U.S. Nuclear Regulatory Commission
Site-Specific
Written Examination

Applicant Information	
Name:	Region: I / II / III / IV
Date:	Facility/Unit: **Perry**
License Level: (RO) / SRO	Reactor Type: W / CE / BW / **GE**
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected ~~five~~ six hours after the examination starts.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

_____
Applicant's Signature

Results		
Examination Value	100.00	Points
Applicant's Score	_____	Points
Applicant's Grade	_____	Percent

Perry Nuclear Power Plant
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QUESTION Common 001

The following plant conditions exist:

- The reactor is in cold shutdown.
- Reactor water level is being maintained with the CRDH and RWCU Systems.
- CRDH System flow is in Automatic at 60 gpm.
- RWCU blow down flow is adjusted to 60 gpm.

Surveillance testing of the Reactor Protection System results in a full reactor scram signal.

Assume no operator actions have been performed.

Which one of the following describes the response of the CRDH System and reactor water level?

CRDH total system flow will...

A. decrease and reactor water level will decrease.

B. decrease and reactor water level will increase.

C. increase and reactor water level will decrease.

D. increase and reactor water level will increase.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	2
	K/A#	201001.A3.05	
	Importance Rating	2.8	2.8

Proposed Question: See attached Common 001

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A&B – CRDH system flow increases due to diverting water to the charging header.

C – although CRDH system flow is higher, this water is diverted to the charging header and RPV level will actually increase since CRDH flow is greater than RWCU blowdown flow.

Technical Reference(s):	Reference Attached: ___X__
SDM C11(CRDH)	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-007-C11(CRDH) OBJ B &C

Question Source:	Bank # _____
	Modified Bank # _____ (Note changes or attach parent)
	New __X__

Question History:	Previous NRC Exam _____
	Previous Quiz / Test _____

Question Cognitive Level:	Memory or Fundamental Knowledge _____
	Comprehension or Analysis __C__

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question):
Requires the student to predict the impact of a scram on CRDH system flow and the resulting impact on reactor water level.

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QUESTION Common 002

The plant is operating at 40% reactor power with Main Turbine Stop Valve (TSV) testing in progress. TSV N11-F200A is in the full closed position for testing when TSV N11-F200B fails closed.

Which one of the following is the expected response of the RPS System, if any?

A. Full Scram.

B. Half Scram.

C. No response, due to the specific TSV combination involved.

D. No response, since this RPS trip is bypassed under current plant conditions.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	212000.K5.02	
	Importance Rating	3.3	3.4

Proposed Question: See attached Common 002

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – This logic requires 3 TSV to be closed to initiate a Full Scram signal.

C – This is only true for TSV B&C or A&D combination.

D – The RPS TSV closure trip is only bypassed below 38% reactor power.

Technical Reference(s):	Reference Attached: __X__
SDM C71	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-005-C71 OBJ F

Question Source:	Bank # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

Question History:	Previous NRC Exam _____
	Previous Quiz / Test _____

Question Cognitive Level:	Memory or Fundamental Knowledge __X__
	Comprehension or Analysis _____

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question):

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QUESTION Common 003

Refueling is in progress when a rupture of the Fuel Pool Cooling and Cleanup (FPCC) Return Header to the Upper Containment Pool occurs.

Which one of the following design features will minimize the inventory loss from the Upper Containment Pool?

A. Diffusers on the Return Header lines become uncovered.

B. Containment Isolation Valves automatically close on Upper Containment Pool low level.

C. Siphon breakers on the Return Header lines become uncovered.

D. FPCC Surge Tank Fill From CST Valve, G41-F045 automatically opens on Upper Containment Pool low level.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	3	3
	K/A#	233000.K4.06	
	Importance Rating	2.9	3.2

Proposed Question: See attached Common 003

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The return header line diffusers are located at the bottom of the pool.

B – The Containment Isolation Valves automatically close on a BOP Isolation Signal, not Upper Containment Pool Low Level..

D – The FPCC makeup to the upper containment pool has no auto open feature.

Technical Reference(s):	Reference Attached: ___X__
SDM G41	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-006-G41 OBJ B

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 004

The plant is operating at 100% reactor power when a loss of RPS Bus 'B' occurs.

Simultaneously the following annunciator alarms occur on panel H13-P601:

- MAIN STEAM LINE RADIATION DOWNSCALE
- MAIN STEAM LINE RADIATION HI HI/INOP

Which one of the following caused these annunciators?

Loss of power to ...

A. 'A' and 'D' Main Steam Line Radiation Monitors.

B. 'B' and 'C' Main Steam Line Radiation Monitors.

C. 'A' and 'C' Main Steam Line Radiation Monitors.

D. 'B' and 'D' Main Steam Line Radiation Monitors.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	272000.K6.01	
	Importance Rating	3.0	3.2

Proposed Question: See attached Common 004

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A, B, C – each answer contains either MSL rad monitor A or C both of which are energized via RPS A.

Technical Reference(s):	Reference Attached: __X___
ONI-C71-2; SOI-C71	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-D17A OBJ D; OT-3036-005-C71 OBJ C,L, O

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 005

The following plant conditions exists:

- The reactor is operating at 90% power.
- One of the two running Reactor Feed Pumps Turbines tripped.
- Reactor water level decreased to +188 inches and then returned to normal level.

Which one of the following describes the operational concern during this transient?

A. Moisture carryover can occur which could lead to a reduction in Reactor Recirculation Pump Net Positive Suction Head.

B. Moisture carryover can occur which could lead to excessive moisture impingement on the Main Turbine blades.

C. Steam carryunder can occur which could lead to a reduction in Reactor Recirculation Pump Net Positive Suction Head.

D. Steam carryunder can occur which could lead to excessive moisture impingement on the Main Turbine blades.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295009.AK1.01	
	Importance Rating	2.7	2.9

Proposed Question: See attached Common 005

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A&B – a low water level results in steam carryunder not moisture carryover.

D – Main Turbine blade impingement is a result of moisture carryover.

Technical Reference(s):	Reference Attached: __X__
SDM B21(NBPI); GP Themo Text Chapter 8	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3302-004-08 OBJ 16

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to recognize potential conditions which result steam carryunder (low water level) and operational implications of reactor recirculation.

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QUESTION Common 006

The plant is operating at 100% reactor power when a chemical intrusion occurs.

Chemistry samples the reactor water and determines that some fuel elements have failed.

Subsequent to the sample, the following alarms occurred:

- OG PRE-TREAT PRCS RAD MON RAD HIGH (H13-P604)
- OG POST-TREAT PRCS RAD MON A/B RAD HI (H13-P604)
- MAIN STEAM LINE RADIATION HIGH (H13-P601)
- MAIN STEAM LINE RADIATION HI HI/INOP (H13-P601)

Which one of the following describes the automatic response of the Nuclear Steam Supply Shutoff System (NSSSS) to this condition?

A. Off-Gas System isolation.

B. Main Steam Line isolation.

C. Steam Jet Air Ejector isolation.

D. Reactor Water Sample isolation.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A#	295017.AK2.14	
	Importance Rating	4.0	4.1

Proposed Question: See attached Common 006

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – Offgas will only isolate on a Offgas Post Treat 3xHI condition (this is not a NS4 isolation)

B – the MSIVs do not automatically isolate on high radiation signal (previous design did).

C – Steam Jet Air Ejectors do not have a high rad signal isolation.

Technical Reference(s):	Reference Attached: ___X__
ONI-J11-1 Section 2.0; ARI-H13-P601-19 (B2)	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-B21(NS4) OBJ H

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 007

While removing a fuel channel from a spent fuel bundle in the Fuel Handling Building fuel preparation machine the following conditions occur:

- All local area radiation monitors suddenly alarm.
- ONI-J11-2, Fuel Bundle Rupture has been entered.
- A Fuel Handling Building evacuation is ordered.

Which one of the following actions is required?

The fuel bundle should be...

A. moved to its designated fuel pool storage location.

B. left at its current position and immediately re-channeled.

C. lowered in the fuel preparation machine to the full down position.

D. left at its current position and the fuel preparation machine air isolation valve closed.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	3	1
	K/A#	295023.AA1.03	
	Importance Rating	3.3	3.6

Proposed Question: See attached Common 007

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – this is a required action for fuel bundles being moved with the refuel bridge.

B – this would require raising the fuel bundle in the FPM and is not allowed by ONI-J11-2.

D – this action is contrary to the guidance in ONI-J11-2.

Technical Reference(s):	Reference Attached: ___X___
ONI-J11-2 Immediate Action	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-007-J11 OBJ I

Question Source:	Bank # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New ___X___	

Question History:	Previous NRC Exam _____
	Previous Quiz / Test _____

Question Cognitive Level:	Memory or Fundamental Knowledge ___X___
	Comprehension or Analysis _____

10 CFR Part 55 Content:	55.41 ___X___
	55.43 _____

Comments (Why is it an upper level question):

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QUESTION Common 008

The following plant conditions exist:

- An ATWS has occurred.
- Reactor power is 21%.
- Reactor pressure is 1080 psig.
- SLC system indications are:

Indication	SLC A	SLC B
Pump Running Status	Red light On	Red light On
Pump Discharge Pressure	1100 psig	1100 psig
Squib Continuity Light	Off	On

Which one of the following describes the Standby Liquid Control (SLC) System status?

The SLC System is ...

A. not injecting.

B. injecting with SLC Pump 'A' only.

C. injecting with SLC Pump 'B' only.

D. injecting with both SLC Pumps.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295037.EA1.04	
	Importance Rating	4.5	4.5

Proposed Question: See attached Common 008

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A, B, C – The squib continuity light is OFF on the "A" squib valve indicating it has fired; the system is cross-tied such that any squib valve open will provide both pumps an injection flow path.

Technical Reference(s):	Reference Attached: __X___
SDM C41	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-000-C41 OBJ B, E, F &L

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to comprehend the control room indications (squib lights and reactor pressure versus pump pressure) to determine correct SLC system operation.

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QUESTION Common 009

The following plant conditions exist:

- The plant is in MODE 2 and a reactor startup in progress.
- Only RACS Channel 1 is selected for display on panel H13-P680.
- IRM Channel 'B' fails upscale.

Which one of the following describes the Rod Control and Information System (RC&IS) indication(s) the operator will observe on panel H13-P680?

A. No control rod block is present; the WITHDRAW BLOCK indicator light is lit.

B. No control rod block is present; the WITHDRAW BLOCK indicator light is not lit.

C. Control rod block is present; the WITHDRAW BLOCK indicator light is lit.

D. Control rod block is present; the WITHDRAW BLOCK indicator light is not lit.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	201005.K6.04	
	Importance Rating	3.0	3.2

Proposed Question: See attached Common 009

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A&B – A rod block is initiated for IRM upscale when the reactor mode switch is in STARTUP.

C – Since RACS channel 1 is selected for display, the channel does not see the withdraw block (since IRM B is assigned to channel 2). Therefore the withdraw block indicator light will not be lit.

Technical Reference(s):	Reference Attached: ___X__
SDM C11(RCIS)	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-C11(RC&IS) OBJ D&L

Question Source:	Bank #	_505__	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the response of the RC&IS system, including expected indications, based on the initial conditions provided.

QUESTION Common 010

Technical Specification 3.4.3, Jet Pumps, requires the plant to be shutdown when any Jet Pump is determined to be inoperable.

Which one of the following describes the Technical Specification bases for this Required Action?

An inoperable Jet Pump can...

A. decrease the blowdown area during a LOCA and reduce the ability to reflood the core.

B. decrease the blowdown area during a LOCA and increase the potential for power/flow instabilities.

C. increase the blowdown area during a LOCA and reduce the ability to reflood the core.

D. increase the blowdown area during a LOCA and increase the potential for power/flow instabilities.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	202001.K4.01	
	Importance Rating	3.9	3.9

Proposed Question: See attached Common 010

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A &B – The blowdown area can potentially increase (not decrease).

D – Although power to flow instabilities are a concern at reduced core flows, this is not the bases of this technical specification required action.

Technical Reference(s): Tech Spec 3.4.3 Bases; SDM B13	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-B13 OBJ D, E&F; OT-3037-006-08 OBJ C

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION Common 011

The following plant conditions exist:

- A reactor startup/heatup is in progress.
- Reactor water level is +195 inches and slowly increasing.
- RWCU blowdown flow rate is increased to control RPV water level.

Subsequently the following alarms occur on panel H13-P680:

- RWCU F/D INLET TEMP HI
- RWCU ISOL F/D TEMP HI

Which one of the following describes the response of the Reactor Water Cleanup System?

A. Inboard isolation valve (G33-F001) closes; the RWCU Pump must be manually secured.

B. Inboard isolation valve (G33-F001) closes, the RWCU Pump automatically trips off.

C. Outboard isolation valve (G33-F004) closes, the RWCU Pump must be manually secured.

D. Outboard isolation valve (G33-F004) closes, the RWCU Pump automatically trips off.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	204000.A3.03	
	Importance Rating	3.6	3.6

Proposed Question: See attached Common 011

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A &B – only the outboard isolation valve closes on a filter demin high temperature.

C – The RWCU pump will automatically trip on low flow.

Technical Reference(s): SDM-G33 Table G33-4; ARI-H13-P680-01 (C1)	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-005-G33/36 OBJ D&I

Question Source:	Bank # _____ Modified Bank # _____ (Note changes or attach parent) New __X___
Question History:	Previous NRC Exam _____ Previous Quiz / Test _____
Question Cognitive Level:	Memory or Fundamental Knowledge _____ Comprehension or Analysis __C__
10 CFR Part 55 Content:	55.41 __X__ 55.43 _____

Comments (Why is it an upper level question):
Requires the student to predict the response of the RWCU system based on the initial plant conditions provided.

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QUESTION Common 012

The following plant conditions exist:

- A Loss of Coolant Accident has occurred.
- Drywell pressure is 1.8 psig.
- Reactor water level is +195 inches and stable.
- The High Pressure Core Spray (HPCS) Pump has been overridden to STOP.

Subsequently, Bus EH13 loses power and is re-energized by the Division 3 Diesel Generator.

Assume no additional operator actions were taken.

Which one of the following describes the current condition of the HPCS Pump?

The HPCS Pump is...

A. not running because the initiation logic was reset.

B. not running because the override logic was not affected.

C. running because the override logic was reset.

D. running because the initiation logic was not affected.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	209002.K2.03	
	Importance Rating	2.8	2.9

Proposed Question: See attached Common 012

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The initiation logic will not automatically reset because of a loss of AC power. The initiation logic is DC-powered, therefore, it is unaffected (i.e., still sealed-in due to LOCA signal).

C – The HPCS Pump remains overridden off after the loss of Bus EH13 and subsequent re-energization. The override logic is dc-powered, therefore, it is still sealed-in.

D – The HPCS Pump remains overridden off after the loss of Bus EH13 and subsequent re-energization. The initiation logic is DC-powered, therefore, it is unaffected (i.e., still sealed-in due to LOCA signal).

Technical Reference(s):	Reference Attached: __X___
SDM-E22A	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-E22A OBJ E

Question Source:	Bank #	___X___
	Modified Bank #	_____ (Note changes or attach parent)
	New	_____
Question History:	Previous NRC Exam	___X___ (June 2001 Exam)
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	__C__
10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question):
Requires the student to predict the response of the HPCS Pump based on initial plant conditions provided.

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QUESTION Common 013

The following plant conditions exist:

- The reactor is critical.
- Reactor power is on Range 3 of the Intermediate Range Monitors.
- Source Range (SRM) detectors are being withdrawn from the core.

Subsequently, SRM Channel 'B' –20 VDC power supply fails (0 Volts).

Which one of the following describes the response of the Source Range Monitoring System?

Assume no operator actions have been performed.

An SRM control rod block signal is…

A. not generated; SRM 'B' detector withdrawal from the core stops.

B. not generated; SRM 'B' detector withdrawal from the core continues.

C. generated; SRM 'B' detector withdrawal from the core stops.

D. generated; SRM 'B' detector withdrawal from the core continues.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	215004.K6.02	
	Importance Rating	3.1	3.3

Proposed Question: See attached Common 013

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A&B – A control rod block is generated due to SRM INOP conditions.

C – A SRM control rod block signal is generated; however SRM withdrawal is not effected since it has a separate power source.

Technical Reference(s):	Reference Attached: __X___
SDM-C51(SRM); ARI-H13-P680-06 (C1)	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-C51 (SRM) OBJ B&D

Question Source:	Bank #	_____
	Modified Bank #	_____ (Note changes or attach parent)
	New	__X___
Question History:	Previous NRC Exam	_____
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	____
	Comprehension or Analysis	__C__
10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question):
Requires the student to predict the response of the SRM system based on the initial conditions provided.

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QUESTION Common 014

By design, Local Power Range Monitors (LPRMs) are not removed from the core during power operation.

Which one of the following design features is utilized to offset the effects of LPRM detector aging?

A. The LPRM flux amplifier gain can be increased.

B. The LPRM detector chamber is filled with a high pressure argon gas.

C. The LPRM detector chamber is coated with a 78% U-235 enrichment.

D. The LPRM ion chamber high voltage power supply can be increased.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	215005.K4.06	
	Importance Rating	2.6	2.8

Proposed Question: See attached Common 014

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – the chamber is filled with argon gas but this is not to extend detector life due to aging.

C – the chamber has an enrichment of 18% U-235, U-234 is loaded to add life.

D – the ion chamber operates at 100vdc, increasing voltage would take it out of ion region.

Technical Reference(s):	Reference Attached: __X___
SDM-C51 (PRM)	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-005-C51(APRM & OPRM) OBJ B

Question Source:	Bank #	___	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 015

The plant is operating at 60% reactor power when Reactor Recirculation Pump 'A' trips.

ONI-C51, Unplanned Change in Reactivity or Power, is entered and all applicable Immediate Actions are completed.

Which one of the following describes a method to determine core flow during single Reactor Recirculation loop operations, including the bases for this method?

The actual value of core flow can be determined using the...

A. core plate dP since reverse flow in the non-operating Jet Pumps may impact the value of indicated core flow.

B. core plate dP since isolation of the non-operating Reactor Recirculation loop will cause a loss of input from the Recirculation Loop Flow instrumentation.

C. sum of the jet pump loop total flows since isolation of the non-operating Reactor Recirculation loop will cause a loss of input from the Recirculation Loop Flow instrumentation.

D. sum of the jet pump loop total flows since reverse flow in the non-operating Jet Pumps may impact the value of indicated core flow.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295001.AK3.06	
	Importance Rating	2.9	3.0

Proposed Question: See attached Common 015

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B & C – total core flow does not utilize recirc loop flow as input.

D – Reverse flow through the non-operating jet pumps is positive, there-fore this method is not accurate.

Technical Reference(s):	Reference Attached: __X___
ONI-C51; SDM B33	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-007-B33 OBJ D&I

Question Source:	Bank # _____	
	Modified Bank # _____	(Note changes or attach parent)
	New __X__	

Question History:	Previous NRC Exam _____
	Previous Quiz / Test _____

Question Cognitive Level:	Memory or Fundamental Knowledge __X__
	Comprehension or Analysis _____

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question):

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QUESTION Common 016

The following plant conditions exist:

- The reactor is operating at 100% power.
- 13.8 KV Bus L10 is being powered from Unit 2 Startup Transformer 200-PY-B.
- The Class 1E 4.16KV buses are being powered from Interbus Transformer LH-2-A.
- A Main Generator Lockout occurs.

Which one of the following describes the response of the AC Electrical Distribution System?

Bus L11 and Bus L12 ...

A. automatically transfer to Bus L10; the Class 1E 4.16KV buses remain on Interbus Transformer LH-2-A.

B. automatically transfer to Bus L10; the Class 1E 4.16KV buses automatically transfer to Interbus Transformer LH-1-A.

C. must be manually transferred to Bus L10; the Class 1E 4.16KV buses remain on Interbus Transformer LH-2-A.

D. must be manually transferred to Bus L10; the Class 1E 4.16KV buses automatically transfer to Interbus Transformer LH-1-A.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	2
	K/A#	295005.AA1.07	
	Importance Rating	3.3	3.3

Proposed Question: See attached Common 016

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – The 4.16KV buses have no automatic transfer capability.

C&D – The L10 bus will auto transfer on generator lockout regardless of which startup transformer is powering L10.

Technical Reference(s):	Reference Attached: __X___
SDM R10	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-006-R10 OBJ D

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the response of the AC Electrical Distribution System based on the initial plant conditions provided and a Main Generator Lockout.

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QUESTION Common 017

RCIC automatically initiated due to a low reactor water level condition.

Assume no operator actions have been performed.

Which one of the following describes the response of the RCIC System when reactor water level reaches L8, including the bases for this response?

The RCIC turbine...

A. steam supply valve (E51-F045) closes to prevent flooding the Main Steam Lines.

B. steam supply valve (E51-F045) closes to minimize the amount of water added to the suppression pool from sources external to Containment.

C. trip throttle valve (E51-F510) closes to prevent flooding the Main Steam Lines.

D. trip throttle valve (E51-F510) closes to minimize the amount of water added to the suppression pool from sources external to Containment.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295008.AK3.08	
	Importance Rating	3.4	3.5

Proposed Question: See attached Common 017

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – This is the bases for the RCIC Pump Suction transfer on Suppression Pool Hi level and not the bases for the Level 8 closure of the steam supply valve.

C&D – The RCIC turbine does not trip on high water level

Technical Reference(s):	Reference Attached: __X___
Tech Spec 3.3.5.2 Bases; SDM E51	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-003-E51 OBJ D OT-3037-005-07 OBJ G

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 018

The following plant conditions exist:

- A loss of all high pressure injection systems has occurred.
- Reactor water level decreased to +125 inches.
- CRD flow was aligned per PEI-SPI 4.1, CRD Alternate Injection.
- SLC Pump 'A' was started per PEI-SPI 4.5, SLC Demin Water Alternate Injection.
- SLC Pump 'B' was unavailable due to a clearance.

Which one of the following describes the status of the Reactor Water Cleanup System isolation valves?

A. Only the inboard isolation valve (G33-F001) closed.

B. Only the outboard isolation valve (G33-F004) closed.

C. Only the inboard (G33-F001) and outboard (G33-F004) isolation valves closed.

D. All G33 inboard and outboard isolation valves closed.

ANSWER: D

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295009.AA1.04	
	Importance Rating	2.7	2.7

Proposed Question: See attached Common 018

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A, B, C – L2 isolation signal closes all 8 G33 isolation valves.

Technical Reference(s): SDM-G33	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-005-G33/36 OBJ D

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the response of the RWCU system logic based on the initial conditions provided (specifically RPV L2 and SLC pump start).

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QUESTION Common 019

PEI-B13, RPV Control (Non-ATWS), was entered due to low reactor water level.

No other entry conditions were initially met.

Ten minutes later, the following parameters are reported:

- Reactor water level is +170 inches and increasing.
- Drywell pressure is 2.0 psig and increasing.

Which one of the following actions is required?

A. Exit PEI-B13, RPV Control (Non-ATWS), and enter PEI-T23, Containment Control.

B. Exit PEI-B13, RPV Control (Non-ATWS), and re-enter PEI-B13, RPV Control (Non-ATWS), at the beginning.

C. Enter PEI-T23, Containment Control, and continue executing PEI-B13, RPV Control (Non-ATWS), without re-entering at the beginning.

D. Enter PEI-T23, Containment Control, and continue executing PEI-B13, RPV Control (Non-ATWS), and re-enter at the beginning.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295010.G.2.4.1	
	Importance Rating	4.3	4.6

Proposed Question: See attached Common 019

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – B13 can not be exited when entry conditions are still met.

B – High drywell pressure is also an entry condition for T23.

C – Since high drywell pressure is an entry condition for B13, the procedure must be re-entered from the beginning while continuing to execute B13.

Technical Reference(s):	Reference Attached: __X___
PEI Bases Document; PEI-B13 & T23 Entry Conditions	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-005-02 OBJ B&D, OT-3402-004-09 OBJ B

Question Source:
Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New __X__

Question History:
Previous NRC Exam _____
Previous Quiz / Test _____

Question Cognitive Level:
Memory or Fundamental Knowledge __X__
Comprehension or Analysis _____

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question):

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QUESTION Common 020

A fire in the Control Room has forced all personnel to abandon the Control Room.

A reactor scram could not be initiated prior to evacuating the Control Room.

Which one of the following describes the preferred method for scramming the reactor, including the bases for this method?

Scram insertion via the...

A. ATWS UPS since this will not cause a MSIV closure.

B. ATWS UPS since this will not cause a loss of LPRMs/APRMs.

C. RPS Power Supply since this will not cause a MSIV closure.

D. RPS Power Supply since this will not cause a loss of LPRMs/APRMs.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A#	295016.G.2.4.34	
	Importance Rating	3.8	3.6

Proposed Question: See attached Common 020

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – Although preferred this method will cause certain LPRM/APRMs to be deenergized.

C&D – RPS not preferred since it will cause a MSIV closure.

Technical Reference(s):	Reference Attached: ___X__
ONI-C61	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-C61 OBJ C

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 021

The following plant conditions exist:

- The reactor is operating at 50% power.
- The Service Air and Instrument Air Systems are in their normal lineup.
- Instrument Air receiver pressure is 85 psig and decreasing.
- Service Air receiver pressure is 95 psig and decreasing.

Which one of the following describes the response of, if any, the Service Air/Instrument Air Cross-Connect Valves, including the bases for this response?

The Service Air/Instrument Air Cross-Connect Valves 1(2)P52-F050 are...

A. closed to completely isolate the Service Air and Instrument Air headers.

B. closed to prevent a leak in the Service Air header from impacting the Instrument Air header.

C. open; however they will close if Service Air receiver pressure decreases to 90 psig in order to completely isolate the Service Air and Instrument Air headers.

D. open; however they will close if Instrument Air receiver pressure decreases to 80 psig in order to prevent a leak in the Service Air header from impacting the Instrument Air header.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295019.AK3.03	
	Importance Rating	3.2	3.2

Proposed Question: See attached Common 021

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – Check valves around the F050 valves allow service air to continue to supply instrument air when the F050 valves are closed.

C – F050 valves are closed. Service air can still supply instrument air header therefore they are not completely isolated from each other.

D – F050 valves are closed; there are no automatic actions at 80 psig in the IA receiver.

Technical Reference(s): SDM P51/52	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-P51/52 OBJ E.

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the response of the Service Air/Instrument Air System cross-connect valves based on the initial plant conditions provided and the bases for this response.

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QUESTION Common 022

The plant is in MODE 1 when a loss of RPS Bus 'A' occurs.

Which one of the following describes the response, if any, of the Service Air and/or Instrument Air Systems?

A. No valves close since only a half BOP isolation signal is generated.

B. INST AIR DRYWELL ISOL 1P52-F646 and SERVICE AIR DRYWELL ISOL 1P51-F652 close.

C. SA SUPPLY HDR CNTMT ISOL 1P51-F150 and INST AIR CNTMT ISOL VLV 1P52-F200 close.

D. PERS AL EL 603 SUPP AIR OTBD ISOL 1P52F160 and PERS AL EL 692 SUPP AIR OTBD ISOL 1P52F170 close.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295020.AK2.12	
	Importance Rating	3.1	3.2

Proposed Question: See attached Common 022

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – A BOP Isolation signal for several P51/P52 valves will occur if RPS Bus A is lost.

B – F646 logic is from Div I RHR, F652 will receive a BOP isolation signal (even though it is normally closed during MODE 1).

C – F200 logic is from Div I RHR, F150 will receive a BOP isolation signal (event though it is normally closed during MODE 1).

Technical Reference(s): ONI-C71-2; SDM P51/52

Reference Attached: __X___
(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-P51/52 OBJ E

Question Source:
Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New __X__

Question History:
Previous NRC Exam _____
Previous Quiz / Test _____

Question Cognitive Level:
Memory or Fundamental Knowledge _____
Comprehension or Analysis __C__

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question):
Requires the student to predict the response of the Service Air/Instrument Air Systems to a containment isolation signal caused by a loss of RPS bus.

QUESTION Common 023

The following plant conditions exist:

- Reactor startup is in progress.
- Reactor pressure is 855 psig.
- Control rod 22-11 is at position 48. Its nitrogen accumulator has a cracked weld and is isolated for repair.

Subsequently, the running CRD Pump trips on low suction pressure.

CRD charging water header pressure indicates 1000 psig and decreasing.

The operator should place the Reactor Mode Switch in SHUTDOWN...

A. immediately.

B. immediately if another accumulator fault alarm is received on a withdrawn control rod.

C. within twenty minutes if a CRD Pump is not restarted.

D. within twenty minutes if another accumulator fault alarm is received.

ANSWER D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295022.AA1.02	
	Importance Rating	3.6	3.6

Proposed Question: See attached Common 023

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – Only if reactor pressure is < 600 psig.

C – There is no time limit to restore the CRD pump with only one accumulator fault.

B – Not required with reactor pressure > 600 psig, have a twenty minute time limit to restart the CRD pump.

Technical Reference(s):	Reference Attached: __X___
ONI-C11-1	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-007-C11(CRDH) OBJ G&H; OT-3037-006-05 OBJ D

Question Source:	Bank #	_____	
	Modified Bank #	_793__	(Note changes or attach parent)
	New	_____	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to determine the correct time for placing the reactor mode switch in shutdown based on the initial plant conditions provided.

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QUESTION Common 024

During a valve lineup, an operator needs to check a valve in the open position.

It is noted that the valve has a red (open) locking device on it.

To check the valve in the open position, the operator should...

A. leave the locking device installed; verify the locking device and restraining mechanism are intact.

B. leave the locking device installed; turn the valve handwheel in the close direction no more than 1/4 to 1/2 of a turn, and then fully reopen the valve.

C. remove the locking device; turn the valve handwheel in the close direction no more than 3/4 of a turn, fully reopen the valve, and then replace the locking device.

D. remove the locking device; turn the valve handwheel in the open direction, verify that the valve handwheel moves less than 1/4 of a turn, and then replace the locking device.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	CAT 1	CAT 1
	K/A#	2.1.29	
	Importance Rating	3.4	3.3

Proposed Question: See attached Common 024

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – Locked valve hand wheels should not be manipulated with locks on them.

C – Unlocking the valve is not required and if done (because valve is suspect) it should be closed no further than 1/2 turn.

D – Unlocking the valve is not required and if done (because valve is suspect) it should be closed no further than 1/2 turn.

Technical Reference(s): PAP-0205	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3039-008-02 OBJ A

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 025

Which one of the following describes the operational significance of maintaining control rods within designed rod sequence patterns during a reactor startup?

A. Ensures peak fuel enthalpies remain below design limits during a control rod drop accident below the Low Power Setpoint (LPSP).

B. Ensures peak fuel enthalpies remain below design limits during a control rod drop accident above the High Power Setpoint (HPSP).

C. Prevents an excessive change in heat flux during control rod withdrawal below the Low Power Setpoint (LPSP).

D. Prevents an excessive change in heat flux during control rod withdrawal only between 100% and 50% rod density.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	3
	K/A#	201003.K5.04	
	Importance Rating	3.1	3.4

Proposed Question: See attached Common 025

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B –Above the LPSP (20% power) the core voids are significant to prevent clad damage due to a rod drop.

C&D – The purpose of the Rod Withdraw Limiter is to prevent excessive changes in heat flux above the LPSP (20% power).

Technical Reference(s): SDM-C11 (RCIS); Tech Spec 3.1.6 Bases	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-C11(RCIS) OBJ B&J; OT-3037-006-05 OBJ B&C

Question Source:	Bank #	_____
	Modified Bank #	_____ (Note changes or attach parent)
	New	___X__
Question History:	Previous NRC Exam	_____
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	____
10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question):

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QUESTION Common 026

The following plant conditions exist:

- A reactor startup is in progress.
- The Reactor Mode Switch is in STARTUP/STANDBY.
- IRM Channel 'F' is bypassed on panel H13-P680.
- IRM Channel 'A' indication is on IRM Range 8 reading 75/125 and increasing.

When the operator depressed IRM Channel 'A' UP Range Switch, the expected change in IRM Channel 'A indication did not occur. (IRM Channel 'A' remained on IRM Range 8).

IRM Channel 'A' continues to increase as reactor power continues to increase.

Which one of the following describes the response of IRM Channel 'A', if any, including an action the operator can perform to mitigate the faulty UP Range Switch?

A. No trip response since the IRM control rod block and 1/2 scram trip signals are bypassed at IRM Range 8; IRM Channel 'A' can be bypassed on panel H13-P680.

B. No trip response since the IRM control rod block and 1/2 scram trip signals are bypassed at IRM Range 8; IRM Channel 'A' detector can be withdrawn to maintain its indication between 25/125 and 75/125.

C. IRM control rod block and 1/2 scram trip signals are generated; IRM Channel 'A' can be bypassed on panel H13-P680.

D. IRM control rod block and 1/2 scram trip signals are generated; IRM Channel 'A' detector can be withdrawn to maintain its indication between 25/125 and 75/125.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	2
	K/A#	215003.A2.06	
	Importance Rating	3.0	3.2

Proposed Question: See attached Common 026

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A&B – IRM rod block and 1/2 scram trip signals are generated due to the reactor mode switch in startup and IRM on Range 8.

D – There is no procedural guidance to withdraw the IRM detector to maintain indication between 25/125 and 75/125 due to a valid failure.

Technical Reference(s): SDM C51(IRM); ARI-H13-P680-06 (B3)	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-C51(IRM) OBJ D, F&G

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C___	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the response of IRM Channel 'A' based on initial plant conditions, including any procedural guidance which can be used to mitigate the situation.

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QUESTION Common 027

The following plant conditions exist:

- A reactor startup is in progress following replacement of all fuel bundles.
- Reactor Protection System shorting links are removed.
- Reactor power is increasing with a stable positive period of 150 secs.
- SRM Channel 'A' detector is stuck and will not withdraw.
- SRM Channel 'A' indication increases to $2x10^5$cps.

Assume no operator actions are performed.

Which one of the following subsequently describes SRM Channel 'A' indicated reactor power and reactor period?

Indicated reactor power will...

A. decrease and reactor period will remain stable and positive.

B. decrease and reactor period will be negative.

C. continue to increase and reactor period will remain stable and positive.

D. continue to increase and reactor period will become shorter.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	215004.K3.04	
	Importance Rating	3.7	3.7

Proposed Question: See attached Common 027

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The reactor period will be negative because the reactor scrammed.

C&D – With the RPS shorting links removed a scram will occur. Therefore reactor power will decrease and reactor period will be negative.

Technical Reference(s): SOI-C51(SRM); SDM C71; SDM C51(SRM)	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-C51 (SRM) OBJ D& E; OT-3036-005-C71 OBJ F

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the reactor response, including SRM indications associated with a stuck detector with the reactor critical in the source range.

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QUESTION Common 028

A Main Turbine trip has resulted in an automatic reactor scram.

Twenty (20) seconds later, the following plant parameters are reported:

- The reactor is still operating at 7% power.
- Reactor pressure peaked at 1090 psig and is currently steady at 920 psig.
- Reactor water level decreased to +170 inches and is being maintained at that level.

Which one of the following describes the control signals generated by the Redundant Reactivity Control System at this time?

A. Alternate Rod Insertion and Reactor Recirculation Pump transfer from fast to slow speed.

B. Reactor Recirculation Pump transfer from fast to slow speed and LFMG trip.

C. LFMG trip and Feedwater Runback.

D. Feedwater Runback and Alternate Rod Insertion.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	216000.K1.09	
	Importance Rating	3.7	4.0

Proposed Question: See attached Common 028

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – LFMG trip only occurs if APRMs are not downscale after 25 seconds.

C – LFMG trip and FWRB require APRMs to not be downscale after 25 seconds.

D – FWRB only occurs if APRMs are not downscale after 25 seconds.

Technical Reference(s): SDM-C22	Reference Attached: _X____ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-001-C22 OBJ D

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the output of the RRCS based on the initial plant conditions provided.

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QUESTION Common 029

RHR Loop 'A' is operating in the Suppression Pool Cooling mode when the operator inadvertently takes the RHR Pump 'A' control switch to STOP.

Which one of the following describes the operational implication of this pump trip?

A. The Feedwater Leakage Control System is inoperable.

B. The LPCS Pump minimum flow protection is affected.

C. The RHR System 'A' high-point piping is potentially voided.

D. The RHR Pump 'A' auto start on a LPCI initiation signal is overridden.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	219000.K1.04	
	Importance Rating	3.9	3.9

Proposed Question: See attached Common 029

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – This is true if the waterleg pump is lost, not the RHR pump.

B – This is true with RHR pump A running, not with the pump shutdown.

D –The RHR pump LOCA override feature is only in effect if a RHR LOCA signal is sealed in when the RHR pump control switch is taken to STOP.

Technical Reference(s): SOI-E12	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-E12 OBJ J

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	___X_	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to comprehend the operational implication when an RHR pump trips while operating in the Suppression Pool Cooling mode.

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QUESTION Common 030

A Main Steam Line break inside Containment has resulted in a high Drywell pressure scram.

Eleven (11) minutes later, the following plant conditions exist:

- Reactor pressure is 400 psig and decreasing.
- Reactor water level is +12 inches and steady.
- Drywell pressure is 4 psig and slowly increasing.
- Containment pressure is 6 psig and slowly increasing.

Assume no operator actions have been performed.

Which one of the following describes the operating condition of RHR Loop 'A'?

RHR Loop 'A' is ...

A. spraying Containment.

B. injecting into the rector vessel; the Containment Spray mode can be manually initiated.

C. operating on minimum flow; the Containment Spray mode can be manually initiated.

D. operating on minimum flow; the Containment Sprays mode cannot be manually initiated.

ANSWER: C.

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Data Sheets

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	1
	K/A#	226001.A4.08	
	Importance Rating	3.2	3.1

Proposed Question: See attached Common 030

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – Containment Spray mode will not auto initiate until containment pressure exceeds 8 psig.

B – LPCI injection valve opens at 530 psig but system injection doesn't start until ~280 psig due to the discharge pressure of RHR pumps.

D – RHR containment spray mode can be manually initiated when drywell pressure is above 1.68 psig.

Technical Reference(s): SDM E12	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-E12 Objective F

Question Source:	Bank #	_____
	Modified Bank #	_____ (Note changes or attach parent)
	New	___X__
Question History:	Previous NRC Exam	_____
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	__A__
10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question):
Requires the student to predict the current operational status of RHR Loop A based on the plant conditions provided, including whether or not Containment Spray can be manually initiated.

QUESTION Common 031

The following plant conditions exist:

- The reactor scrammed due to closure of the MSIVs.
- Suppression Pool temperature is 131°F.
- Suppression Pool level is 18.0 feet.

Which one of following identifies the maximum allowed reactor pressure without exceeding the Heat Capacity Limit?

PEI-SPI Figure 4 is provided for reference.

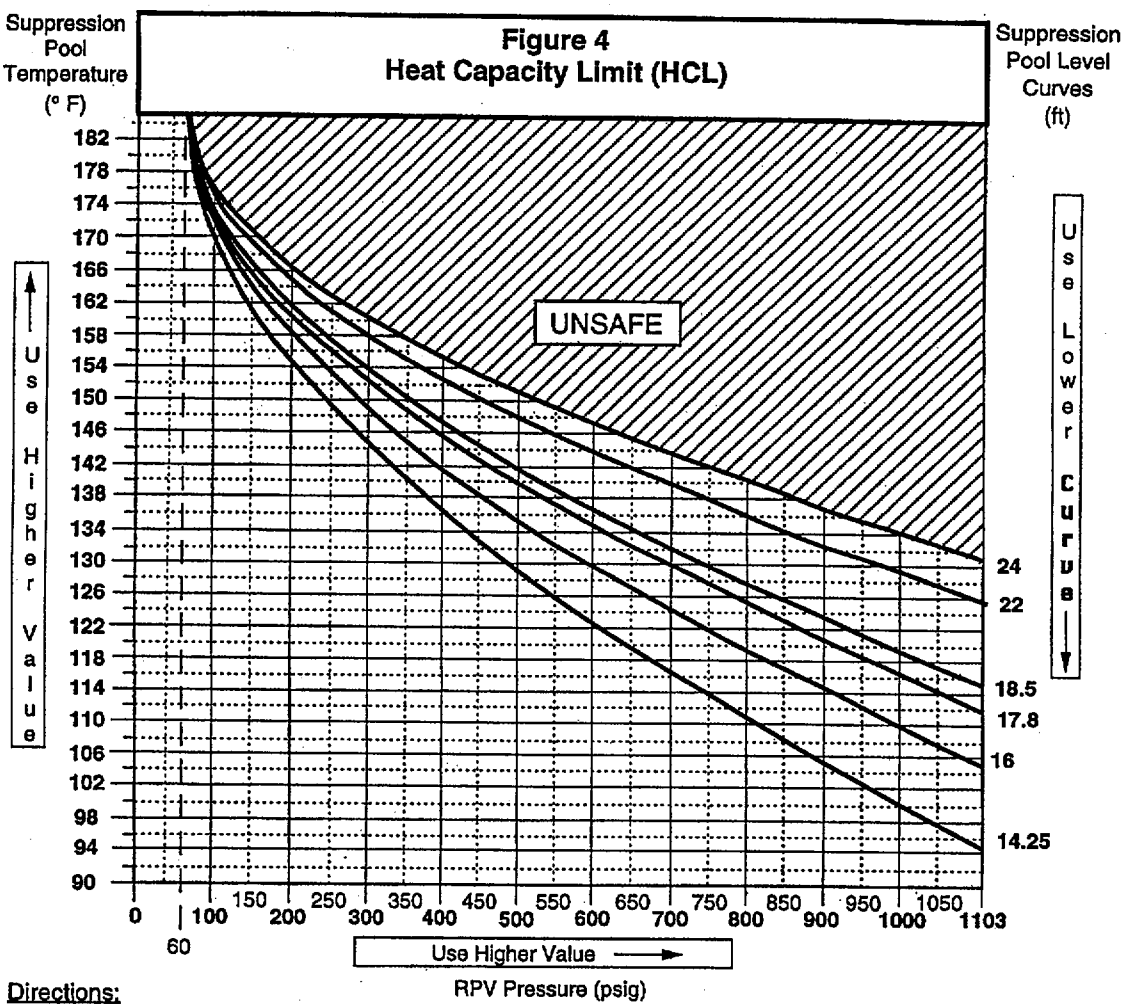
A. 550 psig

B. 600 psig

C. 650 psig

D. 700 psig

ANSWER: C.



Directions:

1.0 **IDENTIFY** RPV Pressure on the horizontal axis of the figure.

2.0 IF the value falls between marked lines on the figure,
THEN USE the higher value.

3.0 **IDENTIFY** Suppression Pool Temperature on the vertical axis of the figure.

4.0 IF the value falls between marked lines on the figure,
THEN USE the higher value.

5.0 **SELECT** the Suppression Pool Level Curve that corresponds to current Suppression Pool level.

6.0 IF Suppression Pool level falls between the marked curves,
THEN USE the next lower curve.

7.0 **IDENTIFY** the point formed by the intersection of the two values with respect to the Suppression Pool Level Curve selected.

8.0 IF the resulting point is above the Suppression Pool Level Curve selected,
THEN HCL is exceeded.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295007.AA2.01	
	Importance Rating	4.1	4.1

Proposed Question: See attached Common 031

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – This is the correct pressure if the 16ft level line is utilized.

B – This is correct for a level between 16ft and 18.5ft level lines.

D – This is the correct pressure if the 18.5ft level line is utilized.

Technical Reference(s): HCL Curve; PEI-SPI Supplement; PEI Bases	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:
PEI-SPI Figure 4

Learning Objective (As available): OT-3402-005-04a OBJ F

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__A__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to interpret the HCL graph based on initial plant conditions provided.

QUESTION Common 032

The following plant conditions exist:

- The plant is shutdown for refueling.
- CORE ALTERATIONS are in progress.
- The Refueling Supervisor reports that a fuel bundle has been loaded into the wrong reactor core location.
- The Control Room operator observes that Source Range count indication on panel H13-P680, for the SRM in that quadrant, has increased and stabilized at a higher value.

Which one of the following describes the operational implication of this event?

Shutdown Margin (SDM) has .....

A. increased; the reactor remains sub-critical.

B. increased; the reactor is super-critical.

C. decreased; the reactor remains sub-critical.

D. decreased; the reactor is super-critical.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295014.AK1.03	
	Importance Rating	3.7	4.0

Proposed Question: See attached Common 032

Proposed Answer: See attached.

Explanation (Why the distractors are incorrect):

A / B – SDM has decreased (not increased) due to the inadvertent addition of positive reactivity (i.e., placing the fuel bundle in the wrong core location).

D – Based on the SRM counts, the reactor is still sub-critical.

Technical Reference(s): GP Rx Theory Text Chp. 2 Tech Specifications Definitions	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3037-006-05 OBJ A&C; OT-3301-004-02 OBJ 5&9

Question Source:	Bank #	_____
	Modified Bank #	_____ (Note changes or attach parent)
	New	__X__
Question History:	Previous NRC Exam	_____
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	__C__
10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question):
Requires the student to predict the impact on SDM and the resulting status of the reactor core.

QUESTION Common 033

The following plant conditions exist:

- A reactor scram has occurred from 100% power.
- Two control rods did not fully insert.
- PEI-B13, RPV Control (ATWS) has been entered.
- RC&IS is available.
- The SCRAM VALVES pushbutton on panel H13-P680 is not backlit.

Which one of the following methods of control rod insertion would be appropriate for inserting the two control rods based on these plant conditions?

A. Pulling scram fuses.

B. Venting the scram air header.

C. Initiating single control rod scrams.

D. Inserting control rods manually using the RC&IS System.

ANSWER: D

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295015.AA1.04	
	Importance Rating	3.4	3.7

Proposed Question: See attached Common 033

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A– Pulling scram fuses would not cause the rod to insert since the individual scram valves are already open.

B – Venting the scram air header opens the scram valves. These valves are already open as indicated by the scram valves pushbutton not backlighting red.

C – Initiating a single rod scram would not cause the rod to insert since the individual scram valves are already open.

Technical Reference(s): PEI-SPI-1.3; SDM-C11(RCIS)	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-007-16 OBJ A; OT-3036-004-C11(RCIS) OBJ D

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__A__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to analyze the plant conditions provided and predict a course of action to insert the two remaining control rods.

QUESTION Common 034

The plant was operating at 100% reactor power.

Combustible Gas Mixing Compressor 'A' was operating for its quarterly surveillance when the following simultaneous events occurred due to a valid plant condition:

- All standby ECCS Pumps started.
- The Balance-of-Plant (BOP) isolation valves isolated.
- The Nuclear Closed Cooling System (NCC) isolated.

Assuming reactor water level remained normal, which one of the following additional automatic actions immediately occurred?

A. The MSIVs isolated.

B. The reactor scrammed.

C. The Main Turbine tripped.

D. The RCIC System initiated.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295024.EK2.05	
	Importance Rating	3.9	4.0

Proposed Question: See attached Common 034

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The MSIVs do not isolate on high DW pressure.

C – The Main Turbine does not trip on high DW pressure.

D – RCIC does not initiate on high DW pressure (this is a common misconception).

Technical Reference(s): SDM-C71, SDM-M51	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-005-C71 OBJ F, OT-3036-005-M51 OBJ E

Question Source:	Bank #	___X___	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	
Question History:	Previous NRC Exam	___X___	(June 2001 Exam)
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	___C___	
10 CFR Part 55 Content:	55.41	___X___	
	55.43	_____	

Comments (Why is it an upper level question): Requires the student to recognize the common relationship between each of the individual events (i.e., what will automatically cause each event to occur) in order to determine that a reactor scram should also occur due to high DW pressure. The high DW pressure could theoretically occur due to extended operation of the CGMS compressor.

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QUESTION Common 035

A loss of Main Condenser vacuum caused a MSIV isolation and automatic reactor scram.

All control rods fully inserted.

The operator observes the following during a review of the reactor pressure trend data:

- Reactor pressure increased to 1105 psig.
- Reactor pressure then decreased to 915 psig.
- Reactor pressure then cycled between 915 psig and 1040 psig.

Which one of the following describes the current method of reactor pressure control, including the bases for this method?

Reactor pressure is being controlled by the...

A. Low-Low Set SRV(s) to reduce the number of valves cycling thus prolonging valve life.

B. Low-Low Set SRV(s) to allow the RPS system to be reset following a high reactor pressure scram.

C. Main Turbine Bypass Valve(s) to minimize the loss of reactor coolant inventory through the SRVs.

D. Main Turbine Bypass Valves to minimize the heat addition to the Suppression Pool through the SRVs.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295025.EK3.09	
	Importance Rating	3.7	3.7

Proposed Question: See attached Common 035

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – the bases for the LLS setpoints have no relation to the RPS high reactor pressure scram setpoint.

C&D – bypass valves would control pressure based on its pressure setpoint if bypass valve were available. (No SRVs would open be required to cycle).

Technical Reference(s): SDM B21/N11	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-005-B21/N11 OBJ E

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	___C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the current method of reactor pressure control based on initial plant conditions, including the bases for this method.

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QUESTION Common 036

A Loss of Coolant Accident has occurred and RPV water level has decreased to –100 inches.

Which one of the following describes the operation of the Emergency Core Cooling Systems (ECCS) at this time?

A. The RHR System (LPCI mode) is 'spraying' water over the top of the reactor core to prevent excessive cladding temperatures.

B. The RHR System (LPCI mode) is 'flooding' the reactor core with water and maintaining core submergence.

C. The HPCS System is 'spraying' water over the top of the reactor core to prevent excessive cladding temperatures.

D. The HPCS System is 'flooding' the reactor core with water and maintaining core submergence.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	295031.EK3.03	
	Importance Rating	4.1	4.4

Proposed Question: See attached Common 036

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The RHR System (LPCI mode) 'floods' the core to achieve core submergence.

B – The RHR System (LPCI mode) is not maintaining core submergence at this time because water level is below the top of active fuel.

D – The HPCS System is not a 'flooding' system, it is a 'spray' system.

Technical Reference(s): SDM E22A	Reference Attached: __X____ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-E22A OBJ A&B

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION Common 037

Following entry into PEI-N11, Containment Leakage Control, due to high temperature in the RWCU Pump Room, the room temperature exceeds its Maximum Safe Operating Value.

Which one of the following describes the operational implication of exceeding the Maximum Safe Operating Value in the RWCU Pump Room?

A. Personnel access necessary for the safe operation of the plant will be restricted.

B. Equipment necessary for the safe shutdown of the plant may fail to operate as required.

C. Installed pump room cooling units necessary for heat removal will have exceeded their design heat removal capacity.

D. Automatic isolation of the RWCU System due to RWCU Pump Room high temperature may fail to occur.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	3	2
	K/A#	295032.EK2.08	
	Importance Rating	3.8	3.9

Proposed Question: See attached Common 037

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – These rooms do not require personnel entry for equipment operation.

C – There are no installed pump room cooling units for the RWCU Pumps.

D – The RWCU System will have automatically isolated at a room temperature of approximately 132 °F. Therefore, at the MSOV, isolation of the RWCU System will not be an issue.

Technical Reference(s): PEI-N11 Bases	Reference Attached: __X____ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-001-17 OBJ C

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 038

The following plant conditions exist:

- A reactor startup is in progress.
- Reactor pressure is 50 psig and slowly increasing.
- RCIC PUMP ROOM SUMP LEVEL HIGH alarm occurs on panel H13-P601.
- EMG ROOM TEMP TRBL alarm occurs on panel H13-P680.
- RWCU ISOL PUMP A(B) RM PMP HI alarm occurs on panel H13-P680.

Which one of the following would be the cause of all of the above alarms?

A. RWCU Pump seal failure.

B. RWCU NRHX relief valve leakage.

C. RCIC Pump Suppression Pool suction line leakage.

D. RCIC Steam Shutoff Valve (E51-F045) packing failure.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	3	2
	K/A#	295036.EA2.03	
	Importance Rating	3.4	3.8

Proposed Question: See attached Common 038

Proposed Answer: A – the RWCU pump room is connected to the RCIC room and this high temperature source of water would actuate alarm.

Explanation (Why the distractors are incorrect):

B – This relief is located in containment (not in the auxiliary building).

C – This type of leak would be a water leak and would not create a high temperature in either room.

D – The RCIC steam line is isolated below 60 psig reactor pressure so a leak at this time would not be exposed to reactor pressure.

Technical Reference(s):ARI-H13-P680-07(D6) PEI-N11 Bases; ARI-H13-P680-01(C5); ARI-H13-P601-18(E3)	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-001-17 OBJ C

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to comprehend the significance of the alarms and other plant conditions provided in order to determine the event cause.

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QUESTION Common 039

The TBCC Heat Exchanger 'A' has been removed from service and tagged out for tube cleaning. When the Maintenance crew begins to disassemble the heat exchanger, they observe that the inlet isolation valve is leaking past its seat.

The inlet isolation valve is Red tagged in the Closed position as a boundary valve.

Which one of the following describes who may attempt to seat the leaking inlet isolation valve, including the clearance/tagging condition of the valve?

A. Only a "Clearance Holder"; with the Red tag still hanging.

B. Only a "Clearance Holder"; only <u>after</u> the Red tag has been cleared.

C. Only an "Operating Representative"; with the Red tag still hanging.

D. Only an "Operating Representative"; only <u>after</u> the Red tag has been cleared.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	CAT 2	CAT 2
	K/A#	2.2.13	
	Importance Rating	3.6	3.8

Proposed Question: See attached Common 039

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A&B – By definition, a Clearance Holder can only accept a Clearance. The definition does not allow for manipulation of components.

D – This is not considered a valve manipulation per PAP-1401, so removal of the red tag is not mandatory.

Technical Reference(s): PAP-1401	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3039-008-02 OBJ A

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 040

The following plant conditions exist:

- The reactor is operating at 75% power.
- All ECCS Systems are in standby readiness.
- A spurious Division 1 RHR LOCA initiation occurs.
- Reactor water level and Drywell pressure are normal.
- LPCS and RHR Pump 'A' are secured per ONI-E12-1, Inadvertent Initiation of ECCS/RCIC.

The Unit Supervisor directs LPCI 'A' to be restored to standby readiness.

The operator resets the Division 1 RHR LOCA initiation logic by depressing the LPCS & LPCI A SEAL IN RESET pushbutton on panel H13-P601.

Which one of the following describes the valve positions to restore LPCI 'A' to standby readiness?

	LPCI 'A' Injection Valve E12-F042A	**RHR 'A' Heat Exchanger's Bypass Valve E12-F048A**
A.	Close	Close
B.	Close	Open
C.	Open	Close
D.	Open	Open

ANSWER: B.

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Data Sheets

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	203000.A4.06	
	Importance Rating	3.9	3.9

Proposed Question: See attached Common 040

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The bypass valve is normally open in standby.

C & D – The injection valve is normally closed in standby.

Technical Reference(s): SOI-E12; ONI-E12-1; SDM E12	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-E12 OBJ B, E&F

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to differentiate between the LPCI injection lineup and the standby readiness lineup in order to determine which valves must be repositioned based on the initial plant conditions provided.

Perry Nuclear Power Plant
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QUESTION Common 041

The following plant conditions exist:

- A DBA Loss of Coolant Accident has occurred and the RPV is depressurized.
- All control rods are fully inserted.
- LPCS and LPCI are injecting into the reactor vessel at 6,000 gpm each.
- Reactor water level is +20 inches and increasing.

An operator subsequently notes that LPCS System flow and pump amps begin to fluctuate significantly. All LPCI System parameters are steady within their normal indications.

Which one of the following describes the condition of the LPCS Pump, including guidance for continued operation?

The LPCS Pump is...

A. cavitating and may be secured since adequate core cooling exists.

B. cavitating and should not be secured since adequate core cooling does not exist.

C. running out and may be secured since adequate core cooling exists.

D. running out and should not be secured since adequate core cooling does not exist.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	209001.K5.01	
	Importance Rating	2.6	2.7

Proposed Question: See attached Common 041

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – This indicates the pump is cavitating but adequate core cooling does exist since reactor water level is above TAF.

C & D – This condition does not indicate a pump in runout condition. (By design, LPCS has a restricting orifice in the discharge line to prevent pump runout).

Technical Reference(s): PEI Bases Document ; GP Themo Text, Chp 6	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-005-01 OBJ C; OT-3302-004-06 OBJ 33

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__A__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to analyze given pump indications to determine if cavitation is occurring and also determine based on knowledge of adequate core cooling whether or not the LPCS pump may be secured.

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QUESTION Common 042

The following plant conditions exist:

- A normal plant shutdown has been performed per IOI-3, Power Changes, and IOI-4, Shutdown.
- Reactor pressure is 920 psig.
- A forced cooldown is commenced.

Which one of the following describes how reactor pressure is initially reduced and then maintained at 250 psig when performing a forced cooldown per IOI-4?

A. The Pressure Setpoint is reduced until the desired reactor pressure of 250 psig is reached. Pressure is then maintained by cycling the Bypass Valve Opening Jack as necessary.

B. The Pressure Setpoint is reduced until the desired reactor pressure of 250 psig is reached. Pressure is then maintained by adjusting the Pressure Setpoint 20 to 25 psig above the desired reactor pressure.

C. The Bypass Valve Opening Jack is used to control the cooldown rate until the desired reactor pressure of 250 psig is reached. Pressure is then maintained by cycling the Bypass Valve Opening Jack as necessary.

D. The Bypass Valve Opening Jack is used to control the cooldown rate until the desired reactor pressure of 250 psig is reached. Pressure is then maintained by matching the Pressure Setpoint to reactor pressure and reducing the Bypass Valve Opening Jack to zero.

ANSWER: D

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	3
	K/A#	239001.A4.09	
	Importance Rating	3.9	3.9

Proposed Question: See attached Common 042

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A, B & C – These methods of pressure control are not in accordance with IOI-4.

Technical Reference(s): IOI-4	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3046-000-09A OBJ A

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

Perry Nuclear Power Plant
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QUESTION Common 043

Which one of the following describes the manual operation of the Safety Relief Valves?

To manually open a Safety Relief Valve.....

A. at least one actuator solenoid must energize to admit air to the operating cylinder.

B. two actuator solenoids must energize to admit air to the operating cylinder.

C. at least one actuator solenoid must de-energize to vent air from the operating cylinder.

D. two actuator solenoids must de-energize to vent air from the operating cylinder.

ANSWER: A

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	239002.K4.09	
	Importance Rating	3.7	3.6

Proposed Question: See attached Common 043

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – Only one solenoid is required to open an SRV.

C & D – solenoids must energize to open an SRV.

Technical Reference(s): SDM B21/N11	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-005-B21/N11 OBJ E

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION Common 044

The following plant conditions exist:

- The reactor is operating at 95% power.
- SB&PR Channel 'A' is in TEST for troubleshooting (CHK CIRCUIT DISABLE light is On).
- SB&PR Channel 'B' is selected for control of reactor pressure (B IN CONTROL light is On).

Which one of the following describes the response of the Steam Bypass and Pressure Regulating System if SB&PR Channel 'B' fails upscale, including the required operator action to be performed per ONI-C85-2, Pressure Regulator Failure-Open?

A. The Main Turbine Control Valves and Bypass Valves fully open; reduce the Load Limit setpoint until steam flow is compatible with reactor power.

B. The Main Turbine Control Valves and Bypass Valves fully open; reduce the Maximum Combined Flow Limit setpoint until steam flow is compatible with reactor power.

C. Only the Main Turbine Control Valves fully open; reduce the Load Limit setpoint until steam flow is compatible with reactor power.

D. Only the Main Turbine Control Valves fully open; reduce the Maximum Combined Flow Limit setpoint until steam flow is compatible with reactor power.

ANSWER: B

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	245000.A2.07	
	Importance Rating	3.8	3.9

Proposed Question: See attached Common 044

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The operator is required to use the Max Combine Flow Limit potentiometer (not the Load Limit potentiometer) to control steam flow.

C & D – The Main Turbine Bypass Valves and Turbine Control Valves will fully open (not just the Turbine Control Valves)

Technical Reference(s): ONI C85-2; SDM N32/C85	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-N32/C85 OBJ E&N

Question Source:	Bank #	_____
	Modified Bank #	_____ (Note changes or attach parent)
	New	__X___
Question History:	Previous NRC Exam	_____
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	__C__
10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question):
Requires the student to predict the impact of a pressure regulator upscale failure on the Turbine Controls and determine the proper action to mitigate the consequences of this failure.

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QUESTION Common 045

The following Hotwell level control lineup exists on panel H13-P870:

- HWL EMG DUMP TO CST CONTROL, 1N21-R012A, is in Manual at 0% output.
- HWL NORM LVL CONTROL DUMP & MAKE UP VALVES, 1N21-R208, is in Auto.
- HWL EMG MAKE UP FM CST CONTROL, 1N21-R137, is in Auto.

CST Normal Supply From Mixed Bed Water Valve, 1N21-F395, fails open on panel H13-P870.

Assume no further operator actions are performed.

Which one of the following describes the initial Hotwell level response, including the expected operation of the Hotwell level control valves, as a result of valve 1N21-F395 failing open?

Hotwell level will initially ....

A. increase due to the excess of Condensate and Feedwater inventory; only the Hotwell normal dump valve will open to restore Hotwell level to normal.

B. increase due to the excess of Condensate and Feedwater inventory; the Hotwell normal and emergency dump valves will open to restore Hotwell level to normal.

C. decrease due to the shortage of Condensate and Feedwater inventory; only the Hotwell normal makeup valve will open to restore Hotwell level to normal.

D. decrease due to the shortage of Condensate and Feedwater inventory; the Hotwell normal and emergency makeup valves will open to restore Hotwell level to normal.

ANSWER: A

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	3
	K/A#	256000.A1.04	
	Importance Rating	2.9	2.9

Proposed Question: See attached Common 045

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – The Emergency Dump valve will not open because its controller is in Manual at 0%.

C & D – Hotwell level initially increases on a down power because for a short time there is an excess of Condensate/FDW inventory.

Technical Reference(s): SDM N21/61	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-N21/N61 OBJ B&D

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the initial change in Hotwell level during a power reduction, including the response of the Hotwell level control valves based on initial plant conditions.

QUESTION RO 046

Heat is being added to the Suppression Pool due to the operation of the RCIC System in the CST-to-CST mode for surveillance testing. Suppression Pool temperature is 93 °F.

The surveillance is a pre-planned evolution and PEI-T23, Containment Control, will not be entered.

The Unit Supervisor directs that RHR Loop 'A' be placed in the Suppression Pool Cooling mode of operation.

Placing RHR Loop A in the Suppression Pool Cooling mode at this time .....

A. prevents RCIC equipment damage due to high lube oil temperature.

B. allows the maximum Suppression Pool average temperature limit to be increased to 110 °F.

C. extends the operating time for RCIC before the maximum Suppression Pool average temperature limit is reached and RCIC testing must be terminated.

D. ensures that heat added to the Suppression Pool does not impact Containment pressure to the point where the Containment Vacuum Breakers will cycle.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	2	
	K/A#	295013AK2.01	
	Importance Rating	3.6	

Proposed Question: See attached RO 046

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – Since RCIC is operating in the CST-to CST mode, SP temperature has no effect on RCIC lube oil temperature. CST water is cooling the RCIC lube oil (not SP water).

B – During testing which adds heat to the SP, the LCO for SP average temperature allows the maximum SP temperature limit to be raised to 105 F (110 degrees F requires the Reactor Mode Switch to be placed in Shutdown).

D – Heat added to the SP would theoretically cause Containment pressure to increase. The Containment Vacuum Bkrs open on a vacuum in Containment (not a positive pressure).

Technical Reference(s): TS LCO 3.6.2.1	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3037-001-010 OBJ A

Question Source:	Bank #	__X___ (Fermi NRC Exam 4/98)
	Modified Bank #	_____ (Note changes or attach parent)
	New	_____
Question History:	Previous NRC Exam	_____
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____
10 CFR Part 55 Content:	55.41	__X__
	55.43	____

Comments (Why is it an upper level question):

QUESTION Common 047

The following plant conditions exist:

- The reactor is operating at 100% power.
- Nuclear Closed Cooling (NCC) System heat exchangers have experienced fouling.
- NCC Heat Exchanger outlet temperature is 95°F and increasing.

Which one of the following conditions will automatically occur if NCC Heat Exchanger outlet temperature continues to increase?

A. Reactor Water Cleanup System will isolate.

B. Fuel Pool Cooling and Cleanup System will isolate.

C. Reactor Recirculation Pumps will trip.

D. Control Rod Drive Hydraulic Pump will trip.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295018.AK2.01	
	Importance Rating	3.3	3.4

Proposed Question: See attached Common 047

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – FPCC does not have a high temperature isolation however it is cooled by NCC.

C & D – There is no automatic pump trips associated with high NCC temperature.

Technical Reference(s): ONI-P43	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-P43 G& H

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to understand the relationship between high temperature in the NCC system and the impact on system loads, including expected automatic functions.

QUESTION RO 048

PEI-T23, Containment Control, has been entered due to a break in the Scram Discharge Volume (SDV).

Initiation of Containment Sprays could be required in order to maintain Containment air temperature less than the design Containment air temperature of .....

A. 145°F.

B. 185°F.

C. 212°F.

D. 330°F.

ANSWER: B

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Data Sheets

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	2	
	K/A#	295027.EK2.01	
	Importance Rating	3.2	

Proposed Question: See attached RO 048

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A - 145°F is the PEI-T23 entry condition for high Drywell temperature.

C - 212°F is the boiling point of water.

D - 330°F is the design temperature limit for the Drywell.

Technical Reference(s): PEI-T23; PEI Bases Document, SDM T23	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-004-07 OBJ C, OT-3036-006-T23 OBJ H, OT-3401-000-10 OBJ B

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 049

An Override step in PEI-B13, Emergency Depressurization, directs the operator to open the Inboard MSL Drain Valve (B21-F016) in accordance with PEI-SPI-9.1 when Containment water level is expected to exceed 45 feet.

Which one of the following describes the reason for this action?

Opening the Inboard MSL Drain Valve...

A. ensures the SRV Tail Pipe Level Limit is not exceeded prior to emergency depressurization.

B. ensures as much heat energy as possible is rejected to the Main Condenser to minimize the dynamic loading on Containment.

C. maintains the availability of the MSL drain path for reactor vessel pressure control if required.

D. maintains Containment water level below the SRV solenoids by establishing a drain path from the reactor vessel to the Main Condenser.

ANSWER: C

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295029.EK2.07	
	Importance Rating	3.1	3.2

Proposed Question: See attached Common 049

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The SRV Tail Pipe Limit is 24.5 feet in the suppression pool and will be exceeded.

B – This action does not establish a flowpath to the condenser, it only ensures it will be available for future use.

D – This action does not provide a drain path for maintaining containment water level.

Technical Reference(s): PEI Bases Document	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-005-12 OBJ C; OT-3402-007-16 OBJ H

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 050

CRD Hydraulics Flow Control, 1C11-R600 is in the Manual mode due to a problem with the Auto mode circuitry.

The following CRDH System indications exist on panel H13-P601:

- CRD DIFF PRESS COOLING, 1C11-R603 — 13.0 psid
- CRD DIFF PRESS DRIVE, 1C11-R602 — 220 psid
- CRD PRESSURE CHARGING WATER, 1C11-R601 — 1800 psig
- CRD FLOW TOTAL SYSTEM, 1C11-R606 — 58 gpm
- CRD FLOW COOLING WATER, 1C11-R605 — 54 gpm

Which one of the following operator action(s) is required in order to restore the CRDH System parameters to their normal operating values?

A. Throttle closed CRD DRIVE PRESS CONTROL VALVE, 1C11-F003 to increase CRD drive water differential pressure.
Then adjust the CRD HYDRAULICS FLOW CONTROL, 1C11-R600 to decrease cooling water differential pressure.

B. Throttle closed CRD DRIVE PRESS CONTROL VALVE, 1C11-F003 to increase CRD drive water differential pressure.
Then adjust the CRD HYDRAULICS FLOW CONTROL, 1C11-R600 to increase cooling water differential pressure.

C. Throttle open CRD DRIVE PRESS CONTROL VALVE, 1C11-F003 to increase CRD drive water differential pressure.
Then adjust the CRD HYDRAULICS FLOW CONTROL, 1C11-R600 to decrease cooling water differential pressure.

D. Throttle open CRD DRIVE PRESS CONTROL VALVE, 1C11-F003 to increase CRD drive water differential pressure.
Then adjust the CRD HYDRAULICS FLOW CONTROL, 1C11-R600 to increase cooling water differential pressure.

ANSWER: B

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QUESTION Common 051

Which one of the following describes the intent of a 'Hold' step while implementing the Plant Emergency Instructions (PEIs)?

A. All flow path steps are continued or maintained until the conditions of the 'Hold' step are met.

B. All flow path steps are suspended until the conditions of the 'Hold' step are met.

C. All previous flow path steps are suspended until the conditions of the 'Hold' step are met.

D. All succeeding flow path steps are suspended until the conditions of the 'Hold' step are met.

ANSWER: D

Perry Nuclear Power Plant
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Data Sheets

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	CAT 2	CAT 2
	K/A#	2.2.2	
	Importance Rating	4.0	3.5

Proposed Question: See attached Common 050

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – Cooling Water D/P would also have to be increased in order to bring it back within band.

C / D – The CRD Drive Pressure Control Valve (F003) has to be throttled closed in order to increase Drive Water D/P back to the normal operating band.

Technical Reference(s): SDM C11(CRDH), SOI-C11(CRDH)	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-007-C11(CRDH) OBJ C

Question Source:	Bank #	_B-41_
	Modified Bank #	_____ (Note changes or attach parent)
	New	_____
Question History:	Previous NRC Exam	_____
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	__A__
10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question):
Requires the student to analyze the plant parameters provided and determine the correct CRDH System control manipulations to be performed in order to restore the system parameters to normal.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	CAT 4	CAT 4
	K/A#	2.4.19	
	Importance Rating	2.7	3.7

Proposed Question: See attached Common 051

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – Only previous actions are continued or maintained while waiting for the Hold step conditions to be met.

B – Only subsequent flow path steps are suspended until the conditions of the Hold step are met in order to continue on.

C – Previous flow path steps are continued while waiting for the Hold step conditions to be met.

Technical Reference(s): PEI Bases Document

Reference Attached: __X___
(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-005-01 OBJ B

Question Source:
Bank # _1420_
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History:
Previous NRC Exam _____
Previous Quiz / Test _____

Question Cognitive Level:
Memory or Fundamental Knowledge __X__
Comprehension or Analysis _____

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question):

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QUESTION Common 052

During a full flow test (CST to CST) of the Reactor Core Isolation Cooling (RCIC) System, a problem is encountered and the operator depresses the RCIC MANUAL ISOLATION pushbutton (E51-S23).

Which one of the following describes the response of the RCIC System, if any?

A. The RCIC System continues to operate.

B. The RCIC Turbine Steam Supply Isolation Valve (E51-F045) closes.

C. The RCIC Steam Supply Inboard Isolation Valve (E51-F063) closes.

D. The RCIC Steam Supply Outboard Isolation Valve (E51-F064) closes.

ANSWER: A

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Data Sheets

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	217000.A4.04	
	Importance Rating	3.6	3.6

Proposed Question: See attached Common 052

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – The F045 valve only closes automatically on high reactor water level (L8).

C- The F063 valve only closes on a Division 2 isolation signal or manually, this pushbutton operates Division 1 isolation logic.

D – The F064 valve does not close since the manual pushbutton isolation is only active if an automatic RCIC initiation signal is present.

Technical Reference(s): SDM E51	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-003-E51 OBJ D

Question Source:	Bank #	__77__	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	__X___	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the RCIC system response to a manually initiated isolation signal with no automatic initiation signal present.

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QUESTION RO 053

The plant is in MODE 1.

Containment Vessel and Drywell Purge System (M14) Train 'A' startup to the Intermittent Mode has just been completed.

Which one of the following describes the operation of Containment Purge Supply Fan 'A' ten (10) minutes later?

The Air Flow Control Center (K135A) regulates the fan's vortex damper in the .....

A. 'flow mode' to attain a slight positive pressure in Containment.

B. 'differential pressure mode' to attain a slight positive pressure in Containment.

C. 'flow mode' to attain a slight negative pressure in Containment.

D. 'differential pressure mode' to attain a slight negative pressure in Containment.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	223001.A4.06	
	Importance Rating	4.0	

Proposed Question: See attached RO 053

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A / B – M14 will be operating in the 'differential pressure' mode 5 minutes after the system is started. The 'differential pressure' mode is designed to maintain the pressure in Containment at a slightly negative pressure compared to the outside environment.

C – 5 minutes after M14 is started, it automatically shifts from the 'flow mode' to the 'differential pressure' mode.

Technical Reference(s): SDM M14	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-003-M14 OBJ F

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION Common 054

Which one of the following HPCS System valves will automatically isolate a Primary Containment penetration due to a high Drywell Pressure or Low Reactor Vessel Water Level condition.

A. The HPCS Pump Minimum Flow Valve, 1E22-F012.

B. The HPCS First Test Return Valve to CST, 1E22-F010.

C. The HPCS Suppression Pool Suction Valve, 1E22-F015.

D. The HPCS Suppression Pool Test Return Valve, 1E22-F023.

ANSWER: D

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	223002.K1.15	
	Importance Rating	3.4	3.4

Proposed Question: See attached Common 054

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A - F012 receives a Close signal based on pump status and flow, not Drywell Pressure or RPV Low Level.

B – F010 does not isolate a Primary Containment Penetration.

C - F015 receives an Open signal under these conditions.

Technical Reference(s): SDM E22A	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-E22A OBJ E

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 055

A plant startup is in progress with reactor power at 10%. The SB&PR System Pressure Setpoint is maintaining reactor pressure. Currently two Main Turbine Bypass Valves are open.

Which one of the following describes the expected response of the Main Turbine Bypass Valves when a failure of the SB&PR System circuitry causes a Main Turbine Bypass Valve high demand signal (>25% position error)?

The Main Turbine Bypass valves will rapidly...

A. open when the fast acting solenoid valves port pressurized hydraulic fluid to the below piston area of the hydraulic actuators.

B. open when the servo valves reposition to bleed off the pressurized hydraulic fluid.

C. close when the fast acting solenoid valves port pressurized hydraulic fluid to the below piston area of the hydraulic actuators.

D. close when the servo valves reposition to bleed off the pressurized hydraulic fluid.

ANSWER: A

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	241000.K3.30	
	Importance Rating	3.0	3.0

Proposed Question: See attached Common 055

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – Energizing the fast acting solenoid causes high-pressure fluid to be directly applied to the operating piston of the bypass valve.

C & D – The turbine bypass valves will open when the fast acting solenoid is energized.

Technical Reference(s): SDM N32/C85	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-N32/C85 OBJ J

Question Source:	Bank # _____
	Modified Bank # _____ (Note changes or attach parent)
	New __X___

Question History:	Previous NRC Exam _____
	Previous Quiz / Test _____

Question Cognitive Level:	Memory or Fundamental Knowledge _____
	Comprehension or Analysis __C__

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question):
Requires the student to predict the response of the bypass valves due to a specific failure in the SB&PR System (fast acting solenoid valves energized).

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QUESTION Common 056

An overcurrent condition is sensed on the output of the Division 1 ATWS UPS Inverter.

Which one of the following describes the response of the Division 1 ATWS UPS System loads?

A. Loads remain energized through the Inverter from the backup DC power supply due to the shift of the Static Transfer Switch.

B. Loads remain energized through the Bypass Transformer from the alternate AC power supply due to the shift of the Static Transfer Switch.

C. Loads de-energize and must be manually re-energized through the Inverter from the backup DC power supply.

D. Loads de-energize and must be manually re-energized through the Bypass Transformer from the alternate AC power supply.

ANSWER: B

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A#	262002.K4.01	
	Importance Rating	3.1	3.4

Proposed Question: See attached Common 056

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The ATWS UPS static transfer switch will switch to the alternate AC source on an overcurrent condition.

C & D – The loads are not de-energized on an overcurrent condition.

Technical Reference(s): SDM R14/15; ARI-H13-P680-6 (A4)	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-R14/15 OBJ D

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the response of the ATWS UPS system loads due to an overcurrent condition on the ATWS UPS inverter.

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QUESTION Common 057

The following plant conditions exist:

- A reactor startup is in progress.
- Reactor pressure is 900 psig and increasing.
- Main Turbine Bypass Valve BPV-1 is 40% open.
- Main Steam Line Isolation Valves (MSIVs) are open.
- A complete loss of the Circulating Water System occurs.
- Condenser vacuum is 10 inches HgA and degrading.

Which one of the following describes the automatic response of the Main Turbine Bypass Valves if Main Condenser vacuum continues to degrade to 30 inches HgA, including the bases for this response?

The Main Turbine Bypass Valves will automatically close at...

A. 20 inches HgA to prevent over pressurizing the Main Condenser.

B. 20 inches HgA to prevent the release of significant amounts of radioactive material.

C. 21.5 inches HgA to prevent over pressurizing the Main Condenser.

D. 21.5 inches HgA to prevent the release of significant amounts of radioactive material.

ANSWER: A

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295002.AK3.04	
	Importance Rating	3.4	3.6

Proposed Question: See attached Common 057

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – The MSIV/Drains closure provides for protection from release of radioactive materials, not the Bypass valve closure.

C & D – The steam bypass valves close at 20 inches HgA; this is the setpoint for MSIV closure signal on low condenser vacuum.

Technical Reference(s): ONI-N62; SDM B21(NS4)	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective (As available): OT-3036-003-N62 OBJ I; OT-3036-002-B21(NS4) OBJ G

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict when the Main Turbine Bypass Valves automatically close due to lowering main condenser vacuum and the reason for this automatic action.

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QUESTION Common 058

The following plant conditions exist:

- The reactor is operating at 100% power.
- A loss of Nuclear Closed Cooling (NCC) to the Drywell occurs.
- Drywell temperature is 140°F and increasing.

Assume no operator actions are performed.

Which one of the following describes an automatic action that can occur due to the loss of NCC flow to the Drywell?

A. High Drywell pressure scram.

B. Drywell vacuum breakers open.

C. Reactor Recirculation Pumps trip.

D. Standby Drywell Cooling fans start.

ANSWER: A

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295012.AK1.01	
	Importance Rating	3.3	3.5

Proposed Question: See attached Common 058

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – The drywell vacuum breakers open on a low drywell pressure condition, increasing drywell temperature will cause drywell pressure to increase.

C – The Reactor Recirculation pumps do not auto trip on high temperatures (they are secured).

D – The standby drywell cooling fans do not auto start on high temperature (low flow only).

Technical Reference(s): ONI-P43; PEI Bases Document	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-P43 OBJ H; OT-3402-005-02 OBJ B&C

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to recognize the relationship between rising drywell temperature and drywell pressure and predict the expected automatic actions for given plant conditions.

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QUESTION Common 059

When defining SHUTDOWN MARGIN (SDM) for a reactor, which one of the following assumptions is made for control rods?

SDM calculations assume…

A. a single control rod of the highest reactivity worth remains fully withdrawn.

B. a symmetrical pair of control rods with equal reactivity worth remain fully withdrawn.

C. all control rods are inserted to or beyond the Maximum Subcritical Bank Withdrawal Position.

D. all control rods are withdrawn in accordance with established rod pattern sequence restraints.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	CAT 2	CAT 2
	K/A#	2.2.34	
	Importance Rating	2.8	3.2

Proposed Question: See attached Common 059

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – SDM calculation is based on a single control rod being fully withdrawn.

C – Perry's Maximum Subcritical Bank Withdrawal Position is 00 and is not part of the SDM calculation.

D – The SDM calculation is not dependent on rod pattern constraints.

Technical Reference(s): Tech Spec Definitions; Tech Spec 3.1.1 Bases; GP Reactor Theory Text, Chp. 2	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3037-006-05 OBJ C; OT-3301-004-02 OBJ 5

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_X____	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 060

During an emergency condition, Reactor Operator actions that deviate from plant Technical Specifications are needed to protect the health and safety of the public.

In accordance with PAP-0201, Conduct of Operations, these actions require concurrence of ...

A. the NRC.

B. a licensed senior reactor operator.

C. a second licensed reactor operator.

D. the Plant Manager (non-licensed).

ANSWER: B

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	CAT 4	CAT 4
	K/A#	2.4.12	
	Importance Rating	3.4	3.9

Proposed Question: See attached Common 060

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – NRC concurrence is not required; notification is required if actions are taken.

C – These actions require concurrence of a senior reactor operator licensed individual.

D – Concurrence must be obtained from a licensed SRO.

Technical Reference(s): PAP-0201	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3039-008-02 OBJ A

Question Source:	Bank #	_1216_	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	___X__	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 061

The following plant conditions exist:

- The reactor is operating at 15% power.
- Reactor water level is being maintained by the MFP on the Startup Level Controller in the Auto mode.
- The MFP Flow Controller (C34-R601C) is in Manual with a 40% output signal.
- The Startup Level Controller (C34-R602) is in Auto with a 53% output signal.
- RFPT 'A' Governor Control is in Manual and speed is at 1100 rpm.
- RFPT 'A' Flow Controller (C34-R601A) is in Auto.

Which one of the following describes the response of the Feedwater Level Control System (C34) if RFPT 'A' Discharge Valve (N27-F100A) is opened?

A. MFP flow decreases.
RFPT 'A' flow remains the same.
Total feedwater flow decreases.

B. MFP flow decreases.
RFPT 'A' flow increases.
Total feedwater flow stabilizes at its original value.

C. MFP flow remains the same.
RFPT 'A' flow increases.
Total feedwater flow increases.

D. MFP flow remains the same.
RFPT 'A' flow remains the same.
Total feedwater flow remains the same.

ANSWER: A

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	259002.A1.02	
	Importance Rating	3.6	3.5

Proposed Question: See attached Common 061

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – RFPT A will not increase flow with its governor in Manual.

C & D – MFP flow will decrease to its controller setting (40%) since it can not swap to MLC with its controller in Manual.

Technical Reference(s): SDM C34; LER 95-007	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-006-C34 OBJ C&D

Question Source:	Bank #	_____
	Modified Bank #	_____ (Note changes or attach parent)
	New	___X__
Question History:	Previous NRC Exam	_____
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	__C__
10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question):
Requires the student to predict the response of the feedwater system flow based on manipulations of the Feedwater Level Control System controls.

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QUESTION Common 062

The plant is operating at 100% reactor power when a BUS EH11 STRIPPED UNDERVOLTAGE alarm is received on panel H13-P877.

Which one of the following identifies the cause of this alarm, including the action(s), which the operator should verify as a consequence of this alarm?

A. Bus EH11 voltage has decreased to 3.0 KV for greater than three seconds; verify the Division 1 Diesel Generator automatically started and the Diesel Generator output breaker remains open.

B. Bus EH11 voltage has decreased to 3.0 KV for greater than three seconds; verify the Division 1 Diesel Generator automatically started and the Diesel Generator output breaker closes.

C. Bus EH11 voltage has decreased to 3.8 KV for greater than twelve seconds; verify the Division 1 Diesel Generator automatically started and the Diesel Generator output breaker remains open.

D. Bus EH11 voltage has decreased to 3.8 KV for greater than twelve seconds; verify the Division 1 Diesel Generator automatically started and the Diesel Generator output breaker closes.

ANSWER: B

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	2	1
	K/A#	262001.G2.4.50	
	Importance Rating	3.3	3.0

Proposed Question: See attached Common 062

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – On an undervoltage condition the output breaker closes (on a LOCA the output breaker remains open).

C & D – This setpoint is for the Bus EH11 degraded voltage alarm (not the stripped undervoltage alarm).

Technical Reference(s): SDM R10; ARI-H13-P877-1 (C1)	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-006-R10 OBJ D&F

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 063

The plant is operating at 75% reactor power. Both Reactor Recirculation Flow Control Valves are 75% open. Reactor Recirculation Flow Control Valve 'A' has locked up due to an analog circuit failure. Subsequently, I&C has made repairs and reset the analog circuit.

After the RCIRC FCV MOTION INHIBIT RESET switch, 1B33A-S112, on panel H13-P680 is placed to the 'A' position, the hydraulic power unit Isolate/Operate Valve subsequently fails in the Isolate position.

Which one of the following describes the response of Reactor Recirculation Flow Control Valve 'A'?

Reactor Recirculation Flow Control Valve 'A' will...

A. not reset.

B. "lock up".

C. fail full open.

D. fail full closed.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A#	202002.K3.06	
	Importance Rating	3.7	3.7

Proposed Question: See attached Common 063

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The FCV will reset but then will lock up due to a velocity error.

C & D – The FCV will lockup.

Technical Reference(s): SOI-B33	Reference Attached: X (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-006-B33 OBJ C

Question Source:	Bank #	____	
	Modified Bank #	____	(Note changes or attach parent)
	New	X	
Question History:	Previous NRC Exam	____	
	Previous Quiz / Test	____	
Question Cognitive Level:	Memory or Fundamental Knowledge	____	
	Comprehension or Analysis	C	
10 CFR Part 55 Content:	55.41	X	
	55.43	____	

Comments (Why is it an upper level question):
Requites the student to predict how a malfunction in the Recirculation Flow Control System will impact the response of the Flow Control Valve.

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QUESTION Common 064

Refueling operations are in progress and the Inclined Fuel Transfer System (IFTS) is in operation.

The IFTS Fuel Handling Building Panel Operator has just raised the IFTS Carriage Assembly to the RAISE FILL/DRAIN STOP position. The Bottom Valve and Drain Valve have closed.

Which one of the following describes the expected impact on the Upper Containment Pool water level?

The Upper Containment Pool water level will initially...

A. decrease when the IFTS Transfer Tube is filled with water; water level must be manually restored with makeup water from the Condensate Transfer and Storage System.

B. decrease when the IFTS Transfer Tube is filled with water; water level is restored when water from the FPCC surge tanks is subsequently pumped back to the Upper Containment Pool.

C. increase due to the displacement of water by the IFTS Carriage Assembly; water level is restored when the IFTS Carriage Assembly is subsequently lowered to the Fuel Handling Building.

D. increase due to the displacement of water by the IFTS Carriage Assembly; water level is automatically restored via an automatic drain valve to the Fuel Storage Pool in the Fuel Handling Building.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	3	2
	K/A#	234000.A1.01	
	Importance Rating	3.1	3.4

Proposed Question: See attached Common 064

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The Upper Containment Pool level is restored via the Fuel Transfer Tube Drain Tank Pump to the FPCC Surge Tanks and then pumped back to the Upper Containment Pool.

C & D – Upper containment pool level will initially decrease as the transfer tube is filled (until the FPCC Upper Pool return can restore pool level).

Technical Reference(s): SDM G41; SDM F42

Reference Attached: __X___
(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-006-G41 OBJ C; SYS-5014-002-F42 OBJ B

Question Source:
Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New __X__

Question History:
Previous NRC Exam _____
Previous Quiz / Test _____

Question Cognitive Level:
Memory or Fundamental Knowledge _____
Comprehension or Analysis __C__

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question):
Requires the student to comprehend the change in Upper Containment Pool Level when the IFTS Transfer Tube is filled during a "Raise" evolution.

QUESTION Common 065

Feedwater Heater 6A must be removed from service due to a tube leak.

Which one of the following describes the expected plant response when Feedwater Heater 6A is removed from service?

Feedwater temperature entering the reactor will...

A. decrease and cause reactor power to increase.

B. decrease and cause reactor power to decrease.

C. increase and cause reactor power to increase.

D. increase and cause reactor power to decrease.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	2
	Group #	1	2
	K/A#	259001.A1.02	
	Importance Rating	3.2	3.3

Proposed Question: See attached Common 065

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – Reactor power will increase due to an increase in inlet subcooling.

C/D – Feedwater temperature decreases (not increases) due to a loss of feedwater heating.

Technical Reference(s): SDM N36/25/26; ONI-N36; GP Rx Theory Text Chp. 4	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-N36/25/26 OBJ F; OT-3301-004-04 OBJ 10&12

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to comprehend the impact of isolating a feedwater heater will have on feedwater temperature and reactor power.

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QUESTION Common 066

The plant is operating at 50% reactor power. The AC Electrical Distribution System is in its normal operating lineup and all divisional and non-divisional batteries are being supplied by their normal chargers.

Bus L11 suddenly experiences a bus lockout.

Which one of the following describes the effect, if any, on the divisional and non-divisional DC Systems?

A. No effect; the normal chargers will continue to supply their respective DC loads and batteries.

B. The divisional DC Systems will be unaffected; both non-divisional DC Systems will be supplied by their batteries.

C. The divisional DC Systems will be unaffected; the non-divisional D-1-B DC System will switch to its alternate charger and the non-divisional D-1-A DC System will be supplied by its battery.

D. The divisional DC Systems will be unaffected; the non-divisional D-1-A DC System will switch to its alternate charger and the non-divisional D-1-B DC System will be supplied by its battery.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A#	295003.AA1.04	
	Importance Rating	3.6	3.7

Proposed Question: See attached Common 066

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B, C & D – Non-divisional battery chargers are normally supplied via Bus L12. Divisional battery chargers are powered from Class 1E AC distribution that is normally aligned to Bus L10.

Technical Reference(s): SDM R42; SDM R10	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-006-R42 OBJ B; OT-3036-006-R10 OBJ C

Question Source:	Bank #	_1434_
	Modified Bank #	_____ (Note changes or attach parent)
	New	_____
Question History:	Previous NRC Exam	_____
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	__C__
10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question):
Requires the student to predict the impact of a loss of AC Bus L11 on the DC electrical distribution system.

QUESTION Common 067

Distribution Panel D1A06 of the 125 VDC Non-Class 1E DC System 'A' was inadvertently de-energized due to a clearance error.

Which one of the following DC electrical loads is effected by this event?

A. Control Room annunciators.

B. RCIC Gland Seal Compressor.

C. Emergency Hydrogen Seal Oil Pump.

D. Division 1 Diesel Generator controls.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A#	295004.AA1.01	
	Importance Rating	3.3	3.4

Proposed Question: See attached Common 067

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B & C – This is a D1B load.

D – This is an ED1A load.

Technical Reference(s): ONI R42-4; SDM R42; ONI-R61	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-006-R42 OBJ B&E

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION RO 068

The plant is in MODE 1.

Containment average air temperature is 94°F and slowly increasing.

Which one of the following additional parameters is specifically monitored such that the adverse consequences of an inadvertent initiation of Containment Sprays during normal plant operation can be prevented or mitigated?

A. Suppression Pool temperature.

B. Suppression Pool level.

C. Containment humidity.

D. Containment pressure.

ANSWER: C

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	2	
	K/A#	295011.AA2.03	
	Importance Rating	2.8	

Proposed Question: See attached RO 068

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A / B / D – The only correct relationship is Containment temperature and humidity.

Technical Reference(s): Tech Spec LCO 3.6.1.12	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3037-001-10 OBJ A, B &C

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION Common 069

Which one of the following lists the order of preference for indications to be used when determining Suppression Pool water temperature in accordance with the Plant Emergency Instructions?

Note: Order of preference is defined as most preferred to least preferred.

A. Validated SPDS, highest reading functional instrument, Post Accident recorders.

B. Post Accident recorders, highest reading functional instrument, validated SPDS.

C. Highest reading functional instrument, validated SPDS, Post Accident recorders.

D. Validated SPDS, Post Accident recorders, highest reading functional instrument.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A#	295026.EA1.03	
	Importance Rating	3.9	3.9

Proposed Question: See attached Common 069

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A / B / C – The order of the three different indications is not in the order from most preferred to least preferred.

'SPDS' is synonymous with 'ERIS'.

Technical Reference(s): PEI-Bases Document	Reference Attached: ___X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-005-01 Obj C

Question Source:	Bank #	__X___	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	
Question History:	Previous NRC Exam	__X___	(June 2001 Exam)
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION Common 070

The following plant conditions exist:

- A Loss of Coolant Accident has occurred.
- Hydrogen is present in the Primary Containment.
- PEI-M51/56, Hydrogen Control, has been entered.
- Hydrogen Recombiners have been started.

Which one of the following hydrogen concentrations will require the Hydrogen Recombiners to be secured, including the bases for this action?

The Hydrogen Recombiners are secured at:

A. 4% hydrogen concentration in order to prevent their becoming an ignition source.

B. 4% hydrogen concentration because there is insufficient oxygen available to support the recombination reaction.

C. 6% hydrogen concentration in order to prevent their becoming an ignition source.

D. 6% hydrogen concentration because there is insufficient oxygen available to support the recombination reaction.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A#	500000.EA1.03	
	Importance Rating	3.4	3.2

Proposed Question: See attached Common 070

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – 4% hydrogen concentration is the lower limit of flammability; this value does not require the hydrogen recombiners to be secured.

B – 4%hydrogen concentration is the lower limit of flammability; this value does not require the hydrogen recombiners to be secured. Also there is no bases for 'insufficient oxygen to support the recombination reaction'. Perry does not inert its Containment.

D – There is no bases for 'insufficient oxygen to support the recombination reaction'. Perry does not inert its Containment.

Technical Reference(s): PEI-M51/56, PEI Bases Document, SOI-M51/56	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-006-10 OBJ C; OT-3036-005-M51 OBJ C

Question Source:	Bank #	____
	Modified Bank #	__ (Note changes or attach parent)
	New	_____
Question History:	Previous NRC Exam	__X___ (June 2001 Exam)
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____
10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question):

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QUESTION Common 071

RHR Loop 'B' is being placed in the Shutdown Cooling mode in accordance with IOI-11, Shutdown From Outside the Control Room.

Which one of the following describes the operator action required to position RHR B HX'S OUTLET VALVE, 1E12-F003B, for this evolution?

RHR B HX'S OUTLET VALVE, 1E12-F003B, is manipulated using its control switch located at...

A. MCC EF1D07-D without requiring the use of a Transfer and Control Switch on the Division 2 Remote Shutdown Panel.

B. MCC EF1D07-D only after a Transfer and Control Switch is placed in EMERG on the Division 2 Remote Shutdown Panel.

C. the Division 2 Remote Shutdown Panel without requiring the use of a Transfer and Control Switch on the Division 2 Remote Shutdown Panel.

D. the Division 2 Remote Shutdown Panel only after a Transfer and Control Switch is placed in EMERG on the Division 2 Remote Shutdown Panel.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	3
	Group #	CAT 1	CAT 1
	K/A#	2.1.30	
	Importance Rating	3.9	3.4

Proposed Question: See attached Common 071

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – This valve does not require operation of the RSP Transfer and Control Switches to be utilized.

C & D – This valve is not controlled from the Div 2 RSP.

Technical Reference(s): IOI-11; SDM C61	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-C61 OBJ B&E

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X_	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION RO 72

The following plant conditions exist:

- The reactor is operating at 100% power.
- A loss of RPS Bus 'A' has occurred.
- Restoration of power to RPS Bus 'A' is complete.
- One of the four white scram solenoid lights on panel H13-P680 for RPS Bus 'A' will not reenergize.
- The white scram solenoid light bulb is not burned out.
- All RPS 'B' white scram solenoid lights are energized.

Which one of the following describes the current status of the control rods?

A. ~ ½ of all control rods have a full scram signal.

B. ~½ of all control rods have a half scram signal.

C. ~¼ of all control rods have a full scram signal.

D. ~¼ of all control rods have a half scram signal.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	212000.A1.11	
	Importance Rating	3.4	

Proposed Question: See attached RO 072

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A&C – only a half scram is initiated by a loss of power to one of the four scram groups.

B – This would require a loss of power to two of the four scram groups.

Technical Reference(s):	Reference Attached: __X__
SDM C71	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-005-C71 OBJ D and I

Question Source:	Bank # _____
	Modified Bank # _____ (Note changes or attach parent)
	New __X__

Question History:	Previous NRC Exam _____
	Previous Quiz / Test _____

Question Cognitive Level:	Memory or Fundamental Knowledge _____
	Comprehension or Analysis __C__

10 CFR Part 55 Content:	55.41 __X__
	55.43 _____

Comments (Why is it an upper level question):
Requires the student to predict the impact of a loss of power to a single RPS solenoid scram group.

QUESTION RO 73

The following plant conditions exist:

- The reactor is being shutdown by normal control rod insertion.
- Reactor power is on IRM Range 6 and decreasing.
- IRM Channel 'B' is ranged down and the reading increases to 100/125.

Which one of the following describes the expected response of the Intermediate Range Monitoring System, if any?

A. No response.

B. Only a half scram signal is generated.

C. Only a control rod block signal is generated.

D. A control rod block and half scram signal are generated.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	215003.K4.01	
	Importance Rating	3.7	

Proposed Question: See attached RO 073

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – Since power is on Range 6 this would imply the reactor mode switch is not in RUN which enables the IRM trips.

B&D – The IRM has not exceeded the scram setpoint of 120/125.

Technical Reference(s):	Reference Attached: __X__
ARI-H13-P680-06 (C2); SDM C51(IRM)	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-C51(IRM) OBJ D

Question Source:
Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New __X__

Question History:
Previous NRC Exam _____
Previous Quiz / Test _____

Question Cognitive Level:
Memory or Fundamental Knowledge _____
Comprehension or Analysis __C__

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question):
Requires the student to determine that the reactor mode switch would be in STARTUP with power on range 6 of IRMs and predict the correct IRM response.

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QUESTION RO 074

Which one of the following describes the effect Halon 1301 has on a fire?

Halon extinguishes a fire by ...

A. removing heat from the fire.

B. chemically inhibiting the combustion reaction.

C. displacing all the oxygen needed to support combustion.

D. physically covering the fuel source to prevent air from reaching the fuel.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	286000.K5.02	
	Importance Rating	2.6	

Proposed Question: See attached RO 074

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – This is the method provided by water, not halon.

C – This is the method provided by CO2, not halon.

D – This is the method provided by foam stations, not halon.

Technical Reference(s):	Reference Attached: __X___
SDM P54(Halon)	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-P54 (Halon) OBJ C

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION RO 075

Following a LOCA, Chemistry is preparing to draw samples in the Post Accident Sample Room (P87).

Which one of the following systems should be verified in service to ensure proper exhaust ventilation and filtration for the Post Accident Sample Room?

A. Annulus Exhaust Gas Treatment System (M15).

B. Intermediate Building Ventilation System (M33).

C. Fuel Handling Building Ventilation System (M40).

D. Containment Vessel and Drywell Purge Supply System (M14).

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	3	
	K/A#	288000.G2.1.27	
	Importance Rating	2.8	

Proposed Question: See attached RO 075

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The M15 system only supplies the reactor annulus with a filter exhaust path.

B – Although located in the Intermediate Building the M33 system only provides supply air and has no filtration capability for contaminated exhaust.

D – M14 system only supplies the Reactor Water Sampling fume hood in containment with a filtered exhaust path.

Technical Reference(s):	Reference Attached: __X___
SDM M40; SDM P87	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-M40 OBJ B

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION RO 076

The plant is operating at 23% reactor power with the Main Turbine rolling at rated speed but not synchronized to the grid.

Suddenly, the reactor scrams and the operator observes the following:

- The Main Turbine is tripped.
- Main Condenser vacuum is 18" HgA and degrading.
- Reactor water level is +170 inches and decreasing.
- Reactor pressure peaked at 1005 psig and is now being controlled at 940 psig.

No operator actions have been performed.

Which one of the following conditions caused the reactor scram?

A. MSIV closure signal.

B. TSV/TCV closure signal.

C. High reactor pressure signal.

D. Low reactor water level signal.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295006.AA2.06	
	Importance Rating	3.5	

Proposed Question: See attached RO 076

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A - since a scram requires at least 3 main steam lines to isolate and the pressure spike does not indicate that this has occurred; if all MSIVs had closed then pressure would not control at 940 psig (it would be maintained on SRV setpoint).

B – the TSV/TCV closure is bypassed below 38% power.

C – the high reactor pressure scram setpoint was not exceeded (1065 psig).

Technical Reference(s):	Reference Attached: __X___
SDM C71	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-005-C71 OBJ F

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION RO 077

Suppression Pool level is 17.0 feet and rapidly decreasing due to a leak into the Auxiliary building.

Which one of the following is the minimum Suppression Pool level that ensures the SRV Tail Pipe Quenchers will remain submerged if an Emergency Depressurization is required?

A. 14.25 feet

B. 7.25 feet

C. 5.25 feet

D. 3.25 feet

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	2	
	K/A#	295030.EK2.08	
	Importance Rating	3.5	

Proposed Question: See attached RO 077

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – This is the level that requires Emergency Depressurization.

B – This is the level that ensures the high pressure ECCS systems maintain adequate NPSH.

D - At this level the quenchers will be uncovered.

Technical Reference(s):	Reference Attached: __X__
PEI Bases Emergency Depressurization	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-005-12 OBJ C

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION RO 078

The following plant conditions exist:

- The reactor is operating at 20% power during a plant startup.
- A loss of Bus H11 occurs.
- The lowest reactor water level indicated during the transient is +175 inches.

Which one of the following describes the response of the Reactor Recirculation System?

Assume no operator actions have been performed.

Reactor Recirculation Pump 'A'...

A. trips to off.

B. transfers from fast to slow speed.

C. continues to operate in fast speed.

D. continues to operate in slow speed.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	202001.K1.08	
	Importance Rating	3.1	

Proposed Question: See attached RO 078

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B&C – Recirc pumps are not shifted to fast speed until around 31-37% power.

D – Loss of power to LFMG A (powered from H11) will cause Recirc Pump A to trip.

Technical Reference(s):	Reference Attached: __X___
SDM B33; SDM R10	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-007-B33 OBJ C&E, OT-3036-006-R10 OBJ D&J

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the response of Recirculation Pump A based on the initial plant conditions provided.

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QUESTION RO 079

The Division 2 Diesel Generator right air bank relief valve fails open resulting in a complete loss of header pressure in the right air bank.

Which one of the following describes the start capability of the Division 2 Diesel Generator?

The Division 2 Diesel Generator is ...

A. not capable of starting due to the loss of starting air pressure.

B. not capable of starting due to the loss of control air pressure.

C. capable of starting only on a manual start signal using the left air bank.

D. capable of starting on a manual or automatic start signal using the left air bank.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	264000.K1.06	
	Importance Rating	3.2	

Proposed Question: See attached RO 079

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A&B – Division 2 DG will start with only one air bank available.

C – Division 2 DG is capable of both manual and automatic starting using a single air bank.

Technical Reference(s):	Reference Attached: __X___
SDM R44; SDM R43	(Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-006-R43/48 OBJ C&D

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the start capability of the Division 2 DG based on the loss of one of the two redundant air banks.

QUESTION RO 080

The following plant conditions exist:

- The plant is in Cold Shutdown.
- Both Reactor Recirculation Pumps are shutdown.
- RHR Loop 'A' is in the Shutdown Cooling mode.

Which one of the following describes the importance of maintaining reactor water level greater than +245 inches if Shutdown Cooling is lost?

Maintaining reactor water level greater than +245 inches will...

A. prevent a low reactor water level scram signal when a Reactor Recirculation Pump is started.

B. prevent reactor coolant thermal stratification by ensuring natural circulation flow is maintained.

C. provide an adequate margin to "time to boil" point while starting the opposite loop of Shutdown Cooling.

D. provide an adequate vessel inventory for alternate methods of decay heat removal that utilize feed and bleed evolutions.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	3	
	K/A#	295021.AK3.01	
	Importance Rating	3.3	

Proposed Question: See attached RO 080

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – A caution in SOI-B33 warns against starting recirc pumps with reduced reactor water level which can cause a scram, however this is not the bases for this precaution.

C – Higher water level will ensure natural circulation is maintained; however it will not ensure the "time to boil point" will not be exceeded.

D – Feed/bleed evolutions are used for alternate decay heat removal but this is not the reason for elevated water level for this precaution.

Technical Reference(s): IOI-12	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3046-003-01B OBJ A

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION RO 081

When placing RHR Loop 'B' in the Shutdown Cooling mode of operation, the initial cooldown rate is established by throttling closed RHR 'B' Heat Exchangers Bypass Valve (E12-F048B), while throttling open the...

A. LPCI 'B' Injection Valve (E12-F042B).

B. RHR 'B' Heat Exchangers Outlet Valve (E12-F003B).

C. RHR 'B' Heat Exchangers ESW Outlet Valve (P45-F068B).

D. Shutdown Cooling 'B' to Feedwater Shutoff Valve (E12-F053B).

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	205000.K4.05	
	Importance Rating	3.6	

Proposed Question: See attached RO 081

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A –This valve is opened for emergency shutdown cooling but not throttled for temperature control.

C – This valve is required to be opened for SDC operation but no procedural guidance is provided to throttle this valve for temperature control.

D – This valve is fully opened to place SDC in operation but no procedural guidance is provided to throttle this valve for temperature control.

Technical Reference(s): SOI-E12	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-E12 OBJ B&E; OT-3046-000-10a OBJ B

Question Source:	Bank #	____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION RO 082

The following plant conditions exist:

- The reactor scrammed due to closure of the MSIVs.
- PEI-B13, RPV Control (Non-ATWS), has been entered.
- RCIC was manually started to aid in reactor pressure control.
- Suppression Pool temperature is 105°F.

Subsequent cycling of Safety Relief Valves caused a high Suppression Pool level signal. An automatic RCIC suction shift from CST to Suppression Pool occurred.

Which one of the following describes the operational impact to the RCIC System due to the opening of the RCIC Pump Suppression Pool Suction Isolation Valve (E51-F031), including the minimum operator action(s) required to shift the RCIC suction back to the CST?

A. RCIC NPSH, vortex, and component cooling limitations are more likely to be challenged; take RCIC Pump CST Suction Valve (E51-F010) control switch to OPEN and then take E51-F031 control switch to CLOSE.

B. RCIC Turbine may trip on high exhaust pressure due to elevated levels in the Suppression Pool; take RCIC Pump CST Suction Valve (E51-F010) to OPEN and then take E51-F031 control switch to CLOSE.

C. RCIC NPSH, vortex, and component cooling limitations are more likely to be challenged; take E51-F031 control switch to CLOSE and then allow the RCIC Pump CST Suction Valve (E51-F010) to automatically open.

D. RCIC Turbine may trip on high exhaust pressure due to elevated levels in the Suppression Pool; take E51-F031 control switch to CLOSE and then allow the RCIC Pump CST Suction Valve (E51-F010) to automatically open.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	217000.A2.12	
	Importance Rating	3.0	

Proposed Question: See attached RO 082

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – The RCIC Turbine PEI caution regarding high exhaust pressure trips is based on elevated containment pressures (not elevated suppression pool levels).

C&D – The required operator action is incorrect. The CST suction valve will not automatically open since the RCIC system was manually started (vice automatically).

Technical Reference(s): SDM-E51; SOI-E51; PEI-B13; PEI-B13 Bases	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-003-E51 OBJ D OT-3402-005-02 OBJ F

Question Source:	Bank #	____
	Modified Bank #	_____ (Note changes or attach parent)
	New	___X__
Question History:	Previous NRC Exam	_____
	Previous Quiz / Test	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	__C__
10 CFR Part 55 Content:	55.41	__X__
	55.43	_____

Comments (Why is it an upper level question):
Requires the student to comprehend the potential effect of operating RCIC with the suction valve aligned to the suppression pool, including an action the operator can perform to realign the RCIC suction back to the CST.

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QUESTION RO 083

The following plant conditions exist:

- A LOCA has occurred.
- The LPCS Pump is running.
- All RHR Pumps are running.
- The Automatic Depressurization System (ADS) automatically initiated.
- All ADS SRVs are open.
- Reactor water level +30 inches and steady.
- Reactor pressure is 500 psig and decreasing.

If ADS 'A' and 'B' Logic Inhibit Switches are placed in INHIBIT on panel H13-P601, which one of the following describes the response of the Automatic Depressurization System?

Assume no further operator actions are performed.

The ADS SRVs will...

A. remain open.

B. close and remain closed.

C. close and immediately re-open.

D. close and re-open after 105 seconds.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	218000.K4.03	
	Importance Rating	3.8	

Proposed Question: See attached RO 083

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B, C & D – Once ADS seals in, the SRVs will remain open after going to Inhibit (unless the logic seal in pushbutton is depressed to reset the 105 second timer).

Technical Reference(s): SDM B21C	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-B21C OBJ E

Question Source:	Bank #	1255	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	C	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to comprehend the effect of placing the ADS inhibit switches to inhibit after ADS has automatically initiated, including the other initial plant conditions provided.

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QUESTION RO 084

Which one of the following describes the response of the Instrument Air System when a loss of cooling water flow to the operating Instrument Air Compressor occurs?

The Instrument Air Compressor will trip on...

A. low cooling water flow upon a complete loss of the Nuclear Closed Cooling System (P43).

B. low cooling water flow upon a complete loss of the Turbine Closed Cooling System (P44).

C. high discharge air temperature or high lube oil temperature upon a complete loss of the Nuclear Closed Cooling System (P43).

D. high discharge air temperature or high lube oil temperature upon a complete loss of the Turbine Closed Cooling System (P44).

ANSWER: C.

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Data Sheets

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	300000.K1.04	
	Importance Rating	2.8	

Proposed Question: See attached RO 084

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – There is no low cooling water flow trip for the IA compressor.

B – There is no low cooling water flow trip for the IA compressor and NCC cools it.

D – The IA compressor is cooled by NCC.

Technical Reference(s): ONI-P43; SDM P43; SDM P51/52	Reference Attached: __X____ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-P43 OBJ B&H; OT-3036-004-P51/52 OBJ E

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to comprehend which cooling water system supplies cooling water to the instrument air compressor, including the specific instrument air compressor trip signal.

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QUESTION RO 085

The plant is operating at 50% reactor power when an unisolable rupture in the Turbine Building Closed Cooling System (TBCC) suction header causes a complete loss of TBCC.

Which one of the following describes the plant response to the loss of TBCC, including an immediate action the operator should perform in order to mitigate the consequences of the event in accordance with ONI-P44, Loss of TBCC?

In anticipation of...

A. the loss of the Reactor Feed Pump Turbines, the RCIC System is manually initiated.

B. the loss of the Steam Jet Air Ejectors, the Mechanical Vacuum Pumps are started.

C. high Generator stator temperatures, a Fast Reactor Shutdown is performed.

D. high Isolated Phase Bus Duct temperatures, the standby Isolated Phase Bus Duct cooling fan is started.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	400000.A2.03	
	Importance Rating	2.9	

Proposed Question: See attached RO 085

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – This is a subsequent action based on removing the RFPTs from service.

B – SJAEs are expected to be lost, but mechanical vacuum pumps cannot be used with power above 5% (Mechanical Vacuum Pumps are cooled by TBCC).

D – Isolated phase bus duct cooling fan is expected to trip on high temperature and the standby fan will start automatically (but also trip eventually on high temperature).

Technical Reference(s): ONI-P44	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-P44 OBJ E

Question Source:	Bank #	_422__	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to comprehend the plant response to a loss of TBCC, including an immediate action to be performed per ONI-P44 in order to mitigate the consequences of the event.

QUESTION RO 086

When comparing the requirements of PAP-0123, Control of Locked High Radiation Areas, for entry into a Level 1 versus a Level 2 Locked High Radiation Area, which one of the following only applies to the Level 2 entry?

A. A radiation-monitoring device that continuously indicates the radiation dose rate in the area must be used.

B. A radiation-monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received must be used.

C. Maximum allowable stay times are provided on the RWP or continuous surveillance by a Radiation Protection qualified individual to provide positive control over the activities in the area must be utilized.

D. Coverage by a Radiation Protection qualified individual using a radiation dose rate monitoring device, who provides positive control over the activities in the area and performs periodic radiation surveillance at predetermined frequencies, must be obtained.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	CAT 3	
	K/A#	2.3.1	
	Importance Rating	2.6	

Proposed Question: See attached RO 086

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A,B,D – These are all options to meet requirements of L1 locked high radiation area.

Technical Reference(s): PAP-0123	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3039-001-04 OBJ A

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION RO 087

The following plant conditions exist:

- The reactor is operating at 75% power.
- An inadvertent HPCS initiation occurs.
- The Master Level Controller is controlling reactor water level at a tapeset value of +196 inches.
- No operator action is taken.

Which one of the following describes the reactor water level response?

Reactor water level ...

A. remains constant during the entire event transient.

B. initially increases and then decreases to + 178 inches.

C. initially increases and then returns to +196 inches.

D. initially decreases and then returns to +196 inches.

ANSWER: C

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	209002.K3.01	
	Importance Rating	3.9	

Proposed Question: See attached RO 087

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A / D – Reactor water level will initially increase due to HPCS injection and then return to +196 ".

B – Reactor water level would not reduce due to HPCS, this level would indicate a level setdown initiated following a scram.

Technical Reference(s): USAR CH 15; SDM C34	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3401-005-12 OBJ B; OT-3036-006-C34 OBJ C; OT-3035-001-13 OBJ 4

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to predict the impact a HPCS malfunction (inadvertent initiation) would have on reactor water level based on initial plant conditions.

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QUESTION RO 088

Which one of the following lists the power supplies to the Standby Liquid Control (SLC) Squib Valves 'A' and 'B' (C41-F004A/B)?

A. D1A06 and D1B06.

B. EF1A08 and EF1C08.

C. EB1A1 and EB1B1.

D. ED1A06 and ED1B08.

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	211000.K2.02	
	Importance Rating	3.1	

Proposed Question: See attached RO 088

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – This is not the power supply to the SLC Squib Valves, it does power various Non-Class 1E DC loads.

B – This is not the power supply to the SLC Squib Valves, it does power the SLC pumps.

D – This is not the power supply to the SLC Squib Valves, it does power the RRCS logic.

Technical Reference(s): PDB-H022, PDB-H024 ARI H13-P601-18 (A4) and H13-P601-19 (D1)	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-000-C41 OBJ C&E; OT-3036-002-R14/15 OBJ I

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION RO 089

The ED-1-B battery is being removed from service for replacement.

Which one of the following describes the breaker manipulation(s) that must be performed to allow removal of the DC bus battery fuses?

A. Only the ED-1-B Bus Main Breaker must be racked out to Disconnect.

B. Only the ED-1-B Bus Main Breaker and the Normal Charger Output Breaker must be racked out to Disconnect.

C. Only the ED-1-B Normal Charger Output Breaker and the Reserve Charger Output Breaker must be racked out to Disconnect.

D. The ED-1-B Normal Charger Output Breaker, the Reserve Charger Output Breaker, and the Bus Main Breaker must be racked out to Disconnect.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	263000.K4.02	
	Importance Rating	3.1	

Proposed Question: See attached RO 089

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – Removal of the ED-1-B battery fuses requires kirk keys from both the ED-1-B normal battery charger output and the bus main breaker.

C&D – The reserve battery charger output breaker is not required to be racked out to remove the ED-1-B fuses.

Technical Reference(s): SOI-R42 (Div 2); SDM R42	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-006-R42 OBJ B&C

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION RO 090

The following plant conditions exist:

- The reactor is operating at 100% power.
- PREFILTER DIFF PRESS HI alarm occurs on panel H13-P845.
- PREFILTER DIFFERENTIAL PRESSURE (N64-R611) indicates an abrupt increase from 1 inch WC to 12 inches WC, and remains at 12 inches WC.
- OFFGAS AFTERFILTER FLOW (N64-R620) remains relatively unchanged.

Which one of the following describes the potential impact of this condition on the Offgas System, including an action that can be taken to mitigate the consequences of this condition?

A. Water carryover can damage the Prefilter elements; correct the cause of the water carryover and shift Prefilters.

B. Water carryover can damage the Prefilter elements; correct the cause of the water carryover. Shifting of Prefilters in not required.

C. Particulate buildup can cause a gradual reduction in Prefilter efficiency; correct the cause of the particulate buildup and shift Prefilters.

D. Particulate buildup can cause a gradual reduction in Prefilter efficiency; correct the cause of the particulate buildup. Shifting of Prefilters in not required.

ANSWER: A

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	271000.A2.14	
	Importance Rating	2.6	

Proposed Question: See attached RO 090

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – The prefilter should not be left in service due to excessive dp (>10 inches WC).

C & D – An excessive buildup of particulate would be indicated by a slow rise in differential pressure, not an abrupt change.

Technical Reference(s): ARI-H13-P845-1 (A3); SDM N64	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-003-N64 OBJ B,C,D&H

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__A__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to analyze plant conditions to determine the impact on the Off-Gas System and the appropriate actions that should be taken.

QUESTION RO 091

The following plant conditions exist:

- PEI-B13, RPV Control (Non-ATWS) has been entered.
- Reactor water level is being maintained with RCIC at +100 inches.
- Reactor pressure is 920 psig.
- No motor-driven injection systems are available.

A malfunction occurs in the ADS 'A' initiation logic and ADS automatically initiates.

Which one of the following describes the impact of this event on the Reactor Vessel internals?

A. Efforts to restore and maintain reactor water level become more complicated and the potential for loss of adequate core cooling increases.

B. Efforts to restore and maintain reactor water level become more complicated and the potential for loss of adequate core cooling decreases.

C. Efforts to restore and maintain reactor water level become less complicated and the potential for loss of adequate core cooling increases.

D. Efforts to restore and maintain reactor water level become less complicated and the potential for loss of adequate core cooling decreases.

ANSWER: A.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	3	
	K/A#	290002.K6.15	
	Importance Rating	3.1	

Proposed Question: See attached RO 091

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – The potential for loss of adequate core cooling increases.

C & D – The efforts to control reactor water level become more complicated (not less complicated if RCIC is lost).

Technical Reference(s): PEI Bases Document; SDM B21C	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-005-02 OBJ F; OT-3036-002-B21C OBJ A

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to comprehend the impact of a malfunction of the ADS system (inadvertent initiation) on the ability to maintain adequate core cooling (prevent fuel damage).

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QUESTION RO 092

Reactor Water Cleanup Filter Demineralizer 'A' has been removed from service for backwash and precoat.

Which one of the following groups must be contacted per SOI-G36, RWCU Filter/Demineralizer System prior to beginning the backwash cycle?

A. I&C, Chemistry, and Health Physics.

B. Radwaste Supervising Operator, I&C, and Chemistry.

C. Health Physics, Radwaste Supervising Operating and I&C.

D. Chemistry, Health Physics and Radwaste Supervising Operator.

ANSWER: D

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	CAT 1	
	K/A#	2.1.14	
	Importance Rating	2.5	

Proposed Question: See attached RO 092

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A, B & C – I&C is not required to be notified for backwash/precoat evolution.

Technical Reference(s): SOI-G36	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-005-G33/36 OBJ E&G

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X____	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION RO 093

The plant is operating at 20% reactor power when indications of a control rod drop are observed.

The reactor does not automatically scram.

Which one of the following Immediate Actions is the operator required to perform in accordance with ONI-C11-3, Control Rod Drop?

A. Immediately arm and depress the RPS MANUAL SCRAM CH A, B, C, and D pushbuttons.

B. Enter ONI-J11-1, Gross Fuel Cladding Failure if gross fuel element failure is indicated.

C. Immediately insert the dropped control rod if the dropped control rod can be determined.

D. Notify a qualified Reactor Engineer.

ANSWER: B

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	CAT 4	
	K/A#	2.4.11	
	Importance Rating	3.4	

Proposed Question: See attached RO 093

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – A reactor scram is not required at this time.

C – This is not a required action for this condition.

D – This is a subsequent action.

Technical Reference(s): ONI-C11-3	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-004-C11(RC&IS) OBJ I

Question Source:	Bank #	_1069_	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION RO 094

The following plant conditions exist:

- Reactor water level is +14.5 inches.
- Drywell pressure is 1.5 psig.
- Drywell temperature is 140°F.
- Containment temperature is 83°F.
- Annulus temperature is 90°F.
- All Control Rods are fully inserted.

Which one of the following identifies all of the Plant Emergency Instructions (PEIs) that are required to be entered?

A. PEI-T23, Containment Control and PEI-B13, RPV Control (Non-ATWS).

B. PEI-B13, RPV Control (Non-ATWS) and PEI-M51/M56, Hydrogen Control.

C. PEI-M51/M56, Hydrogen Control and PEI-N11, Containment Leakage Control.

D. PEI-N11, Containment Leakage Control and PEI-T23, Containment Control.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	CAT4	
	K/A#	2.4.4	
	Importance Rating	4.0	

Proposed Question: See attached RO 094

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A, C & D – There are no entry conditions met for PEI-T23 and PEI-N11.

Technical Reference(s): PEI B13, T23, M51/56, N11 Entry Conditions	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3402-005-02 OBJ B; OT-3402-004-09 OBJ B; OT-3402-006-10 OBJ B OT-3402-001-17 OBJ B

Question Source:	Bank # _____ Modified Bank # _____ (Note changes or attach parent) New __X___
Question History:	Previous NRC Exam _____ Previous Quiz / Test _____
Question Cognitive Level:	Memory or Fundamental Knowledge __X__ Comprehension or Analysis _____
10 CFR Part 55 Content:	55.41 __X__ 55.43 _____

Comments (Why is it an upper level question):

QUESTION RO 095

The following plant conditions exist:

- The reactor is operating at 10% power.
- The Main Turbine is ready to roll.
- A malfunction of the Main Turbine Bypass Valves occurs.
- RX PRESS HI alarm occurs on panel H13-P680-7.
- Reactor pressure increases and stabilizes at 1050 psig.
- The reactor does not scram.

In accordance with Technical Specifications, which one of the following Required Actions must be completed?

A. Place the Reactor Mode Switch in SHUTDOWN immediately.

B. Restore reactor steam dome pressure to within the limit within 15 minutes.

C. Restore the reactor coolant system pressure and temperature to within the limits within 30 minutes.

D. Restore the Main Turbine Bypass System to OPERABLE within 2 hours.

ANSWER: B

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	CAT 1	
	K/A#	2.1.11	
	Importance Rating	3.0	

Proposed Question: See attached RO 095

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – This action is not required since a valid reactor scram signal was not received (1065 psig).

C – This event did not exceed the RCS Pressure/Temperature limits which require this action.

D – The bypass valve system is not required to be OPERABLE at this time (below 23.8% RTP).

Technical Reference(s): Tech Spec 3.4.12	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3037-007-08 OBJ B&D

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	___X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION RO 096

The Containment Vessel and Drywell Purge System is operating in the Intermittent Mode.

SOI-M14, Containment Vessel and Drywell Purge System, contains a Precaution to "ensure charcoal filter temperature remains below 300°F".

Which one of the following is the reason for this Precaution?

A. To prevent humidity buildup in the charcoal filter.

B. To prevent an automatic deluge of the charcoal filter.

C. To prevent spontaneous combustion of the charcoal filter.

D. To prevent the airborne release of gaseous radioactive iodine.

ANSWER: D.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #	CAT 3	
	K/A#	2.3.9	
	Importance Rating	2.5	

Proposed Question: See attached RO 096

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

B – There is no automatic deluge of the charcoal filter.

A & C – These are all potential effects of a high temperature, but are not the bases for this temperature limit.

Technical Reference(s): SOI-M14	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-003-M14 OBJ G

Question Source:	Bank #	_524__	
	Modified Bank #	_____	(Note changes or attach parent)
	New	_____	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

QUESTION RO 097

The following plant conditions exist:

- The reactor is operating at 100% power.
- Annulus Exhaust Gas Treatment System (AEGTS) Train 'A' is in service.
- An unplanned gaseous radioactive release occurs in the Annulus.

Which one of the following gaseous effluent Airborne Radiation Monitors (ABRM) would detect this radioactive release in the Annulus?

A. Off-Gas Vent.

B. Unit 1 Plant Vent.

C. Unit 2 Plant Vent.

D. TB/Heater Bay Vent.

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	261000.K1.07	
	Importance Rating	3.1	

Proposed Question: See attached RO 097

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A/C/D – Neither of these is the correct gaseous release point for the AEGTS Train A.

Technical Reference(s): SDM M15	Reference Attached: __X__ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-005-M15 OBJ B

Question Source:
Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New ___X__

Question History:
Previous NRC Exam _____
Previous Quiz / Test _____

Question Cognitive Level:
Memory or Fundamental Knowledge __X__
Comprehension or Analysis _____

10 CFR Part 55 Content:
55.41 __X__
55.43 _____

Comments (Why is it an upper level question):

QUESTION RO 098

As the Reactor Operator, you observe the following Standby Liquid Control System (SLC) Storage Tank Level (C41-R601) indications on panel H13-P601:

- Low Range Level (0-2000 gallons) indication lowers for one to two seconds then returns to normal; this occurs approximately every 90 seconds.
- High Range Level (1800-5300 gallons) indication is always steady.

Which one of the following describes the expected operator action to be performed, if any, based on the response of the SLC Storage Tank Level indications, including the bases for this action?

A. No action is required since the SLC Pump storage tank low level trip utilizes the High Range Level Transmitters.

B. No action is required since this is a normal system occurrence due to the self-test feature of the Redundant Reactivity Control System (C22).

C. Inform the Shift Manager that SLC System operability should be evaluated since the SLC Pump storage tank low level trip utilizes the Low Range Level Transmitters and the Low Range Level indication is erratic.

D. Inform the Shift Manager that SLC System operability should be evaluated since the High Range Level indication is not responding to the self-test feature of the Redundant Reactivity Control System (C22).

ANSWER: B.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	211000G2.1.33	
	Importance Rating	3.4	

Proposed Question: See attached RO 098

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A – The SLC pump trip on storage tank low level utilizes the low range level transmitters.

C – The SLC System is operable; this is a normal indication for the low range level indication.

D – The RRCS self-test feature does not effect the high range level indication.

Technical Reference(s): SDM C41	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-000-C41 OBJ E&F

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	_____	
	Comprehension or Analysis	__C__	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):
Requires the student to comprehend the given SLC indications and determine if SLC system operability should be evaluated.

QUESTION RO 099

Control Room HVAC (M25/26) Train 'B' is operating in the Normal mode.

Which one of the following describes the response of the Control Room HVAC Train 'B' supply dampers when the operator places the Control Room HVAC Train 'B' Mode Select Switch (M25-S8) to the EMERG RCIRC position?

Assume no other operator actions are taken.

	CONT RM HVAC B OTBD SUPP DMPR M25-F010B	**CONT RM HVAC B INBD SUPP DMPR M25-F020A**
A.	Remains Open	Remains Open
B.	Remains Open	Closes
C.	Closes	Remains Open
D.	Closes	Closes

ANSWER: C.

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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	290003.K1.03	
	Importance Rating	2.8	

Proposed Question: See attached RO 099

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A / B – The F010B damper closes.

D – The F020A only automatically closes on an automatic emergency recirculation initiation signal. When the emergency recirc mode is manually initiated by the operator using the Train B mode select switch, then F020A remains open.

Technical Reference(s): SDM M25/26	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-M25/26 OBJ E

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X___	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):

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QUESTION RO 100

A fire occurred in pre-staged outage material located in the general vicinity of the SJAE Rooms and the Steam Packing Exhauster. The Fire Brigade has extinguished the fire.

Which one of the following ventilation systems should be evaluated for the potential impact on its filter exhaust components due to the fire?

A. Turbine Power Complex Ventilation System (M42).

B. Turbine Building Ventilation System (M35).

C. Off-Gas Building Exhaust System (M36).

D. Heater Bay Ventilation System (M41).

ANSWER: C.

Perry Nuclear Power Plant
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Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	2	
	K/A#	600000.AA2.17	
	Importance Rating	3.1	

Proposed Question: See attached RO 100

Proposed Answer: See attached

Explanation (Why the distractors are incorrect):

A & D – These systems are not affected by a fire in the Hotwell Pump area.

B – The Turbine Building Ventilation System does not contain have an exhaust subsystem.

Technical Reference(s): ONI-P54; SDM M36	Reference Attached: __X___ (Attach if not previously provided)

Proposed references to be provided to applicants during examination:

NONE

Learning Objective (As available): OT-3036-002-M36 OBJ B

Question Source:	Bank #	_____	
	Modified Bank #	_____	(Note changes or attach parent)
	New	__X__	
Question History:	Previous NRC Exam	_____	
	Previous Quiz / Test	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__	
	Comprehension or Analysis	_____	
10 CFR Part 55 Content:	55.41	__X__	
	55.43	_____	

Comments (Why is it an upper level question):