

2009 Senior Reactor Operator Exam

1

This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 1 Group 1
K/A #	2.1.23
Importance Rating:	4.40

Given the following conditions:

- Unit 1 automatically tripped due to a fault on the 13.8 Kv bus NAN-S01.
- Offsite power was lost on the trip.
- Steam Bypass Control System is maintaining SG pressures at 1170 psia.
- SG #1 level is 65% WR and increasing.
- SG #2 level is 67% WR and increasing.
- Pressurizer pressure is 2240 psia and stable.
- PZR level is 33% and stable.
- 3 Charging pumps are in service
- Containment pressure is 0.4 psig and increasing.
- Containment temperature is 120°F and increasing.
- Containment humidity is 28% and increasing.

The CRS should implement ...

- A. 40EP-9EO02, Reactor Trip and shift Heat Removal to the ADVs.
- B. 40EP-9EO03, Loss of Coolant Accident and commence a cooldown.
- C. 40EP-9EO04, Steam Generator Tube Rupture and isolate the faulted SG.
- D. 40EP-9EO07, Loss of Offsite Power/Loss of Forced Circulation and verify Natural Circulation.

Answer: B

Associated KA:  
L10454

Given conditions of LOCA analyze whether or not entry into the LOCA EOP is appropriate

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q22515  
4.00  
3  
CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:  
Question Source:  
Comment:

Comprehension / Anal  
New

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** LOCA tech guideline, 40DP-9AP08 / 40EP-9EO03, LOCA

**K&A:** Ability to perform specific system and integrated plant procedures during all modes of plant operation. Small Break LOCA

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**Justification:** The reactor trip was caused by the loss of RCPs. The cause of a small LOCA could be due to the lack of main spray (RCPs) when offsite power was lost creating a pressure spike. Containment parameters increasing causes Rx trip, SGTR and LOOP to not meet "Containment Temperature and Pressure Control" Safety Function. No RMS values are available with a loss of non-class power.

**A is Wrong -**

**B is Correct -** Entry condition. Rise in containment pressure, temp, radiation, humidity and level

**C is Wrong -**

**D is Wrong -**

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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 1 Group 1
K/A #	2.4.47
Importance Rating:	4.20

Given the following conditions:

- Unit 1 is operating at 100% power.
- Both Nuclear Cooling water pumps are in Pull-to-Lock due to a leak in the NC system.
- The "A" train Essential Cooling water system is aligned to supply the NC priority loads.
- The "B" charging pump, CHB-P01, is in Pull-to-Lock and unavailable due to an oil leak.
- The "E" charging pump, CHE-P01, is aligned to PGA-L35.

Subsequently

- The class 4160 Vac bus, PBA-S03, faults and is de-energized.
- DG "A" is running at rated speed and voltage.

Which one of the following actions is required?

- A. Within 10 minutes secure the RCPs per appendix E of 40AO-9ZZ04, RCP Emergencies.
- B. Perform appendix M of 40AO-9ZZ12, Degraded Electrical Power to close the "A" DG output breaker.
- C. Secure the RCPs within 3 minutes and enter 40EP-9EO07, Loss of Offsite Power/Loss of Forced Circulation.
- D. Operations may continue but a 2nd charging pump must be returned to Operable status within 72 hours per TLCO 3.1.103, Charging Pumps - Operating.

Answer: C

Associated KA:  
12079

Given an RCP in hot standby describe when seal damage can be experienced when seal injection and nuclear cooling water are removed from service

Reference Id:	Q22600
Difficulty:	3.00
Time to complete:	3
10CFR Category:	CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Cognitive Level:	Comprehension / Anal
Question Source:	New
Comment:	

**Proposed reference to be provided to applicant during examination: NONE**

**Technical Reference:** 40AO-9ZZ04, RCP Emergencies

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**K&A:** Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material. [Loss of Rx Coolant Makeup \(Seal Injection\)](#)

**Justification:** EW A and all charging pumps have been lost due to the LOP

**A is Wrong** - This would be true for a loss of cooling water only, NCW or in this case a loss of EW which was supplying the RCPs

**B is Wrong** - This would be correct if PBA-S03 did not have a fault on the bus

**C is Correct** - per appendix E (Information Aid) which is mounted on B04: for a loss of Seal Injection and Cooling water the pumps must be secured within 3 minutes

**D is Wrong** - This is the TLCO action for a loss of two charging pumps

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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 1 Group 1
K/A #	42026aa2.02
Importance Rating:	3.60

Given the following conditions:

- Unit 1 is operating at rated power.
- Pressurizer level is 52.5%.
- Letdown flow is 78 gpm.
- Charging flow is 88 gpm.
- Alarm window 7A07A (NUC CLG SYS TRBL) is in alarm.
- Nuclear Cooling Water Surge Tank Press Hi-Lo is alarming .
- Nuclear Cooling Water Surge Tank Level Hi-Lo is alarming.
- Containment sump levels and humidity are increasing.
- Containment Temperature is stable.
- Nuclear Cooling Water flow to all 4 RCPs is lowering.

These events are due to ...

- A. a half leg CIAS initiation. Implement 40AL-9RK5B, panel B05B alarm response.
- B. a full CSAS actuation. Implement 40AO-9ZZ17, Inadvertant PPS-ESFAS actuations.
- C. RCS leak to the Nuclear Cooling System. Implement 40AO-9ZZ02, Excessive RCS Leakrate.
- D. the Nuclear Cooling Water relief inside containment lifting. Implement 40AO-9ZZ03, Loss of Cooling Water.

Answer: D

Associated KA:  
100866

Active Question Bank 2004

L74494

As an operating crew respond to a Steam Generator tube leak

L10105

Given plant conditions diagnose an NC leak inside containment and describe the required actions

Reference Id:	Q10025
Difficulty:	3.00
Time to complete:	3
10CFR Category:	CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level: Comprehension / Anal  
Question Source: Modified PV Bank  
Comment:

**Proposed reference to be provided to applicant during examination: NONE**

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**Technical Reference:** Loss of Cooling Water, 40AO-9ZZ03

**K&A:** Ability to determine and interpret the following as they apply to the Loss of Component Cooling Water: The cause of possible CCW loss

**Justification:**

**A is Wrong - CIAS does not close NCW containment Isolation valves**

**B is Wrong - a full CSAS closes both supply and return valves. This would not cause cntmt indications. An "A" train only CSAS which closes only the NCW return valve has the potential to cause this event.**

**C is Wrong - RCS leak to NCW could have some of these same effects on the NCW header but not the containment conditions, containment temps would be increasing.**

**D is Correct - relief lifting would cause the cntmt conditions as well as the NCW conditions**

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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 1 Group 1
K/A #	2.4.38
Importance Rating:	4.40

Given the following conditions:

- The CRS has implemented 40AO-9ZZ19, Control Room Fire.
- Reactor trip from the PPS pushbuttons on Board 5 was not successful.
- A Manual reactor trip was initiated at 1459 by opening NGN-L03B2 and NGN-L10B2 supply breakers from the Control Room.
- An MSIS was initiated at 1500.
- The Control Room was evacuated at 1500.
- The CRS is the first to arrive at the Remote Shutdown Panel at 1520.

Which one of the following actions is correct in regards to E-plan (NEI-99) implementation?

- A. Classify as a Alert, assembly is optional.
- B. Classify as a Alert, assembly is required.
- C. Classify as a Site Area Emergency, assembly is optional.
- D. Classify as a Site Area Emergency, assembly is required.

Answer: D

Associated KA:  
[100866](#)

Active Question Bank 2004

[L58622](#)

Given an Emergency Plan condition, use the EAL tables and basis document to determine the emergency plan classification

[96192](#)

Classify events requiring emergency plan implementation

[29167](#)

Describe why steam should not be released to the atmosphere during a SGTR

Reference Id:	Q2933
Difficulty:	4.00
Time to complete:	5
10CFR Category:	CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Cognitive Level:	Comprehension / Anal
Question Source:	Modified PV Bank
Comment:	

**Proposed reference to be provided to applicant during examination:** NEI-99 table

**Technical Reference:** NEI-99 / EPIP-01

**K&A:** Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required. [0068 Control Room Evacuation](#)

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**Justification:**

**A and B are Wrong - examinee may choose the Fire/Explosion (HA2) or malfunction of Reactor trip (MA2) and determine that Alert is the correct classification**

**C is Wrong - Assembly/Accountability is mandatory at SAE**

**D is Correct - Control not established within 15 minutes of evacuating the Control Room is HS2, SAE and Assembly/Accountability is mandatory at SAE**



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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 1 Group 1
K/A #	44E02ea2.1
Importance Rating:	3.70

The following conditions exist during the SPTAs, post reactor trip:

- RCS pressure 2150 psia and recovering.
- Tcold 560°F and recovering.
- DFWCS is in Reactor Trip Override with 0 gpm to each SG.
- 13.8 Kv non class bus NAN-S02 has a fault and is de-energized.
- DG "B" is out of service for scheduled maintenance.
- Class 125 VDC Battery Bus PKC-M43 is de-energized

Which recovery procedure is designed specifically to mitigate this set of symptoms?

- A. Reactor Trip
- B. Loss of all Feedwater
- C. Loss of Offsite Power/Loss of Forced Circulation
- D. Functional Recovery procedure, MVDC is jeopardized.

Answer: A

Associated KA:  
L10350

Given conditions of a reactor trip analyze whether or not entry into the Reactor Trip EOP is appropriate

100866

Active Question Bank 2004

Reference Id:	Q67609
Difficulty:	3.00
Time to complete:	2
10CFR Category:	CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Cognitive Level:	Comprehension / Anal
Question Source:	PV Bank Not Modified
Comment:	

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** 40EP-9EO02, Reactor Trip procedure / 40EP-9EO01, SPTAs

**K&A:** Ability to determine and interpret the following as they apply to the (Reactor Trip Recovery) Facility conditions and selection of appropriate procedures during abnormal and emergency operations

**Justification:**

**A is Correct - uncomplicated Rx trip**

**B is Wrong - RTO does not feed with T-avg < 564 degrees**

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**C is Wrong - Partial loss of Offsite power, NAN-S01 is not listed as de-energized and PBB-S04 is still supplied by the switchyard.**

**D is Wrong - PBB-S04 is still energized from offsite power there is jeopardized safety function which requires restoration of a vital DC bus. If examinee believes that PBB-S04 lost power this would appear to be correct.**

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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 1 Group 1
K/A #	44E05ea2.2
Importance Rating:	4.20

A plant transient has resulted in the following conditions:

- Pressurizer pressure is 1600 psia and stable.
- RCS temperature is being controlled with SG 2
- Loop 1 T-cold is 362°F and stable.
- Loop 1 T-hot is 390°F and stable.
- Loop 2 T-cold is 380°F and stable..
- Loop 2 T-hot is 395°F and stable.
- REP CET is 397°F and stable.
- SIAS, CIAS, MSIS, and CSAS have automatically actuated.
- SG 1 WR level is 0%.
- SG 2 WR level is 65% and rising.

Per the Emergency Operating Procedure in use, which one of the following actions should be taken?

- A. Equalize loop T-colds at 362°F then initiate a cooldown.
- B. Equalize loop T-colds at 380°F then lower RCS pressure.
- C. Heatup the RCS to within the Pressure/Temperature limits.
- D. Lower RCS pressure to within Pressure/Temperature limits.

Answer: D

Associated KA:  
L11210

Given that the EOPs are being performed and specific plant conditions are given determine whether or not the plant is over subcooled, and if it is what actions must be taken

Reference Id:	Q22431
Difficulty:	4.00
Time to complete:	4
10CFR Category:	CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Cognitive Level:	Comprehension / Anal
Question Source:	Modified PV Bank
Comment:	

**Proposed reference to be provided to applicant during examination:** Standard appendix 2

**Technical Reference:** ESD, 40EP-9EO06 / Tech guide and standard appendices

**K&A:** Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments. Excess Steam Demand

**2009 Senior Reactor Operator Exam****Justification:**

**A is Wrong** - Coldest t-cold is correct but the 2 hour soak is required and the CD rate would be limited to 100 degrees per hour

**B is Wrong** - reduce temp to higher t-cold is old guidance, soak is required.

**C is Wrong** - we would de-pressurize not heat-up to restore limits

**D is Correct** - if PT limits were exceeded and RCPs are secured then a 2 hour soak is required at current conditions.

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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 1 Group 2
K/A #	42003AA203
Importance Rating:	3.80

Unit 1 was operating at 100% power when the following occurred:

- Excore power decreases to 98%.
- RCS Loop T-hots are lowering.
- RCS Loop T-colds are lowering.
- Pressurizer level and pressure are lowering.
- COLSS, CPC and PDIL alarms.
- Letdown flow is decreasing.

10 minutes later the following conditions are observed:

- Excore power has recovered to ~ 100%.
- T-avg has stabilized, but 2°F off program low.
- Pressurizer level and pressure have recovered.
- COLSS, CPC and PDIL alarms are still active.
- Letdown flow is increasing.

Which ONE of the following events is in progress?

- A. Letdown leak, perform recovery actions per Loss of Letdown AOP.
- B. Partial load reject, perform recovery action per Load Rejection AOP.
- C. Slipped/dropped CEA, perform recovery actions per CEA Malfunctions AOP.
- D. Instrument malfunction, perform recovery actions per RRS Malfunctions AOP.

Answer: C

Associated KA:  
L56648

Describe how the plant is stabilized to counter the effect of the dropped/slipped CEA.

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q0978  
4.00  
3  
CFR 55.43 (5) 55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:  
Question Source:  
Comment:

Comprehension / Anal  
Modified PV Bank

**Proposed reference to be provided to applicant during examination: NONE**

**Technical Reference: 40A0-9ZZ11 (CEA Malf.)**

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**K&A:** Ability to determine and interpret the following as they apply to the Dropped Control Rod: Dropped rod, using in-core/ex-core instrumentation, in-core or loop temperature measurements

**Justification:**

**A reactivity insertion due to CEA malfunction should be diagnosed. Should diagnose that temperature changes are driving other plant responses making RCS inventory losses incorrect. An instrument failure would not have resulted in all the listed alarms.**

**A is Wrong - LD would not have these effects on power, COLSS, CPCs or PDILs**

**B is Wrong - Load reject w could have some of the effects but not Tav<sub>g</sub> low with power recovery**

**C is Correct - Temps initially drop then power would recover with a lower than normal Tav<sub>g</sub>**

**D is Wrong - Should not affect CPCs or PDILs**

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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 1 Group 2
K/A #	42024aa2.04
Importance Rating:	4.20

Given the following Unit 1 conditions:

- Core re-load in progress.
- Refueling Water Tank level is 14%.
- Chemistry reports that the Refueling Pool boron concentration is not within limits.

Which one of the following actions is both available and procedurally directed as a makeup path that can be used to restore the refueling pool boron concentration?

- A. Implement 40AO-9ZZ01, Emergency Boration, align HPSI pumps.
- B. Implement 40AO-9ZZ01, Emergency Boration, align charging pump suction thru CHN-UV-514 with BAMP pumps not available.
- C. Implement 40EP-9EO11, Lower Mode Functional Recovery procedure, align charging pump suction to the alternate suction per SA-10, Charging Pump Alternate Suction to the RWT.
- D. Implement 40EP-9EO11, Lower Mode Functional Recovery procedure, align charging pump suction to the Spent Fuel Pool per SA-11, Charging Pump Alternate Suction to the SFP.

Answer: **A**

Associated KA:  
L58916

Given plant conditions choose which emergency boration flowpath would be selected

Reference Id:	Q22520
Difficulty:	4.00
Time to complete:	3
10CFR Category:	CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Cognitive Level:	Comprehension / Anal
Question Source:	New
Comment:	

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** Emergency Boration, 40AO-9ZZ01

**K&A:** Ability to determine and interpret the following as they apply to the Emergency Boration: Availability of BWST

**Justification:**

**A is Correct - RWT is available for HPSI make-up with level greater than 8% (above RAS setpoint)**

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**B is Wrong - not available with RWT level less than 73%**

**C is Wrong - This aligns thru RWT bottom CH-327 but appendix states that charging pumps must in PTL with level less than 44%**

**D is Wrong - Spent Fuel pool is common to Refueling pool with Core Reload in progress**



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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 1 Group 2
K/A #	2.3.14
Importance Rating:	3.80

Given the following conditions:

- Unit 1 manually tripped due to lowering Pressurizer level and pressure.
- SIAS/CIAS were manually initiated on trend.
- T-cold is 564 °F controlled by SBCS in auto.
- RCS pressure is 1850 psia and lowering.
- Containment pressure is 0.3 psig and stable.
- SGs are being fed by Main Feed pumps in RTO.
- SG 1 level is 55% WR and rising.
- SG 2 level is 47% WR and dropping.

A Loss of Offsite Power (LOOP) would ...

- A. result in an increasing radiation hazard or release to the public.
- B. result in a loss of Seal Injection that requires all charging pumps to be manually restarted.
- C. require the CRS to transition to the Functional Recovery procedure due to "dual" events in progress.
- D. require the alignment of Essential Cooling Water to Nuclear Cooling Water priority loads to maintain forced circulation.

Answer: A

Associated KA:  
L11218

Given that the SGTR EOP is being implemented describe the SGTR EOP mitigation strategy

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q10473  
4.00  
3  
CFR 55.43 (4) 55.43 (4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Cognitive Level:  
Question Source:  
Comment:

Comprehension / Anal  
Modified PV Bank

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40EP-9EO04, SGTR / LOIT lesson plan

**K&A:** Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities. Loss of Condenser Vacuum

**Justification:** examinee has adequate information to determine that a SGTR on SG #1 is occurring

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**A is Correct** - a loss of Offsite power will cause a loss of vacuum leading to the use of ADVs or SBCVs 7 and 8 either one will cause a release to atmosphere

**B is Wrong** - this would be the condition for a LOP with no SIAS

**C is Wrong** - SGTR with a concurrent LOOP does not require the FRP

**D is Wrong** - Power to the RCPs is from 13.8Kv which is lost during a LOOP event. Cross connecting EW would be of no value since the RCPs have tripped.

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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 1 Group 2
K/A #	2.3.11
Importance Rating:	4.30

Given the following conditions:

- Unit 1 is operating at 55% following a Large Load Reject event.
- RU-155D, RCS Letdown is in high alarm
- Chemistry analysis confirms that DOSE EQUIVALENT I-131 is in the **unacceptable** region of Tech Spec figure 3.4.17-1.
- The CRS directs that a Unit shutdown be performed.

In accordance with LCO 3.4.17, RCS Specific Activity, which one of the following actions is subsequently performed to limit the release of radioactivity?

- A. The main steam isolation valves (MSIVs) are closed.
- B. The RCS temperature is lowered to a T-cold of less than 500°F.
- C. The maximum number of condensate polishers are placed in service.
- D. Letdown is isolated by closing CHB-UV-515, Letdown to Regen HX Isolation valve.

Answer: **B**

Associated KA:  
30221

bases for Tech Spec 3.4.17

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q22522  
4.00  
4  
CFR 55.43 (4)

55.43 (4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Cognitive Level:  
Question Source:  
Comment:

Memory  
INPO Bank modified

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** Tech Specs, LCO 3.4.17

**K&A:** Ability to control radiation releases. High Reactor Coolant Activity

**Justification:**

**A is Wrong - Closing MSIVs is an action taken to isolate a faulted SG during a SGTR event. This action would not prevent an MSSV from lifting**

**B is Correct - per 3.4.17 Tcold is lowered to be below the MSSV setpoint in the event of a SGTR**

**C is Wrong - actions taken for SGTR**

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**D is Wrong - Action that could be taken to limit rad levels in the aux building**

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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 2 Group 1
K/A #	2.1.4
Importance Rating:	3.80

Given the following Unit 1 conditions:

- Pressurizer pressure is 250 psia.
- Reactor Coolant System T-cold is 190°F.
- Shutdown Cooling train "A" is in service.
- The crew attended training last week.
- The Control Operator did not attend training but is scheduled to attend next week.
- The Reactor Operator attended and successfully completed her training week.
- The CRS failed the weekly exam and is scheduled to be remediated next week.
- The 3rd Reactor Operator holds an active SRO license and successfully completed his training week.

Per 40DP-9OP02, Conduct of Shift Operations, \_\_\_\_\_ may be designated to maintain the Control Room command function for this shift?

- A. only the 3rd Reactor Operator
- B. either the 3rd Reactor Operator or CRS
- C. either the Reactor Operator or 3rd Reactor Operator
- D. either the Reactor Operator, Control Operator or 3rd Reactor Operator

Answer: D

Associated KA:  
L12034

State the requirement concerning licensed operators "at the control area" when fuel is in the vessel.

Reference Id:	Q22586
Difficulty:	4.00
Time to complete:	3
10CFR Category:	CFR 55.43 (2)      55.43 (2) Facility operating limitations in the technical specifications and their bases.
Cognitive Level:	Memory
Question Source:	New
Comment:	

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40DP-9OP02, Conduct of Shift Operations

**K&A:** Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc. [Residual Heat Removal](#)

**Justification:** In Modes 5 and 6 command function will normally be the CRS but may either be a qualified SRO or RO.

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The CRS failed the weekly exam and shall be removed from license duties until remediation is complete. Those who do not attend training have 6 weeks from completion of the current cycle to make-up the missed training.

A is Wrong -

B is Wrong -

C is Wrong -

D is Correct - This means that the CO, RO and 3rd Operator are all permitted to hold the command function in Mode 5

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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 2 Group 1
K/A #	34039a2.05
Importance Rating:	3.60

Unit 1 was operating at 100% power when the following conditions were observed:

- COLSS calculated primary calorimetric power (NKBDELTA) is rising.
- COLSS calculated turbine power (NKTFSP) is lowering.
- T-cold is 555°F and lowering.
- Pressurizer pressure is 2210 psia and lowering.
- Pressurizer level is lowering.
- Containment pressure is 0.3 psig and stable.
- Containment temperature is 112°F and stable.

In addition the crew should expect to observe ...

- A. CEA mis-alignment due to a slipped 4 finger CEA. Implement 40AO-9ZZ11, CEA malfunctions.
- B. lowering Main Generator megawatt output due to the partial load reject. Implement 40AO-9ZZ08, Load Rejection.
- C. letdown flow lowering due to the RCS leak outside containment. Trip the reactor and implement 40EP-9EO03, Loss of Coolant Accident.
- D. lowering SG pressures due to the steam leak outside containment. Trip the reactor and implement 40EP-9EO05, Excess Steam Demand.

Answer: D

Associated KA:  
L11200

Given conditions of an ESD analyze whether or not entry into the ESD EOP is appropriate

Reference Id:	Q22524
Difficulty:	3.00
Time to complete:	3
10CFR Category:	CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Cognitive Level:	Comprehension / Anal
Question Source:	New
Comment:	

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** ESD procedure, 40EP-9EO05

**K&A:** Ability to (a) predict the impacts of the following malfunctions or operations on the MRSS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Increasing steam demand, its relationship to increases in reactor power

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**2009 Senior Reactor Operator Exam****Justification:**

**A is Wrong - slipped CEA would cause lowering pressure and temperature but not the power increase**

**B is Wrong - load reject will cause lowering power and T-cold to increase. Examinee could confuse lowering first stage pressure with lowering turbine load.**

**C is Wrong - RCS leak would cause the PZR indications but not the power indications.**

**D is Correct - A steam leak outside of containment will lower Steam Header pressure resulting in a lower first stage pressure = NKTFSP lowering. However primary power (NKBDEL) will increase as steam demand increases. T-cold and pressurizer indications are consistent with ESD.**



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This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 2 Group 1
K/A #	34059a2.02
Importance Rating:	2.50

Given the following conditions:

- Unit 1 is operating at 100% power.
- Alarm window 6B13A, EXTR DRN SYS TRBL is alarming.
- Alarm point EDLS709, Heater 7A Level Hi is in alarm.
- An AO has verified that both the normal and high level dump valves for the High Pressure feedwater heater 7A indicate open.

Which of the following is correct for these circumstances?

- A. If level continues to rise and the Hi-Hi setpoint is reached, feedwater flow through the A train high pressure heater string will isolate, take actions per 40AL-9RK6B.
- B. Removing the 7A heater from service causes a reduction in feedwater temperature to both SGs and a power reduction is required per 40OP-9ZZ05 (Power Operations).
- C. Prior to removing the 7A feedwater heater from service the crew must reduce power to either 50% or until the High Level Control valve is less than 25% open per 40OP-9ED01, Feedwater Heater Extraction Steam and Drain System.
- D. 40OP-9ZZ14 (Feedwater & Condensate) allows 100% operation with a high pressure feedwater string removed from service if FWN-HV-103, train A/B heater bypass valve is open since there would not be a significant change in feedwater temperatures.

Answer: B

Associated KA:  
L10015

From memory explain why Main Turbine load must be reduced when feedwater heaters are removed from service

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q22525  
3.00  
4  
CFR 55.43 (5)

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:  
Question Source:  
Comment:

Memory  
New

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** ARP, 40AL-9RK6B / LOIT lesson plan / Power Ops, 40OP-9ZZ05

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**2009 Senior Reactor Operator Exam**

**K&A:** Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of feedwater heater

**Justification:**

**A is Wrong - Hi-Hi isolation is for the low pressure FW heaters**

**B is Correct - Temperature lower to both SG as flow combines and power must be lowered per the Power Operations procedure**

**C is Wrong - this action would be taken when removing a Heater Drain pump from service**

**D is Wrong - power must be lowered to 1109 MW even with the bypass valve open**

2009 Senior Reactor Operator Exam

14

This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 2 Group 1
K/A #	2.1.23
Importance Rating:	4.40

Given the following conditions:

- A Loss of Coolant event is in progress.
- SIAS/CIAS/MSIS have initiated.
- HPSI pump "B", SIB-P01, has faulted and is not available.
- A Loss of Offsite Power occurred on the reactor trip.
- ESF transformer NBN-X03 has a sudden pressure fault.
- PBA-S03, Class 4160 Kv bus is de-energized.
- PKA-M41, 125 VDC bus, has faulted and is de-energized.

Adequate Safety Injection flow can be restored by ...

- A. aligning the "B" DG per Standard Appendix 58, Cross-Tie DG B to PBA-S03.
- B. aligning the Station Blackout Generators per Standard Appendix 80, SBOG to PBA-S03 (BO).
- C. performing contingency actions of the Standard Post Trip Actions (40EP-9EO01) to restore the "A" DG.
- D. energizing PBA-S03 from NBN-X04 (ESF transformer) per MVAC-1 of the Functional Recovery procedure, 40EP-9EO09.

Answer: A

Associated KA:  
56294

Given the FRP is being performed and given specific plant conditions determine if the selected MVAC success path safety function status checks are being met

Reference Id:	Q22526
Difficulty:	3.00
Time to complete:	3
10CFR Category:	CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:	Comprehension / Anal
Question Source:	New
Comment:	

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** FRP, 40EP-9EO09 / Loss of Class Instrument Power, 40AO-9ZZ13 / Electrical prints

**K&A:** Ability to perform specific system and integrated plant procedures during all modes of plant operation. 064 [Emergency Diesel Generators](#)

**Justification:**

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**A is Correct - power can be supplied by x-tying DG b to PBA-S03**

**B is Wrong - SBOGs must have NBN-X03 available to supply the unit with power**

**C is Wrong - A loss PKA-M41 kills the "A" DG therefore the MVAC contingency actions of the SPTAs are not available**

**D is Wrong - LOOP occurred therefore the other ESF transformer is not available**

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15

This Exam Level Appears on:	SRO
	SRO EXAM 2009
K/A #	35022a2.01
Importance Rating:	2.70

Given the following conditions:

- Unit 1 is operating at rated power
- The "A" train CEDM cooling fans (A02A/A02C) are running.
- The "B" train CEDM cooling fans (A02B/A02D) are in standby.

Subsequently

- Alarm window 7A9B, CEDM ACU COOLS SYS TRBL alarms.
- The Operator observes that CEDM cooling fan A02A has a brighter than normal green light.

Assuming no Operator action ...

- A. only A02C is running, full power operation may continue per 40AO-9ZZ20, Loss of HVAC.
- B. A02B will start after a 120 second time delay, full power operation may continue per 40AL-9RK7A, panel B07A alarm response.
- C. only A02C is running, start an additional CEDM cooling fan within 10 minutes or perform a Rapid Shutdown per 40OP-9ZZ05 Power Operations.
- D. only A02C is running, start an additional CEDM cooling fan within 40 minutes or trip the reactor and cooldown the RCS to less than 300°F within 4 hours per 40OP-9ZZ10, Mode 3 to Mode 5 operations.

Answer: A

Associated KA:  
74465

Describe the automatic functions associated with the CEDM Normal ACU fans (HCN-A02-A, & C and HCN-A02-B, & D).

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q22591  
0.00  
0  
CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:  
Question Source:  
Comment:

Comprehension / Anal  
Modified PV Bank

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** Panel B07A Alarm Responses (40AL-9RK7A), Loss of HVAC (40AO-9ZZ20)

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**2009 Senior Reactor Operator Exam**

**K&A:** Ability to (a) predict the impacts of the following malfunctions or operations on the CCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Fan motor over-current

**Justification:**

**A is Correct** - There is no low D/P with a single fan running, no additional fans start and full power operation is permitted with a single fan running.

**B is Wrong** - no low D/P start signal is generated, both fans would have to trip.

**C is Wrong** - only A02C is running but the actions stated (10 minutes) apply to no CEDM cooling fans running.

**D is Wrong** - only A02C is running but the actions stated (40 minutes) apply to no CEDM cooling fans running.

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16

This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 2 Group 2
K/A #	34002a2.03
Importance Rating:	4.30

Unit 1 is operating at 100% power when the following events occur:

- NAN-S02 (13.8 Kv non class bus) faulted and is de-energized.
- An automatic reactor trip occurs.
- Standard Post Trip Actions (SPTAs) are completed.
- Pressurize level is 33% and stable.
- NO operator actions have been taken or are required.

Subsequently

- Start-up transformer 3 faults and is de-energized.

The CRS should now anticipate that Pressurizer level will ...

- A. increase above the control band, level should be controlled by initiating a cooldown per 40EP-9EO07, LOOP/LOFC.
- B. increase above the control band, level should be controlled by securing all charging pumps per 40EP-9EO02, Reactor Trip.
- C. drop below the control band, level should be controlled by green flagging the always running charging pump per 40EP-9EO02, Reactor Trip.
- D. drop below the control band, level should be restored by green flagging the always running charging pump per 40EP-9EO07, LOOP/LOFC

Answer: A

Associated KA:  
L56289

Given conditions of a LOOP or LOFC determine whether or not entry into the LOOP/LOFC EOP is appropriate

Reference Id:	Q22527	
Difficulty:	3.00	
Time to complete:	3	
10CFR Category:	CFR 55.43 (5)	55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level: Comprehension / Anal  
Question Source: New  
Comment:

**Proposed reference to be provided to applicant during examination: NONE**

**Technical Reference:** LOOP, 40EP-9EO07/ LOIT lesson plan

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**2009 Senior Reactor Operator Exam**

**K&A:** Ability to (a) predict the impacts of the following malfunctions or operations on the RCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of forced circulation

**Justification:**

**A is Correct - Increasing  $T_{hot}$  and loss of Letdown will cause Pzr level to go high. With no cooling flow (NC) to the RCPs charging flow must be maintained, level is controlled by initiating a cooldown.**

**B is Wrong - This is a LOOP event, stopping charging pumps is wrong.**

**C and D are Wrong - level will go high. Examinee may not correctly associate which buses have de-energized or think that charging pumps have become anti-pumped due to the LOP signals.**



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17

This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 2 Group 2
K/A #	2.4.40
Importance Rating:	4.50

Given the following time line:

- 1310 - An Alert, (FA1) was declared due to a LOCA and the RCS being at saturation conditions.
- 1330 - REP CET readings are 710°F.
- 1330 - RVLMS indicates 0% in the plenum.

It is the Emergency Coordinator responsibility to inform the State/County agencies no later than (a) of the upgrade to a (b).

- A. (a) 1400 (b) Site Area Emergency
- B. (a) 1400 (b) General Emergency
- C. (a) 1430 (b) Site Area Emergency
- D. (a) 1430 (b) General Emergency

Answer: A

Associated KA: 100866	Active Question Bank 2004
L92711	Identify the time restrictions for both classification of an emergency and notification of city, state, county and federal agency.
64124	Identify the specific E-Plan time requirements and responsibilities of the STSC Communicator.
96192	Classify events requiring emergency plan implementation
L65140	Given an emergency event, direct emergency plan actions as the Emergency Coordinator
L60153	Given the Emergency Classification procedure Describe the changes to the Emergency Classification procedure

Reference Id:	Q6652
Difficulty:	2.00
Time to complete:	5
10CFR Category:	CFR 55.43 (5) 55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Cognitive Level:	Comprehension / Anal
Question Source:	PV Bank Not Modified
Comment:	

**Proposed reference to be provided to applicant during examination:** NEI-99

**Technical Reference:** EPIP-01

**K&A:** Knowledge of SRO responsibilities in emergency plan implementation. [\(017\) In-core Temperature Monitor](#)

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**Justification:**

**A is Correct - per EPIP-01. 2 potential and one loss of a barrier, notification required in <15 minutes**

**B and D are Wrong - could confuse potential losses and come up with a GE**

**C is Wrong - SAE is correct but 1 hour is the NRC notification time**

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18

This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 2 Group 2
K/A #	38033a2.03
Importance Rating:	3.50

Given the following conditions:

- Unit 1 is in Mode 5 during a refueling outage.
- "A" Train shutdown cooling is in service.
- Spent Fuel Pool Level Hi or Lo is in alarm.
- Spent Fuel Pool level Lo-Lo is in alarm.
- An Auxiliary Operator confirms Spent Fuel Pool level is 136 ft 6 inches and slowly lowering.

What is the current status of (a) LCO 3.7.14, Fuel Storage Pool Water Level (b) Spent Fuel Pool Cooling (c) and which procedure should be implemented to correct this condition?

- A. (a) Entry in to LCO 3.7.14 is not required (b) SFP cooling must be secured at this level (c) 40AO-9ZZ23, Loss of SFP Level or Cooling.
- B. (a) Entry in to LCO 3.7.14 is required (b) SFP cooling can remain in operation at this level (c) 40AO-9ZZ23, Loss of SFP Level or Cooling.
- C. (a) Entry in to LCO 3.7.14 is required (b) SFP cooling must be secured at this level (c) 40EP-9EO11, Lower Mode Functional Recovery Procedure.
- D. (a) Entry in to LCO 3.7.14 is not required (b) SFP cooling can remain in operation at this level (c) 40EP-9EO11, Lower Mode Functional Recovery Procedure.

Answer: B

Associated KA:  
LS94317

Given plant conditions determine whether or not entry into or exit from the Loss of SFP Level or Cooling abnormal operating procedure is appropriate

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q22528  
2.00  
3  
CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:  
Question Source:  
Comment:

Memory  
New

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** LCO 3.4.17 / 40AO-9ZZ23, Loss of SFP Level or Cooling / SFP alarm Response, 41AL-1PC01

**K&A:** Ability to (a) predict the impacts of the following malfunctions or operations on the Spent Fuel Pool Cooling System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:  
Abnormal spent fuel pool water level or loss of water level

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Justification: LCO entry is 137 feet 4 inches, SFP cooling suction level is 131 ft 10 inches and ZZ23 is the correct procedure, Unit is in Mode 5 but refueling pool has no level (Inv. Control) that would involve the LMFRP

A is Wrong - LCO entry is required at < 137.33 feet

B is Correct -

C is Wrong - SFP cooling can continue and LMFRP is wrong

D is Wrong - LCO entry is required, LMFRP is wrong

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19

This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 3
K/A #	2.1.7
Importance Rating:	4.70

Unit 1 has stabilized power at 52% following a trip of the B Main Feedwater pump.

30 minutes later the following conditions are noted:

- Reactor power is stable at 52%.
- T-cold is lowering.
- T-avg is dropping below T-ref
- CEA overlap has not been restored.

Which one of the following events/actions would cause these conditions?

- A. A small steam leak has occurred, trip the reactor and implement 40EP-9EO05, Excess Steam Demand.
- B. A slipped/dropped CEA has occurred, implement 40AO-9ZZ11, CEA Malfunctions and restore CEA positions.
- C. A HI-HI level has caused extraction steam to be isolated to a High Pressure feedwater heater, implement 40OP-9ZZ14, Feedwater and Condensate.
- D. These are expected xenon responses, lower turbine load and continue performance of 40AO-9ZZ09, Reactor Power Cutback (Loss of Feedpump)..

Answer: D

Associated KA:  
L56805

Determine if the RPCB (LOFP) AOP should be executed.

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q22534  
3.00  
3  
CFR 55.43 (5) 55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:  
Question Source:  
Comment:

Comprehension / Anal  
New

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** 40AO-9ZZ09, RPCB (loss of Feedpump)

**K&A:** Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.

**Justification:** The Xerho program showed 93 pcm xenon at 30 minutes

**A is Wrong - A steam leak would cause power to increase and temp to lower**

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**B is Wrong - a slipped CEA could give these conditions but the procedure directs a Reactor trip if this should happen**

**C is Wrong - HI-HI level isolates extraction steam to the FW heater causing a drop in FW temp and a lowering of Tcold but power would also increase with the colder Feedwater**

**D is Correct - as xenon builds in temp will lower to maintain the given power with the Main Turbine on line. Procedure provides guidance to lower turbine load**

20

This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 3
K/A #	2.2.20
Importance Rating:	3.80

Per 01DP-9ZZ01, Systematic Troubleshooting, who is responsible to determine the level of troubleshooting gameplan?

- A. Shift Manager
- B. System Engineer
- C. Shift Technical Advisor
- D. Unit Department Leader

Answer: **A**

Associated KA:  
01DP-9ZZ01

Systematic Troubleshooting - 01DP-9ZZ01

Reference Id: Q22531  
 Difficulty: 3.00  
 Time to complete: 3  
 10CFR Category: CFR 55.43 (5)

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level: Memory  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination: NONE**

**Technical Reference:** 01DP-9ZZ01, Systematic Troubleshooting

**K&A:** Knowledge of the process for managing troubleshooting activities.

**Justification:**

**A is Correct - Listed under the responsibilities section.**

**B, C and D are Wrong - Any of these could seem reasonable to the examinee.**

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21

This Exam Level Appears on: SRO  
SRO EXAM 2009 Tier 3  
K/A # 2.2.38  
Importance Rating: 4.50

Given the following conditions:

Unit 1 is operating at rated power with the following Safety Injection Tank (SIT) parameters:

PARAMETER	Pressure (psig)	Level (% NR)	Boron (ppm)
1A	592	35	4000
1B	605	32	4010
2A	610	24	3925
2B	615	30	4100

Per Section 3.5 of the Technical Specifications, which of the following describes the required actions (if any) necessary for these conditions.

- A. No actions required.
- B. Enter 3.0.3 immediately.
- C. Be in Mode 3 within 6 hours.
- D. Restore the inoperable SIT(s) to operable status within 24 hours.

Answer: B

Associated KA:  
100866

Active Question Bank 2004

L89782

Given a set of plant conditions apply the one hour or less actions statements of T.S. 3.5

Reference Id: Q28413  
 Difficulty: 3.00  
 Time to complete: 2  
 10CFR Category: CFR 55.43 (1) 55.43 (1) Conditions and limitations in the facility license.  
 Cognitive Level: Memory  
 Question Source: PV Bank Not Modified  
 Comment:

**Proposed reference to be provided to applicant during examination: NONE**

**Technical Reference:** Tech Specs LCO 3.5.1

**K&A:** Knowledge of conditions and limitations in the facility license.

**Justification:**

- $\geq 2300$  ppm (Boron concentration)  $\leq 4400$  ppm
- $\geq 600$  psig ppm (Pressure)  $\leq 625$  psig
- $\geq 28$  (%NR level)  $\leq 72$

**A is Wrong -**



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**B is Correct - 2 SITs Inoperable requires entry into LCO 3.0.3 per LCO 3.5.1 condition  
D**

**C is Wrong -**

**D is Wrong -**

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22

This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 3
K/A #	2.3.11
Importance Rating:	4.30

Given the following Unit -1 conditions:

- SG 2 has a 75 gpd tube leak.
- The CRS is taking actions to be in Mode 3 within 24 hours per appendix F of 40AO-9ZZ02, Excessive RCS Leakrate.

Subsequently

- A safety on SG 2 fails partially open.
- A manual reactor trip is initiated.

After completion of the Standard Post Trip Actions the CRS should implement ...

- A. 40EP-9EO09, FRP and secure feedwater flow to SG 2.
- B. 40EP-9EO05, ESD and initiate an MSIS to isolate SG 2.
- C. 40EP-9EO09, FRP and feed SG 2 to greater than 45% NR.
- D. 40EP-9EO05, ESD and stabilize RCS temperatures using SG 1 only.

Answer: C

Associated KA:  
L11218

Given that the SGTR EOP is being implemented describe the SGTR EOP mitigation strategy

Reference Id: Q22596  
 Difficulty: 3.00  
 Time to complete: 3  
 10CFR Category: CFR 55.43 (4)

55.43 (4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Cognitive Level: Comprehension / Anal  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination: NONE**

**Technical Reference:** 40EP-9EO09, FRP

**K&A:** Ability to control radiation releases.

**Justification:**

**A is Wrong - This would be correct for a SGTR/ESD in containment. We would stop feeding in order to minimize the cooldown of the RCS with no release to atmosphere.**

**B is Wrong - The examinee may believe that the MSIS will stop the release when the MSIV close.**

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**C is Correct - This action is taken for ESD/SGTR outside containment. Feed 1360 to 1600 gpm to reach 45% NR level**

**C is Wrong - This would be correct for an ESD only event, examinee may believe that for such a small SGTL the FRP is not required.**

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23

This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 3
K/A #	2.3.12
Importance Rating:	3.70

Given the following conditions:

- Unit 1 is in Mode 6
- Core off-load is in progress
- The CRS is informed that a Fuel Assembly has been dropped in the Spent Fuel Pool.
- The Fuel Assembly is being placed in a stable condition.
- RU 31 is in alert alarm and readings are trending up
- Ru-145 is in alert alarm and readings are trending up.

In addition to initiating a FBEVAS the crew is expected to ....

- A. ensure all personnel have evacuated the area, no other actions are required.
- B. initiate or verify initiated CRVIAS and ensure all personnel have evacuated the area.
- C. initiate or verify initiated CREFAS and ensure all non-essential personnel have evacuated the area.
- D. initiate or verify initiated CREFAS, CRVIAS and ensure all non-essential personnel have evacuated the area.

Answer: C

Associated KA:  
L96631

Determine whether or not the Irradiated Fuel Damage AOP should be executed.

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q22597  
3.00  
2  
CFR 55.43 (4) 55.43 (4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Cognitive Level:  
Question Source:  
Comment:

Memory  
New

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** Irradiated Fuel Damage, 40AO-9ZZ22 / LOIT Lesson Plan / RMS alarm response, 74RM-9EF41

**K&A:** Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.

**Justification:** per the RMS alarm response and 40AO-9ZZ22 the crew should initiate a CREFAS only in addition ZZ22 directs that non-essential personnel be evacuated. CRIVAS is for toxic conditions.

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**A is Wrong - Initiate/verify CREFAS and evacuate non-essential personnel**

**B is Wrong - CRIVAS is not directed (containment)**

**C is Correct - CREFAS should cross trip and non-essential personnel should be evacuated**

**D is Wrong - CRIVAS is not directed**

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24

This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 3
K/A #	2.4.11
Importance Rating:	4.20

Which of the following represents the proper use of an Abnormal Operating Procedure (AOP) per the Abnormal Operating Procedure Users Guide, 40DP-9AP18?

- A. Only one AOP may be in use at a time.
- B. Initiating action to accomplish a step is all that is required to continue in the AOP.
- C. The requirements of Technical Specifications do not apply while an AOP is in use.
- D. If an AOP is in progress when the reactor trips then all Safety Functions must be addressed prior to performance of any additional AOP steps.

Answer: B

Associated KA:  
54860

AOPs

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q22533  
3.00  
3  
CFR 55.43 (5) 55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:  
Question Source:  
Comment:

Memory  
New

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** AOP Users Guide, 40DP-9AP18

**K&A:** Knowledge of abnormal condition procedures.

**Justification:**

**A is Wrong - This would be true for EOP use**

**B is Correct - initiating action is correct per 11.0 of the Users Guide**

**C is Wrong - section 14 Tech Specs do apply, but this would be true for EOPs**

**D is Wrong - per section 17 only the reactivity Safety Function must be completed prior to continuing in the AOP**

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25

This Exam Level Appears on:	SRO
	SRO EXAM 2009 Tier 3
K/A #	2.4.30
Importance Rating:	4.10

In accordance with PVNGS Policies, Practices and Procedures, which one of the following conditions/actions requires notification of the NRC?

- A. Single PPS channel trip.
- B. Loss of both Nuclear Cooling Water pumps.
- C. Fire in the Operations Support Building that is extinguished within 10 minutes.
- D. Auxiliary Operator is referred to medical due to a finger laceration while operating a manual valve.

Answer: B

Associated KA: 72279	LCO 3.0.3
Reference Id:	Q22537
Difficulty:	3.00
Time to complete:	2
10CFR Category:	CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
Cognitive Level:	Memory
Question Source:	New
Comment:	

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** ODP-10, Ops External Communications Practices / Policy No.1504, Ops NRC Communications Policy

**K&A:** Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator.

**Justification:**

**A is Wrong - Single trip is a TS entry nothing more. No AOP entry or reduced power ops**

**B is Correct - Entry into AOP requires NRC notification**

**C is Wrong - Fire < 10 requires no implementation of e-plan**

**D is Wrong - might be true for a licensed operator or if evacuation or contamination were involved**

**2009 Senior Reactor Operator Exam****Cognitive Level Summary**

Number of questions linked:	25	Percentage
Memory	9	9
Comprehension	0	0
Analysis	0	0

**Question Source Summary**

Number of questions linked to source:	25	Percentage
<b>New</b>		
New	15	15
<b>Modified</b>		
INPO Bank Modified	0	
PV Bank Modified	6	
Total Modified	6	6
<b>Bank</b>		
INPO Bank Not Modified	0	
PV Bank Not Modified	3	
PV NRC Exam Question Not Modified	0	
Total BANK	3	3