifications are performed by the Shift Communicator. Therefore, Answer 'B' becomes a second correct answer.

**Facility comment:** The question is asking what authority for functions listed under the non-delegable responsibilities noted in EP-AA-1000, STANDARDIZED RADIOLOGICAL EMERGENCY PLAN may be delegated. Because the reference procedure calls out clarifying guidance related to the approval of state/local and NRC notifications, the question can be misconstrued because the ERO Communicator performs the actual notifications to the state/local and NRC in the ERO plan; whereas, the Emergency Director approves the notification prior to the performance of the transmission of the notification. The question is recommended for acceptance of two correct answers, answers 'B' and 'D'. The facility concurs with the Applicant's comments.

### References:

EP-AA-1000, Standardized Radiological Emergency Plan (Revision 030)

EP-CE-114-100-F-07, GNP NY State Radiological Emergency Data Form (PART1) (CNG) (Revision D)

EP-AA-112-100-F-50, Shift Emergency Director Checklist (Revision J)

EP-AA-112-100-F-51, Shift Communicator Checklist (Revision D)

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #		3
	Group #		
	K/A #	G2.4.37	
	Importance Rating		4.1

**Knowledge of the lines of authority during implementation of the emergency plan.**

**SRO Question #100**

Which one of the following states a responsibility that the Emergency Director MAY delegate the authority for in accordance with EP-AA-1000, Standardized Radiological Emergency Plan?

- A. Authorize the issuance of Potassium Iodide (KI).
- B. Notification of offsite authorities (state, local, and NRC).
- C. Authorization of emergency exposure controls in excess of 5 Rem TEDE.
- D. Assuming the position of Decision Maker when a transition to Severe Accident Management Guidelines (SAMG) is initiated.

**Answer: D**

Explanation:

- A. **INCORRECT.** Plausible since the Applicant may not have knowledge of the non-delegable duties of the Emergency Director. Incorrect since according to EP-AA-1000, Section B.4 "Non-delegable responsibilities include the following functions: event classification; Protective Action Recommendations (PARs) for the general public; Notification of offsite authorities (approval of state/local and NRC notifications); Authorization of emergency exposure controls in excess of 5 Rem TEDE and the issuance of potassium iodide (KI), for Exelon Nuclear emergency workers per EPA-400."
- B. **INCORRECT.** Same as 'A' explanation.
- C. **INCORRECT.** Same as 'A' explanation.
- D. **CORRECT.** In accordance with EP-AA-1000, Section B.5.a.2)b) "Station Emergency Director responsibilities while not in Command and Control: Assume the duties and responsibilities of Decision-Maker when a transition to Severe Accident Management Guidelines (SAMGs) is initiated. This responsibility can be delegated to the Operations Manager if qualified."

Technical Reference(s): EP-AA-1000, Standardized Radiological Emergency Plan  
(p B-3 through B-7; Rev 29)

Proposed references to be provided to applicants during examination: None

Learning Objective: RSC01C 3.05

Question Source: Bank # X  
Modified Bank #   
New

Question History: Last NRC Exam 2013 Vogtle

Question Cognitive Level: Memory or Fundamental Knowledge X  
Comprehension or Analysis

10 CFR Part 55 Content: 55.41   
55.43 .1

Comments:

The Shift Emergency Director is relieved of Command and Control as soon as possible after the declaration of an Alert (or higher classification if Alert not declared). Command and Control may be transferred directly to the Corporate Emergency Director, or transferred to the Station Emergency Director on an interim basis. Command and Control does not transfer until the following criteria have been met:

- Adequate staff levels are present in support of the non-delegable responsibilities.
- The staff has been fully briefed as to the status of the event and the currently proposed plan of action.
- A turnover between the Emergency Director relinquishing Command and Control and the Emergency Director assuming Command and Control has been made.

Although Exelon Nuclear's ERO fulfills all regulatory requirements for emergency response, it may be altered by the Emergency Director. This type of alteration will be based upon identified needs within the ERO, event dependent criteria, and identified needs of the company as a whole.

#### **4. Non-Delegable Responsibilities**

Non-delegable responsibilities include the following functions:

- Event classification.
- Protective Action Recommendations (PARs) for the general public.
- Notification of offsite authorities (approval of state/local and NRC notifications).
- Authorization of emergency exposure controls in excess of 5 Rem TEDE and the issuance of potassium iodide (KI), for Exelon Nuclear emergency workers per EPA-400.

The Shift Manager is responsible for the initial classification of an event and assumes the position as Shift Emergency Director. In this capacity, the Shift Manager has responsibility for performing the non-delegable responsibilities until relieved. The Shift Emergency Director is relieved of Command and Control as soon as possible after the declaration of an Alert (or higher classification if Alert not declared). Command and Control is transferred to the Station Emergency Director but may be transferred directly to the Corporate Emergency Director.

When the Station Emergency Director assumes overall authority and responsibility for performing all the non-delegable duties from the Shift Manager, the Corporate Emergency Director (EOF) will subsequently relieve the Station Emergency Director (TSC) of overall Command and Control and assume the non-delegable responsibilities for PAR determination and notifications to offsite authorities.



**GNP NY STATE RADIOLOGICAL EMERGENCY DATA FORM (PART 1) (CNG)**

RECS Message Number: \_\_\_\_\_

"This is Ginna Station. Please stand by for roll call. "New York State" ☐ "Monroe County" ☐ "Wayne County" ☐

<input type="checkbox"/> *	<b>1. Message transmitted at:</b> Date _____ Time: _____ Via: <b>A.</b> RECS <b>B.</b> Other	<b>2. This is:</b> <b>A.</b> An Actual Event <b>B.</b> An Exercise																																
<input type="checkbox"/> *	<b>3. Classification:</b> <b>A.</b> UNUSUAL EVENT <b>C.</b> SITE AREA EMERGENCY <b>E.</b> EMERGENCY TERMINATED <b>B.</b> ALERT <b>D.</b> GENERAL EMERGENCY <b>F.</b> RECOVERY																																	
<input type="checkbox"/> *	<b>4. Classification Time:</b> This Emergency Classification declared at: _____ Date _____ Time _____																																	
<input type="checkbox"/> *	<b>5. Release of Radioactive Materials due to the Classified Event:</b> <b>A.</b> No Release <b>B.</b> Release BELOW federal limits <input type="checkbox"/> to atmosphere <input type="checkbox"/> to water <b>C.</b> Release ABOVE federal limits <input type="checkbox"/> to atmosphere <input type="checkbox"/> to water <b>D.</b> Unmonitored release requiring evaluation																																	
<input type="checkbox"/> *	<b>6. Protective Actions Recommendations:</b> <b>A.</b> No need for Protective Actions outside the site boundary <b>B.</b> Evacuate and implement the KI plan for the following ERPA's (all remaining ERPA's to monitor and prepare) W1 W2 W3 W4 W5 W6 W7 W-Lake M1 M2 M3 M4 M5 M6 M7 M8 M9 M-Lake <b>C.</b> Shelter and implement the KI plan for the following ERPA's (all remaining ERPA's to monitor and prepare) W1 W2 W3 W4 W5 W6 W7 M1 M2 M3 M4 M5 M6 M7 M8 M9																																	
<input type="checkbox"/> *	<b>7. EAL Number:</b> _____ <b>Brief Event Description</b> and other significant information EAL Number _____																																	
<input type="checkbox"/> *	<b>8. Reactor Status:</b> <b>A.</b> Operational <b>B.</b> Shutdown Date: _____ Time: _____ (subcritical)																																	
<input type="checkbox"/> *	<b>9. Wind Speed:</b> <b>A.</b> _____ Miles/hour at elevation _____ feet																																	
<input type="checkbox"/> *	<b>10. Wind Direction:</b> From: _____ degrees at elevation: _____ feet																																	
<input type="checkbox"/> *	<b>11. Stability Class:</b> <table border="1"><thead><tr><th></th><th colspan="3">UNSTABLE</th><th colspan="2">NEUTRAL</th><th colspan="2">STABLE</th></tr><tr><th></th><th>Alpha</th><th>Bravo</th><th>Charlie</th><th>Delta</th><th>Echo</th><th>Foxtrot</th><th>Golf</th></tr></thead><tbody><tr><td><math>\Delta T</math> _____ - _____ = _____</td><td>-1.17</td><td>-1.05</td><td>-0.94</td><td>-0.35</td><td>+0.94</td><td></td><td>+2.57</td></tr><tr><td>150 ft temp 33 ft temp</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>			UNSTABLE			NEUTRAL		STABLE			Alpha	Bravo	Charlie	Delta	Echo	Foxtrot	Golf	$\Delta T$ _____ - _____ = _____	-1.17	-1.05	-0.94	-0.35	+0.94		+2.57	150 ft temp 33 ft temp							
	UNSTABLE			NEUTRAL		STABLE																												
	Alpha	Bravo	Charlie	Delta	Echo	Foxtrot	Golf																											
$\Delta T$ _____ - _____ = _____	-1.17	-1.05	-0.94	-0.35	+0.94		+2.57																											
150 ft temp 33 ft temp																																		
	<b>12. Reported by:</b> Name: _____ Area Code: _____ Number: _____																																	

\* check box if information has changed since last form was transmitted.

"Please stand by for roll call: New York State copy?" ☐ "Monroe County copy?" ☐ "Wayne County copy?" ☐**FOR GINNA USE ONLY:**

Time Prepared:

Time Approved:

Completed form sent to EP Director

Prepared By:

Approved By:

**WAYNE COUNTY USE ONLY:**Routing: ☐ ALL ☐ Dose Assess Calculator ☐ RDO ☐ Ginna Tech Rep ☐ Field Team Coord. ☐ Plotter☐ NYS Rad Health ☐ Ops Officer ☐ NYS Health (Ops room) ☐ Director ☐ PIO**MONROE COUNTY USE ONLY:**

Distribution: 1. Command Room (OEP Administrator) 2. EOC (Operations Desk)

3. Assessment Area (Rad Officer, Health, Field Team Coordinator, Computer Operations, Tech Rep) 4. Evaluator 5. File

**GNP NY STATE RADIOLOGICAL EMERGENCY DATA FORM (PART 1) (CNG)**

- NOTES:**
1. Complete **all** applicable sections.
  2. For all updates (all notifications except the initial), check the box or boxes that have changed from the last notification.
  3. Number RECS Messages sequentially, placing number in upper right corner.

**Block # Instructions**

1. **Communicator** completes this row, after form is approved and when the message in block 3 is transmitted. (A then \*).
2. **INDICATE** actual emergency (**A**) or exercise/drill (**B**) by circling as appropriate.
3. **INDICATE** by circling as appropriate the:
  - A-D Classification Level, or
  - E. If event is terminated, or
  - F. Recovery, describe in additional description block (item 7)
4. **INDICATE** the date and time (24 hr clock / military time) the event was declared (time announced to the Control Room or EOF staff). For event termination, enter date/time event was terminated.
5. **INDICATE** the status of any releases of radioactive materials by circling applicable letter (A, B, C, or D) as appropriate.

**NOTE:** This section applies to a release of radioactive materials that took place DUE to the classified event. EP-AA-114-F-04, GNP Release in Progress Determination Guidance, is used to determine if a release has started.

- A. No Release: Should be marked to indicate
  - that no non-routine release is occurring **OR**
  - when a radioactive release of gasses or liquids associated with the emergency event are no long being released based on sampling or direct measurement.
- B. Release below federally approved operating limits (ODCM): A release is in progress due to the event AND the release rate has been determined (by any means available) to NOT exceed ODCM [C1]. Indicate if to water or to atmosphere (use check box).
- C. Release above federally approved operating limits (ODCM): A release is in progress due to the event AND the release rate has been determined (by any means available) to exceed ODCM. [C1] Indicate if to water or to atmosphere (use check box).
- D. Unmonitored release requiring evaluation: Evidence exists of a release from a pathway from which a release cannot be readily determined (examples: Emergency Condenser vents, steam or air passing blowout panels, Rx Bldg pressurized) or if instrumentation used to determine release status has become unavailable.

**NOTE:** PAR are only required at a General Emergency classification. Check the appropriate PAR using procedure EP-CE-111 and EP-CE-111-F-03. PARs only reflect Ginna station recommendation, **not** actions implemented by the offsite officials.

6. **INDICATE** Protective Action Recommendations by circling A, B, and/or C as appropriate. If B and/or C is circled, **then CIRCLE** the appropriately affected ERPA's.
7. **WRITE** the classification EAL #. Under - Brief Event Description – see Notes below for examples/directions for information that should be provided:
8. **PROVIDE** reactor status. If unit is shutdown provide date and time of shutdown.

**NOTE:** Meteorological Data to be recorded on the Part I Notification Fact Sheet is the 15 minute average data.

9. **DETERMINE** wind speed preferably at 33 foot level. If 33 foot level wind speed is not available, **then USE** the 150 foot or 250 foot level wind speed. Fill in wind speed and elevation.
10. **DETERMINE** wind direction preferably at 33 foot level. If 33 foot level wind direction is not available, **then USE** the 150 foot or 250 foot level wind direction.
11. **DETERMINE** the temperature for 150 and 33 foot levels and record. **CALCULATE** and record the  $\Delta T$ . **USE** the  $\Delta T$  to determine the stability class. **CIRCLE** the appropriate stability class (Alpha through Golf).

**NOTE:** When form is complete preparer should enter time and name in "For Ginna Use Only" area and provide form to the Shift/Corporate ED to review and approve prior to transmittal.

12. After notification is complete, Communicator completes this row listing name and the commercial telephone they use.

**SHIFT EMERGENCY DIRECTOR CHECKLIST**

- D. **SELECT** the Emergency Public Address Announcements from the form **and DIRECT** performance of the public address announcement within 15 minutes of event classification using EP-AA-112-F-57.

**Tab 4**

Time: \_\_\_\_\_

- E **DIRECT** activation of the ERO using EP-AA-112-100-F-57.

Time: **Tab 5**

\_\_\_\_\_

NOTE: If a higher classification is made prior to transmitting an event notification, the notification for the higher classification can supersede the previous event notification, provided that it can be performed within the 15 minute timeframe of the previous event

If the notification of a higher classification **cannot** be performed within the 15 minute timeframe of the previous event, the previous event notification is required within its 15 minute timeframe, and the subsequent event notification is required within its 15 minute timeframe.

- G. **DIRECT** performance of State/Local notifications within 15 minutes of the event classification as required per the Notifications procedure.

Notification Procedure: **Tab 6**Notification Form: **Tab 7**Release In Progress Determination Guidance **Tab 13**

- H. **DIRECT** performance of required NRC notifications immediately following notification of the appropriate State and local agencies but **no** later than (1) hour after the time of classification per the Notifications procedure.

Notification Procedure: **Tab 16**Notification Form: **Tab 19**

- I. **GO TO** step 1.6 of this Checklist.



## SHIFT COMMUNICATOR CHECKLIST

(This revision is a major rewrite; no annotations are used.)

Section 1, Initial Actions

Section 2, Ongoing Actions

Section 3, Closeout Actions

NOTE: Steps in each section of this checklist may be performed in an order other than listed or they may be omitted if not applicable.

### 1. INITIAL ACTIONS

1.1. **INFORM** the Shift Manager of your arrival in the Control Room.

☐

1.2. **ASSIST** the Control Room in communications or support functions as directed by the Shift Manager.

☐

1.3. If directed by the Shift Manager, **then INITIATE** ERO Activation (call out) using an ERO Notification form.

☐

Tab 8

A. **RECORD** time of ERO Activation. (Time):

1.4. **REVIEW** actions and guidelines outlined in notification procedure for the completion and transmittal of an offsite notification form.

☐

Tab 2

Tab 7

1.5. **INITIATE and MAINTAIN** a position log documenting significant actions performed and communications related to your position.

☐

Tab 1

### 2. ONGOING ACTIONS

NOTE: State/Local notifications are required within 15 minutes of event classification.

2.1. **PERFORM** State/Local notifications in accordance with the offsite notifications procedure.

☐

Tab 2

A. **When** notifications are completed, **then FAX** completed copy of all pages of the notification form to the TSC, OSC JIC and EOF.

☐

**SHIFT COMMUNICATOR CHECKLIST**

- B. **DOCUMENT** any inquiries or requests for further information on an Information Request / Message Form, or equivalent.
- C. **FORWARD** the information request to the Shift Manager for resolution.
- D. **OBTAIN** the response from the Shift Manager.
- E. **READ** the information response to the requestor.
- F. **DOCUMENT** the completion of the response on EP-AA-112-F-06.
- 2.2. **When** contacted by the EOF State/Local Communicator that the EOF is assuming responsibility for offsite notification duties, **then RECORD** time notifications are transferred.

(Time):

NOTE: NRC notifications are required immediately following notification of State/Local agencies but not later than (1) hour after time of event classification.

- 2.3. **If** directed by the Shift Manager, **then ASSIST** in performing event notification to the NRC as follows:

- A. **INITIATE** required NRC notifications per the Notification procedure.

Notification Procedure

NRC Event Notification Form

- B. **RECORD** the ENS notification time.

ENS Notification Time:

- C. **If** requested by the NRC, **then MAINTAIN** an open Emergency Notification System (ENS) line.

- 2.4. **When** TSC is activated, **then CONTACT** the ENS Communicator, using the ERF Telephone Directory, to transfer ENS notification responsibilities.

1. **RECORD** time notifications are transferred (Time):

☐

Tab 6

☐☐☐☐☐

Tab 5

Tab 4

☐☐☐