

June 24, 2009

ULNRC 5642

Mr. Elmo E. Collins, Jr.
Regional Administrator
U.S. Nuclear Regulatory Commission
Region IV
612 E. Lamar Blvd., Suite 400
Arlington, TX 76011-4125



Ladies and Gentlemen:

INITIAL LICENSE EXAM

Callaway Plant wishes to challenge two questions on the Initial Licensing Exam administered on June 19, 2009.

- Question 80: Accept 'B' and 'D' as correct answers.
- Question 96: Delete question from the examination.

Please see attached sheets for the justification of the above.

If you have any questions, please contact Ricky A. Tiefenauer at 314/803-3939.

Respectfully,

A handwritten signature in black ink, appearing to read "David G. Lantz".

David G. Lantz
Assistant Manager,
Operations Training

DGL/mrw
Enclosures

ULNRC 5642
June 24, 2009

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EXAM ANALYSIS - Callaway 2009

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NRC EXAM QUESTION ANALYSIS

<u>Question Number</u>	<u>Knowledge/ Training</u>	<u>Description</u>
5.	Knowledge	Question asks for heat removal capability during a loss of RHR flow using OTO-EJ-00001. This procedure is covered during T61.003B 6, Off-Normal Operation.
13.	Knowledge	Question asks for auto backup operation of SW pumps and what will cause the pumps to trip. This is covered during T61.0110 6 Systems Lesson Plan 04 Objectives B & H.
31.	Knowledge	Question asks for BAST operability requirements. Covered in T61.0110 Systems Lesson Plan 11 objective V.
45.	Training	Question asks system design criteria for Aux feed. This question is half covered in T61.0110 6 Systems lesson plan 25 concerning required aux feed pumps. It is not clear about the cooldown rate. Course Enhancement 9582 has been added to T61.0110 to correct this.
78.	Knowledge	Question asks for procedure entry and transition from FR-S.1 to SACRG-1. FR-S.1 is covered in T61.003D 6.
88.	Knowledge	Question asks for correct procedure and actions during Reduced Inventory loss of RHR. OTO-EJ-00003 is covered in T61.003E 6, Refueling.
90.	Knowledge	Question asks about mode of applicability and operability requirement for GTRE-59 charms detector. This is covered in T61.0110 Systems lesson plan 36.
95.	Knowledge	Question asks about use of local control tagging. This is covered in A-13 of T61.003A Normal Operations.
96.		Question is being challenged. See attached write up on question 96.
98.	Knowledge	Question asks for correct procedure action for a fuel handling accident and hazards associated with FHA. Covered in T61.003B 6 Off-Normal Operations, GFES, and Mitigating Core Damages.

Question #80 Challenge Justification

The question asks the student to determine power supplies and to make an Emergency Action Level (EAL) declaration given the conditions:

- Offsite power is lost.
- Both emergency diesel generators did not start automatically and cannot be started.

The power supply portion of the question leads to answer B and D due to the Steam Generator ASD Controllers being supplied by NN01/NN04.

The EAL for loss of power requires a greater than 15 minute loss which is implied for the diesels but not given for the offsite power. This makes the question unclear. If all offsite power is restored in less than 15 minutes there is no EAL classification. If a single offsite power source is restored, the classification would be an Alert. If no offsite source is restored, the classification would be a Site Area Emergency.

In addition, the lesson plan objective in the Radiological Emergency Response Operations lesson plan for EAL classification states “Determine the emergency classification for given indications and/or symptoms per EIP-ZZ-00101.” The applicable sections of this procedure were not provided.

The KA reference for this question is for the power supply portion only.

Based on the stated information, both B and D are acceptable answers.

References:

EIP-ZZ-00101 Addendum 1

RERP Operations (RO/SRO/STA) objectives.

NRC Site-Specific Written Examination
Callaway Plant
Senior Reactor Operator

Examination Outline Cross-reference:	Level	RO		SRO
	Tier #			1
	Group #			1
	K/A #	055 EA2.04		
	Importance Rating			4.1
Ability to determine or interpret the following as they apply to a Station Blackout: Instruments and controls operable with only dc battery power available				

Question #80

Given the following plant conditions:

- The unit is at 100% power
- The Callaway Plant has just experienced a loss of all off site power
- Both "A" and "B" Diesel Generators failed to start and cannot be started

Which ONE of the following Control Room controls or indications will remain usable to control the initial response and the impact on the event classification?

- A. Digital Rod Position Indication (DRPI)
Declare a Site Area Emergency
- B. Steam Generator ASD Controllers
Declare an Alert
- C. Digital Rod Position Indication (DRPI)
Declare an Alert
- D. Steam Generator ASD Controllers
Declare a Site Area Emergency

Justification:

- A. Incorrect - PN07, non-safety related, alternate from PA01. Correct call*
- B. Incorrect - NN01/NN04. Wrong call*
- C. Incorrect - PN07/8, non-safety related, alternate from PA01/2. Wrong call*
- D. Correct. NN01/NN04, Group SS1.1 is the correct call*

Technical Reference(s): ECA-0.0, EIP-ZZ-00101, Addendum 1

Proposed references to be provided to applicants during examination: None

Learning Objective:

Question Source: Bank # _____
Modified Bank # _____
New ___X___

Question History: Last NRC Exam ___N/A_____

Question Cognitive Level:

NRC Site-Specific Written Examination
Callaway Plant
Senior Reactor Operator

Memory or Fundamental Knowledge
Comprehension or Analysis

10 CFR Part 55 Content:

55.41
55.43

Comments:

OBJECTIVES

Terminal

Upon completion of this lesson, the student will have an understanding of the Emergency Coordinator duties and responsibilities during an emergency and be able to demonstrate this understanding.

Enabling

- A. State when the Emergency Coordinator position is activated, per EIP-ZZ-00101.
- B. Determine the emergency classification for given indications and/or symptoms, per EIP-ZZ-00101.
- C. State when the emergency action levels should be monitored, per EIP-ZZ-00101.
- D. Explain the actions to be taken to respond to an emergency classification following an event declaration, per EIP-ZZ-00102.
- E. Describe the process for augmenting the Callaway Plant Emergency Response Organization during off-normal hours, per EIP-ZZ-00200.
- F. Determine the correct on-site and off-site notification and callout requirements for each emergency classification, per EIP-ZZ-00201.
- G. Demonstrate the ability to initiate/authorize emergency notifications via SENTRY, IAW EIP-ZZ-00201.
- H. State the protective actions that must be recommended at a General Emergency, per EIP-ZZ-00212.
- I. Describe the process for activating the Emergency Response Data System (ERDS), per EIP-ZZ-00217.
- J. State when ERDS is required to be activated, per EIP-ZZ-00217.

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT

Attachment 1 - Emergency Action Level Technical Bases

Category: S – System Malfunction

Subcategory: 1 – Loss of Power

Initiating Condition: Loss of **all** offsite power and loss of **all** onsite AC power to emergency buses

EAL:

SS1.1 Site Area Emergency

Loss of **all** offsite and onsite AC power to emergency buses NB01 and NB02 for ≥ 15 min.

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Loss of offsite and onsite AC power compromises all plant safety systems requiring electrical power including RHR, ECCS, Containment Heat Removal, and the Ultimate Heat Sink.

Buses NB01 and NB02 are the emergency (essential) buses. NB01 supplies power to Load Group 1 (Red Train) safety related loads and NB02 supplies power to Load Group 2 (Yellow Train) safety related loads. Each bus has two sources of offsite power. One source is from 13.8 KV safeguards transformer A or B via ESF Load Tap Changing (LTC) transformer XNB01 and the other source is from the startup transformer XMR01 via ESF LTC transformer XNB02. Transformer XNB01 is the normal supply to bus NB01; XNB02 is the normal supply to bus NB02.

In addition, NB01 and NB02 each have an emergency diesel generator, which supply electrical power to the bus automatically in the event that the preferred source becomes unavailable (ref. 1).

Another method to obtain offsite power is by backfeeding the emergency buses through the main transformer XMA01 and unit auxiliary transformer XMR02. This is only done during cold shutdown unless nuclear safety considerations require it to be done during hot shutdown when no other power sources are available (ref. 5).

Consideration should be given to operable loads necessary to remove decay heat or provide RCS makeup capability when evaluating loss of AC power to the emergency buses. Even though an emergency bus may be energized, if necessary loads (i.e., loads that if lost would inhibit decay heat removal capability or RCS makeup capability) are not operable on the energized bus, the bus should not be considered operable.

Prolonged loss of all AC power will cause core uncover and loss of containment integrity; thus, this event can escalate to a General Emergency under EAL SG1.1 or Fission Product Barrier degradation. The ≥ 15 -minute interval was selected as a threshold to exclude transient or momentary power losses. The interval begins when both offsite and onsite AC power are lost.

EMERGENCY ACTION LEVEL TECHNICAL BASES DOCUMENT**Attachment 1 - Emergency Action Level Technical Bases**

This EAL is the hot condition equivalent of the cold condition loss of all AC power EAL CA1.1. When in Cold Shutdown, Refueling, or Defueled mode, the event can be classified as an Alert because of the significantly reduced decay heat, lower temperature and pressure, increasing the time to restore one of the emergency buses, relative to that existing when in hot conditions.

Callaway Basis Reference(s):

1. E-21001(Q) Main Single Line Diagram (Electrical Distribution Diagram)
2. FSAR Site Addenda Section 8.2.1.2
3. FSAR Section 8.3.1
4. ECA-0.0 Loss of All AC Power
5. OTS-MA-00001-R011 Main Step-Up Transformer Backfeed - IPTE

Question 96 Challenge Justification:

The question has the “B” Centrifugal Charging pump out of service. Twenty four (24) hours later the ‘A’ Safety Injection pump is declared inoperable. The students are then required to decide what action satisfies Technical Specifications.

Students are required to have knowledge of any Technical Specifications action statements that are one hour or less per K/A# 2.2.39. The question is given for the ability to apply the Technical Specifications for a system (K/A# 2.2.40). This condition is a 72 hour action statement. Applicable reference material was not provided.

Lesson plan objectives for the Emergency Core Cooling system and Technical Specification 3.5.2 require knowledge of the LCO but not the actions.

Based on the stated information question 96 should be deleted from the examination.

References:

K/A catalog pages

Emergency Core Cooling objectives and LCO 3.5.2 objectives attached.

Technical Specification 3.5.2

NRC Site-Specific Written Examination
Callaway Plant
Senior Reactor Operator

Examination Outline Cross-reference:	Level	RO		SRO
	Tier #			3
	Group #			
	K/A #	2.2.40		
	Importance Rating			4.7
Ability to apply Technical Specifications for a system.				

Question #96

Callaway Plant is in Mode 2 when the following equipment problems occur:

- The "B" CCP is declared inoperable at 1200 on 11/25/08
- The "A" SI pump is declared inoperable at 1200 on 11/26/08

Which ONE of the following actions satisfies Technical Specifications?

- A. Restore the "B" CCP and the "A" SI pump by 1200 on 11/28/08
- B. Restore the "B" CCP or the "A" SI pump by 1200 on 11/28/08
- C. Restore the "B" CCP and the "A" SI pump by 1200 on 11/29/08
- D. Immediately enter TS LCO 3.0.3

Justification:

- a. Correct.
- b. Incorrect Both pumps must be restored.
- c. Incorrect. The CCP must be operable by 11/28.
- d. Incorrect. TS 3.0.3 is not required.

Technical Reference(s): TS 3.5.2 and TS 1.3

Proposed references to be provided to applicants during examination: None

Learning Objective:

Question Source: Bank # R13610
 Modified Bank #
 New

Question History: Last NRC Exam N/A

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

10 CFR Part 55 Content:
 55.41
 55.43 2

Comments:

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS - Operating

LCO 3.5.2 Two ECCS trains shall be OPERABLE.

- NOTES -----
1. In MODE 3, both safety injection (SI) pump flow paths may be isolated by closing the isolation valves for up to 2 hours to perform pressure isolation valve testing per SR 3.4.14.1.
 2. Operation in MODE 3 with ECCS pumps made incapable of injecting, pursuant to LCO 3.4.12, "Cold Overpressure Mitigation System," is allowed for up to 4 hours or until the temperature of all RCS cold legs exceeds 375°F, whichever comes first.
-

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more trains inoperable.</p> <p><u>AND</u></p> <p>At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.</p>	<p>A.1 Restore train(s) to OPERABLE status.</p>	<p>72 hours</p>
<p>B. Required Action and associated Completion Time not met.</p>	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>

2.2 Equipment Control (continued)

2.2.20 Knowledge of the process for managing troubleshooting activities.
(CFR: 41.10 / 43.5 / 45.13)

IMPORTANCE RO 2.6 SRO 3.8

2.2.21 Knowledge of pre- and post-maintenance operability requirements.
(CFR: 41.10 / 43.2)

IMPORTANCE RO 2.9 SRO 4.1

2.2.22 Knowledge of limiting conditions for operations and safety limits.
(CFR: 41.5 / 43.2 / 45.2)

IMPORTANCE RO 4.0 SRO 4.7

2.2.23 Ability to track Technical Specification limiting conditions for operations.
(CFR: 41.10 / 43.2 / 45.13)

IMPORTANCE RO 3.1 SRO 4.6

2.2.24 Moved to 2.2.36

2.2.25 Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.

(CFR: 41.5 / 41.7 / 43.2)

IMPORTANCE RO 3.2 SRO 4.2

2.2.26 Moved to 2.1.40

2.2.27 Moved to 2.1.41

2.2.28 Moved to 2.1.42

2.2.29 Moved to 2.1.35

2.2.30 Moved to 2.1.44

2.2.31 Revised and moved to 2.1.36

2.2.32 Deleted

2.2.33 Deleted

2.2.34 Revised and moved to 2.1.43

2.2 Equipment Control (continued)

2.2.35 Ability to determine Technical Specification Mode of Operation.

(CFR: 41.7 / 41.10 / 43.2 / 45.13)

IMPORTANCE RO 3.6 SRO 4.5

2.2.36 Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.

(CFR: 41.10 / 43.2 / 45.13)

IMPORTANCE RO 3.1 SRO 4.2

2.2.37 Ability to determine operability and/or availability of safety related equipment.

(CFR: 41.7 / 43.5 / 45.12)

IMPORTANCE RO 3.6 SRO 4.6

2.2.38 Knowledge of conditions and limitations in the facility license.

(CFR: 41.7 / 41.10 / 43.1 / 45.13)

IMPORTANCE RO 3.6 SRO 4.5

2.2.39 Knowledge of less than or equal to one hour Technical Specification action statements for systems.

(CFR: 41.7 / 41.10 / 43.2 / 45.13)

IMPORTANCE RO 3.9 SRO 4.5

2.2.40 Ability to apply Technical Specifications for a system.

(CFR: 41.10 / 43.2 / 43.5 / 45.3)

IMPORTANCE RO 3.4 SRO 4.7

2.2.41 Ability to obtain and interpret station electrical and mechanical drawings.

(CFR: 41.10 / 45.12 / 45.13)

IMPORTANCE RO 3.5 SRO 3.9

2.2.42 Ability to recognize system parameters that are entry-level conditions for Technical Specifications.

(CFR: 41.7 / 41.10 / 43.2 / 43.3 / 45.3)

IMPORTANCE RO 3.9 SRO 4.6

2.2.43 Knowledge of the process used to track inoperable alarms.

(CFR: 41.10 / 43.5 / 45.13)

IMPORTANCE RO 3.0 SRO 3.3

Objectives

TERMINAL OBJECTIVE

Upon completion of this lesson the student should demonstrate satisfactory knowledge of the use and implementation of OTG-ZZ-00006, certain addendums, and sections of the FSAR and Tech Specs. Additionally, the student should demonstrate satisfactory knowledge of HDP-ZZ-06100 Reactor Building Access.

ENABLING OBJECTIVES

- A. **DISCUSS** the purpose, scope, precautions, limitations, notes, cautions, and major steps of OTG-ZZ-00006 Addendum 8, Pressurizer Aux Spray Operation.

- B. **DISCUSS** the following as they apply to HDP-ZZ-06100, "Reactor Building Access":
 - 1. Purpose and scope
 - 2. Shift Supervisor responsibilities
 - 3. Precautions and limitations (emergency and non-emergency)
 - 4. Mode 5 and 6 Equipment Hatch opening requirements.
 - 5. Discuss the process for a normal containment entry.
 - 6. Discuss the process for an emergency containment entry.

- C. **STATE** the LCOs and **EXPLAIN** the bases (SRO only) and operability requirements pertaining to the following Technical Specifications (T/S):
 - 1. Section 3.5, Emergency Core Cooling Systems
 - 2. FSAR 16.5 Emergency Core Cooling Systems

OBJECTIVES

- A. **DESCRIBE** the systems that make up the Emergency Core Cooling System.
 - B. **STATE** the functions and **EXPLAIN** the design criteria of the ECCS.
 - C. **DESCRIBE** the phases of operation of the ECCS.
 - D. **EXPLAIN** the purpose of Cold Leg Injection.
 - E. **EXPLAIN** the purpose of Cold Leg Recirculation.
 - F. **EXPLAIN** the purpose of Hot Leg Recirculation.
 - G. **DESCRIBE** the normal ECCS lineup and flowpath for Cold Leg Injection.
 - H. **DESCRIBE** the normal ECCS lineup and flowpath for Cold Leg Recirculation.
 - I. **DESCRIBE** the normal ECCS lineup and flowpath for Hot Leg Recirculation.
 - J. **STATE** the Limiting Conditions for Operation (LCO), bases (SRO only) and surveillance operability requirements associated with the ECCS related Technical Specifications, and **EXPLAIN** what comprises an ECCS train and during which modes the LCOs are applicable.
-