

NRC EXAM - 2009

QUESTION RO 1

The plant is operating at 72% Reactor Power with 64 Mlbs/hr Core Flow, when the following occurs:

- B Reactor Recirculation Pump TRIPPED
- ONI-C51 Unplanned Change in Reactivity or Power has been entered
- Reactor Power initially lowered to 40%, and is varying between 34% and 46%

The oscillations in Reactor Power are a result of ____.

- A. thermal hydraulic instability resulting from High Rod Line and Low Core Flow
- B. core flow variation resulting from unstable vortex formation in the A Recirculation Loop Risers
- C. jet pump cavitation resulting from the increased A Reactor Recirculation Loop Flow and reduced Feedwater Flow
- D. the combined effects of lowering RPV Water Level and Feedwater Temperature following a sudden power reduction

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #		
	K/A#	2.1.7	
	Importance Rating	4.4	
<p>K&A: Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretation.</p>			
<p>Explanation: Answer A – > 10% oscillation in Reactor Power is indicative of Thermal Hydraulic Instability</p> <p>B – incorrect - plausible, <10% peak to peak variation in APRM Power, at rated power, is associated with Bistable Core Flow. At reduced power conditions, APRM Power variation due to Bistable Core Flow is NOT expected.</p> <p>C – incorrect - plausible, When B Recirculation Pump tripped, BOTH Feedwater Flow lowered AND A Recirculation Loop Flow increased. Cavitation Downshift will protect Recirculation Pumps at <22% Feedwater Flow for 15 seconds. This value is not reached by power lowering to 34%.</p> <p>D – incorrect - plausible, reduction in RPV Level (from steam programming) and a reduction in Feedwater Temperature (from lower Turbine Load) occur as a result of a downpower, but this will not result in a 12% variation in Reactor Power.</p>			
Technical Reference(s): ONI-C51 Rev 24		Reference Attached: ONI-C51 Guidelines, PWR to Flow Maps	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C51AP_OPRM L.5			
Question Source:	<div style="display: flex; justify-content: space-between;"> Bank # Perry Audit 2007-1 </div> <div style="display: flex; justify-content: space-between;"> Modified Bank # </div> <div style="display: flex; justify-content: space-between;"> New </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> Memory or Fundamental Knowledge </div> <div style="display: flex; justify-content: space-between;"> Comprehension or Analysis X </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> 55.41 X </div> <div style="display: flex; justify-content: space-between;"> 55.43 </div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 2

Which one of the following is a responsibility of the Reactor Operator during core alterations?

- A. Monitor SRM count rate and period
- B. Authorize commencement of fuel movements
- C. Verify required refueling surveillances are current
- D. Ensure the Control Room fuel tag board is maintained current

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #		
	K/A#	2.1.44	
	Importance Rating	3.9	
<p>K&A: Knowledge of RO duties in the Control Room during fuel handling such as responding to alarms from the fuel handling area, communications with the fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.</p>			
<p>Explanation: Answer A – per IOI-9 monitor core reactivity B and D – incorrect - are the responsibility of the Unit Supervisor. C – incorrect - is the responsibility of the Refueling Supervisor and the Fuel Handling Supervisor.</p>			
Technical Reference(s): IOI-009 Rev. 16		Reference Attached: IOI-9 page 7	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3035-12(LP)-E			
Question Source:	Bank # Vermont Yankee 2005 Modified Bank # New		
Question History:	Previous NRC Exam: Vermont Yankee 2005		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 2			

NRC EXAM - 2009

QUESTION RO 3

A reactor startup is in progress. Conditions just prior to startup and current conditions are as follows:

SRM readings:	Prior to	Current
SRM A	10 CPS	90 CPS
SRM B	8 CPS	70 CPS
SRM C	9 CPS	75 CPS
SRM D	11 CPS	95 CPS

Moderator Temperature was 148°F and is currently 149°F

Reactor is not critical and one gang of rods remain to be withdrawn to complete Group 1. Control Rod movements have been in gang mode using continuous withdraw.

In order to withdraw the remaining gang in the current step, what must you do per IOI-001 Cold Startup, concerning the method of control rod withdrawal?

- A. Change to single notch withdrawal from position 04 to 30.
- B. Change to single notch withdrawal and individual mode only from position 04 to 30.
- C. Continue with current method of rod motion until count rate for single notch withdrawal is reached. Then perform single notch withdrawal from position 04 to 30.
- D. Continue with current method of rod motion until count rate for single notch withdrawal is reached. Then perform single notch withdrawals in individual mode only from position 04 to 30.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #		
	K/A#	2.2.2	
	Importance Rating	4.6	
<p>K&A: Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.</p>			
<p>Explanation: Answer C – single notch withdrawal is required when 10 times the SRM reading is reached, can withdrawal in either gang or individual. A and B – incorrect - do not have to change to single notch until SRM count rate is times 10 the original value, all count rates are less than times 10. D – incorrect - requirement is single notch withdraw in gang or individual</p>			
Technical Reference(s): IOI-001 Rev 26, NOP-OP-1004 Rev 5, and FTI-B002 Rev 9		Reference Attached: IOI-1 pp 20-22, NOP-OP-1004 p 21 and FTI-B002 p 3	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3046-03(LP)-A.1.A			
Question Source:	Bank # Modified Bank # Monticello 2002 New		
Question History:	Previous NRC Exam Monticello 2002		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 4

You are performing a configuration control audit walk-down in the plant and observe a blue and red striped tag on a component in the overhead.

This is a/an _____.

- A. ILRT/LLRT Tag
- B. Information Tag
- C. Test Tag
- D. Temporary Modification Tag

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #		
	K/A#	2.2.14	
	Importance Rating	3.9	
K&A: Knowledge of the process for controlling equipment configuration or status.			
<p>Explanation: Answer C - per NOP-OP-1001 a Test Tag is red and blue stripped</p> <p>All tags are utilized at Perry</p> <p>A – incorrect – an ILRT/LLRT Tag is buff (manila) in color with a red and a blue stripe</p> <p>B – incorrect – a Info Tag is buff (manila) in color</p> <p>D – incorrect – a Temp Mod tag is a whit tag with yellow stripes.</p>			
Technical Reference(s): NOP-OP-1001 Rev 9		Reference Attached: NOP-OP-1001 pp 6 & 8	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-03-E			
Question Source:		Bank # Modified Bank # New X	
Question History:		Previous NRC Exam	
Question Cognitive Level:		Memory or Fundamental Knowledge X Comprehension or Analysis	
10 CFR Part 55 Content:		55.41 X 55.43	
Comments: Level of Difficulty = 2			

NRC EXAM - 2009

QUESTION RO 5

The plant is shutdown for a refueling outage.

Plant conditions are as follows:

- The Mode switch is locked in the Shutdown position
- Reactor water temperature is 90°F
- RHR A is operating in Shutdown Cooling Mode
- Upper Pools are drained
- Vessel disassembly is in progress

The plant will enter MODE 5 Refuel, when _____.

- A. the Mode switch is placed in Refuel
- B. a reactor head bolt is de-tensioned
- C. the last reactor head bolt is de-tensioned
- D. the first reactor head bolt is de-tensioned and the Mode switch is placed in Refuel

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #		
	K/A#	2.2.35	
	Importance Rating	3.6	
K&A: Ability to determine Technical Specification Mode of Operation			
<p>Explanation: Answer B - per tech spec definitions Mode 5 is entered when one or more head bolts are detensioned</p> <p>A – incorrect – mode switch position does not matter if all head bolts are fully tensioned</p> <p>C – incorrect – one or more are de-tensioned we enter Mode 5</p> <p>D – incorrect – do not need to place mode switch in Refuel to be in Mode 5</p>			
Technical Reference(s): Technical Specification	Reference Attached: IOI-9 pg 36 and 37, Tech Spec pg 1.0-5 and 1.0-7		
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-02-B			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank #</div> <div>Modified Bank #</div> <div>New</div> </div> <div style="text-align: right; margin-top: 5px;">X</div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge</div> <div>Comprehension or Analysis</div> </div> <div style="text-align: right; margin-top: 5px;">X</div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41</div> <div>55.43</div> </div> <div style="text-align: right; margin-top: 5px;">X</div>		
Comments: Level of Difficulty = 2.5			

NRC EXAM - 2009

QUESTION RO 6

The plant is in a refueling outage. You have just exited a contaminated area.

In accordance with NOP-WM-7017 Contamination Control Program, the following personnel monitoring must be completed upon exiting a contaminated area:

- A. perform only a hand and foot frisk
- B. perform only a whole body frisk
- C. perform a hand and foot frisk then proceed to the nearest PCM-1B
- D. perform a whole body frisk then proceed to the nearest PCM-1B

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO						
	Tier #	3							
	Group #								
	K/A#	2.3.5							
	Importance Rating	2.9							
<p>K&A: Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.</p>									
<p>Explanation: Answer C – NOP-WM-7017 requires a hand & foot frisk and the nearest PCM-1B or just a PCM-1B</p> <p>A– incorrect – partial correct – still requires PCM monitoring</p> <p>B – incorrect – partial correct for exiting a DPZ or a CA</p> <p>D – incorrect – correct for exiting a DPZ</p>									
Technical Reference(s): NOP-WM-7017 Rev 1		Reference Attached: NOP-WM-7017 page 12							
Proposed references to be provided to applicants during examination: None									
Learning Objective (As available): OT-3039-04									
Question Source:	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Bank #</td> <td></td> </tr> <tr> <td>Modified Bank #</td> <td></td> </tr> <tr> <td>New</td> <td style="text-align: center;">X</td> </tr> </table>			Bank #		Modified Bank #		New	X
Bank #									
Modified Bank #									
New	X								
Question History:	Previous NRC Exam								
Question Cognitive Level:	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Memory or Fundamental Knowledge</td> <td style="text-align: center;">X</td> </tr> <tr> <td>Comprehension or Analysis</td> <td></td> </tr> </table>			Memory or Fundamental Knowledge	X	Comprehension or Analysis			
Memory or Fundamental Knowledge	X								
Comprehension or Analysis									
10 CFR Part 55 Content:	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">55.41</td> <td style="text-align: center;">X</td> </tr> <tr> <td>55.43</td> <td></td> </tr> </table>			55.41	X	55.43			
55.41	X								
55.43									
Comments: Level of Difficulty = 3									

NRC EXAM - 2009

QUESTION RO 7

The following plant conditions exist:

- A Plant transient has occurred
- Fuel Damage has occurred
- Unknown radiation levels exists in all buildings along the Containment wall due to shine
- Area Radiation Monitors (D21) in Containment read between 5 and 10 Rem/hr
- Area Radiation Monitors (D21) in the Aux Bldg read between 500 mRem/hr and 1 Rem/hr
- Post Accident Area Radiation Monitors (D19) in Containment read between 5 and 10 Rem/hr
- No current or valid RWP exists for these conditions
- Operations personnel must immediately enter an area to mitigate the transient and protect plant equipment

In accordance with plant and fleet procedures, the minimum requirement for an operator to enter the Aux Building is:

The concurrence of the RP Technician-In-Charge, authorization from the ____ and coverage provided by a Radiation Protection shift technician.

- A. RP Supervisor
- B. Unit Supervisor
- C. RP Manager
- D. Shift Manager

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #		
	K/A#	2.3.13	
	Importance Rating	3.4	
<p>K&A: Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high radiation areas, aligning filters, etc.</p>			
<p>Explanation: Answer D - PAP-0114 authorization required by shift manager and NOP-WM-7002 requires an RP tech</p> <p>A & B – incorrect – no requirement for Unit Supervisor or RP Supervisor to authorize entry</p> <p>C – incorrect – no requirement for RP Manager to authorize entry</p>			
Technical Reference(s): PAP-0114 & NOP-WM-7002		Reference Attached: PAP-0114 page 5 & NOP-WM-7002 page 6	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-04			
Question Source:	Bank # Perry Audit 2007-2 Modified Bank # New		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 8

Which of the following correctly describes the requirement for use of Alarm Response Instructions in accordance with PAP-0528 Procedure Use and Adherence Supplemental Items?

- A. Immediate Actions shall be performed in order.
Subsequent Actions should be performed in order, but may be performed out of sequence as conditions dictate.
- B. Immediate Actions may be performed in any order.
Subsequent Actions shall be performed in order, but may be performed out of sequence with concurrence of a second SRO.
- C. Immediate Actions may be performed in any order.
Subsequent Actions should be performed in order, but may be performed out of sequence as conditions dictate.
- D. Immediate Actions shall be performed in order.
Subsequent Actions shall be performed in order, but may be performed out of sequence with concurrence of a second SRO.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #		
	K/A#	2.4.31	
	Importance Rating	4.2	
K&A: Knowledge of annunciator alarms, indications, or response procedures.			
Explanation: Answer C - per PAP-0528 A – incorrect – In order is not the requirement for Immediate B – incorrect – concurrence of second SRO is required if not performing some or all steps for an alarm response instruction D – incorrect – In order is not the requirement for Immediate and concurrence of second SRO is required if not performing some or all steps for an alarm response instruction			
Technical Reference(s): PAP-0528 Rev 4		Reference Attached: PAP-0528 p 10	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-02 B			
Question Source:	Bank # Modified Bank # Perry 2005 New		
Question History:	Previous NRC Exam Perry 2005		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 9

A Site Area Emergency is in progress. The TSC and OSC are operational and Emergency Coordinator duties have been transferred to the TSC.

You are the on shift Field Supervisor, you and all on shift Non-Licensed Operators (NLOs) have been relocated to the OSC.

Which of the following describes your responsibility as the Operations Field Supervisor assigned to the OSC staff?

- A. TSC Operations Manager is now in control of on shift NLOs, with you acting as interface with the Shift Manager.
- B. TSC Operations Advisor is now in control of on shift NLOs, with you acting as interface with the Shift Manager.
- C. OSC Coordinator is now in control of on shift NLOs, with you acting as interface with the Shift Manager.
- D. Shift Manager retains control of on shift NLOs, with you acting as interface with the OSC Coordinator.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #		
	K/A#	2.4.39	
	Importance Rating	3.9	
K&A: Knowledge of RO responsibilities in emergency plan implementation.			
<p>Explanation: Answer D - Shift Manager retains control and the Field Supervisor interfaces with the OSC coordinator.</p> <p>A – incorrect – TSC OPS Manager is the emergency coordinator, but on shift NLO control remains with the Shift Manager</p> <p>B – incorrect – TSC OPS Advisor (off shift unit supervisor or shift manager) maintains open lines of communication with the shift manager and unit supervisor but does not control or dispatch any personnel.</p> <p>C – incorrect – OSC coordinator is responsible for all maintenance teams but on shift NLOs control remains with Shift Manager</p>			
Technical Reference(s): EPI-A6 Rev 21, EPI-A7 Rev 19		Reference Attached: EPI-A6 p 13 and EPI-A7 pp 11 and 15	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): EPL-0804-01-19			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 2.5			

NRC EXAM - 2009

QUESTION RO 10

Which of the following would be considered a credible, imminent security threat?

- A. A Homeland Security Advisory System (HSAS) Declaration of a RED Threat level specific to Perry Nuclear Power Plant.
- B. A security intrusion has been detected in the protected area and the intruder appears to be armed and moving in a hostile manner.
- C. A notification from the site security force that an armed attack or other hostile action is occurring within the owner controlled area.
- D. The Security Shift Supervisor has determined a security threat exists that is likely to result in a direct challenge in 60 minutes.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	3	
	Group #		
	K/A#	2.4.28	
	Importance Rating	3.2	
K&A: Knowledge of procedures relating to a security event (non-safeguards information).			
<p>Explanation: Answer B - per ONI-P56-2</p> <p>A – incorrect – credible, not imminent</p> <p>C – incorrect – emergency classification of an ALERT is required. credible, not imminent</p> <p>D – incorrect – credible, not imminent</p>			
Technical Reference(s): ONI-P56-2 Rev 14		Reference Attached: ONI-P56-2 pg 3	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3035-16(LP) A.2			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3.5			

NRC EXAM - 2009

QUESTION RO 11

The plant was operating at 85% power and 100% loadline, with all APRMs Operable. When APRM 'A' failed upscale. AFDL in Control alarm was received, the immediate actions for AFDL in control were completed.

The plant is currently stable with the following conditions:

- JP LOOP TOT FLOW (Loop A) B33-R612A reading 27 Mlb/hr
- JP LOOP TOT FLOW (Loop B) B33-R612B reading 36 Mlb/hr
- TOTAL JP FLOW B33-R613(R) reading 63 Mlb/hr

Which of the following Technical Specification(s) if any is (are) required to be entered?

- A. 3.4.1 Recirculation Loops Operating and 3.4.2 Flow Control Valves.
- B. Only 3.4.1 Recirculation Loops Operating.
- C. Only 3.4.2 Flow Control Valves.
- D. No Technical Specification entry is required for the listed conditions.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295001	2.2.42
	Importance Rating	3.9	
K&A: Ability to recognize system parameters that are entry level conditions for technical specifications.			
Partial or complete loss of forced core flow circulation			
Explanation: Answer D A, B and C – incorrect – for TS 3.4.1 loop jet pump flows are within 10% for a core flow less than 70%, we are outside the 5% mismatch however core flow is not greater than 70%. For TS 3.4.2 it is a common misconception that when FCV are locked up that they are Inoperable, locking FCVs is the requirement for TS 3.4.2 for Inoperable FCVs.			
Technical Reference(s): PRI-TSR Technical Specification Rounds Rev 2-15-2008, Technical Specification 3.4.1 and 3.4.2.		Reference Attached: PRI-TSR pg 20, Power to Flow Map and TS 3.4.1 pg 3.4.1 and 3.4.4	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-08-B			
Question Source:		Bank # Modified Bank # New X	
Question History:		Previous NRC Exam	
Question Cognitive Level:		Memory or Fundamental Knowledge Comprehension or Analysis X	
10 CFR Part 55 Content:		55.41 X 55.43	
Comments: Level of Difficulty = 4.5			

NRC EXAM - 2009

QUESTION RO 12

The plant is operating at 100% power with the following conditions:

- EH1114 Preferred Source Breaker Closed
- EH1213 Alternate Preferred Source Breaker Closed
- EH1303 Preferred Source Breaker Closed
- Division 1 Diesel Generator is Out of Service

A plant transient has occurred and the following plant conditions exist:

- Interbus Transformer LH-1-A Lockout due to Sudden Pressure Relay actuation
- Drywell Pressure 1.7 psig

Which one of the following is the correct power source lineup for the Divisional Buses?

	Division 1 Bus	Division 2 Bus	Division 3 Bus
A.	Alternate Preferred	Alternate Preferred	Alternate Preferred
B.	De-energized	Alternate Preferred	De-energized
C.	De-energized	Alternate Preferred	Diesel Generator
D.	De-energized	Diesel Generator	Diesel Generator

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295003	AK1.04
	Importance Rating	3.1	
K&A: Knowledge of the operational implications of the following concepts as they apply to Partial or Complete Loss of AC Power: Electrical bus divisional separation			
Partial or Complete loss of AC Power			
<p>Explanation: Answer C - LH-1-A is lost so power to the Div 1 and 3 buses is lost. Div 1 DG is oos so it will not carry Div 1, Div 3 DG powers the Div 3 bus</p> <p>A – incorrect – if the alternate preferred breakers would automatically close in, like the L Bus alternate Breakers</p> <p>B – incorrect – If they think Div 3 DG will not close onto the Bus due to the LH-1-A Lockout</p> <p>D – incorrect – The misconception that on a LOCA the DGs carry there respective Bus</p>			
Technical Reference(s): ARI-H13-P877-01 Rev 8, ARI-H13-P601-16 Rev 9, ARI-H13-P870-1 Rev 6, and SOI-R43 Rev 32		Reference Attached: ARI-H13-P877-01 pg 19, ARI-H13-P601-16 pg 15, ARI-H13-P870-1 pg 82, SOI-R43 pg 22	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-R43_48 D.10, 11 and 12			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank # Modified Bank # New</div> <div style="text-align: right;">X</div> </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge Comprehension or Analysis</div> <div style="text-align: right;">X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41 55.43</div> <div style="text-align: right;">X</div> </div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 13

The plant is operating at 100% power with the following conditions:

- Loadline at 102%
- OPRMs Operable
- Division 1 DG fully loaded for surveillance testing

The following alarms come in on 1H13-P877-01:

- DIV 1 DC BRKR CONTROL POWER LOSS
- DC BUS ED-1-A UNDERVOLTAGE

Voltage indication on 1R42-R021 for Bus ED-1-A is 0 Volts DC.

Which one of the following actions is required under these conditions?

- A. Insert Cram Rods
- B. Insert a manual reactor scram
- C. Place Division 1 DG in Pull to Lock
- D. Shutdown ESW Pump A by taking 1P45-C001A to STOP

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295004	AK2.03
	Importance Rating	3.3	
K&A: Knowledge of the interrelations between Partial or Complete Loss of DC Power and the following: DC Bus Loads			
Partial or Complete Loss of DC PWR			
<p>Explanation: Answer B - Both RR pumps trip to Off and with mode switch in run it is required to scram the reactor</p> <p>A – Required for RR pump downshift to slow, Both RR pumps trip off</p> <p>C – DG can not be shutdown with Pull-to-Lock due to loss of DC control power</p> <p>D – ESW Pump A must be secured at the breaker due to loss of DC control power</p>			
Technical Reference(s): ONI-R42-1 Rev 6, ARI-H13-P877-01 Rev 8, ONI-C51 Rev 24		Reference Attached: ONI-R42-1 pg 4 and 8 ARI-H13-P877-01 pg 65 and 77, ONI-C51 pg 6	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-R42-F			
Question Source:	Bank # Modified Bank # RQL-0977 New		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 14

Why does a Main Generator Lockout Relay 86 device trip also directly cause a Main Turbine trip?

- A. Prevent stator overheating
- B. Provide overspeed protection
- C. Prevent last stage bucket erosion
- D. Provide reverse power protection

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295005	AK3.04
	Importance Rating	3.2	
K&A: Knowledge of the reasons for the following responses as they apply to Main Turbine Generator Trip: Main generator trip			
Main Turbine Generator Trip			
Explanation: Answer B – per SDM A – incorrect - stator heating is a main turbine trip after generator runback C – incorrect - low power and high vacuum operation concern and not with a generator 86 trip D – incorrect - reason for output breaker opening on a turbine trip			
Technical Reference(s): SDM 41/51		Reference Attached: SDM p 29	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-N41_N51 D.2			
Question Source:	Bank # Modified Bank # New	Perry 2007-2	
Question History:	Previous NRC Exam	Perry 2007-2	
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

QUESTION RO 15

Following a reactor scram the following conditions exist:

- The Reactor Mode Switch is in SHUTDOWN
- RFPT's A and B are in Auto on Setpoint Setdown
- RPV Water Level is +185 inches
- RPV Pressure is at 800 psig

The RFPT's are:

- A. feeding with speed stable
- B. feeding with speed decreasing
- C. not feeding with speed stable
- D. not feeding with speed decreasing

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295006	AA1.02
	Importance Rating	3.9	
K&A: Ability to operate and/or monitor the following as they apply to SCRAM: Reactor water level control system			
SCRAM			
<p>Explanation: Answer A - when RFPTs are in auto and not feeding, pump speed will be 3300 rpm and discharge pressure will be about 825#. Once Reactor pressure lowers less than 825# the RFPTs will start to feed but speed remains at 3300 rpm (low speed stop)</p> <p>B – incorrect - speed will not decrease in auto less than 3300 rpm</p> <p>C and D – incorrect - will be feeding with pressure less than 825#</p>			
Technical Reference(s): OAI-1703 Rev 1, SOI-C34 Rev 24		Reference Attached: SOI-C34 p 34, OAI-1703 p 23	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3035-01(LP)-A.1, OT-Combined-N27 C.6			
Question Source:	Bank # Perry 2007-1 Modified Bank # New		
Question History:	Previous NRC Exam Perry 2007-1		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 16

Plant control is at the Division 1 Remote Shutdown Panel. Reactor level control is on RCIC at the Remote Shutdown Panel.

The following Plant conditions exist:

- Drywell Pressure 2.5 psig
- Reactor Pressure 50 psig

What is the current status of RCIC valves?

- RCIC TURB EXHAUST SHUTOFF – 1E51-F068
- RCIC EXH VAC BRKR SECOND ISOL – 1E51-F077
- RCIC EXH VAC BRKR FIRST ISOL – 1E51-F078

	1E51-F068	1E51-F077	1E51-F078
A.	OPEN	OPEN	CLOSED
B.	CLOSED	CLOSED	CLOSED
C.	CLOSED	CLOSED	OPEN
D.	OPEN	OPEN	OPEN

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295016	AA2.05
	Importance Rating	3.8	
K&A: Ability to determine and/or interpret the following as they apply to Control Room Abandonment: Drywell Pressure			
Control Room Abandonment			
<p>Explanation: Answer D - All 3 valves are controlled from the Div 1 RSD. Auto closure is bypassed when control is at RSD.</p> <p>A – F078 is Div 2 valve but, control is at the Div 1 panel</p> <p>B - Auto closure is bypassed for all 3 valves when control is at RSD</p> <p>C – Misunderstanding of correct division and control location</p>			
Technical Reference(s): IOI-11 Rev 16		Reference Attached: IOI-11 pp 25 & 26	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C61 E.1			
Question Source:		Bank # Modified Bank # New X	
Question History:		Previous NRC Exam	
Question Cognitive Level:		Memory or Fundamental Knowledge Comprehension or Analysis X	
10 CFR Part 55 Content:		55.41 X 55.43	
Comments: Level of Difficulty = 4			

NRC EXAM - 2009

QUESTION RO 17

A plant startup is in progress per IOI-0001 Cold Startup. The following plant conditions exist:

- Reactor Pressure 200 psig
- Main Condenser Vacuum 5.0" HgA
- Mechanical Vacuum Pumps are being cycled to maintain vacuum
- Main Turbine Warming is in progress
- Motor Feed Pump is providing Reactor Level Control
- TBCC Pumps A and B operating

The following alarm is received on 1H13-P870, TBCC PUMP SUCTION FLOW LOW. The operator checks TBCC Parameters at 1H13-P870 with the following indications:

- TBCC A Pump red and green light off, no discharge pressure indicated.
- TBCC B Pump red light on, green light off, no discharge pressure indicated.
- TBCC C Pump red light off, green light on, no discharge pressure indicated.

Per ONI-P44 Loss of Turbine Building Closed Cooling, an ____.

- A. immediate scram may not be necessary because the Main Turbine is not in operation
- B. immediate scram may not be necessary because reactor pressure control is on the Bypass Valves
- C. immediate scram is required because the Motor Feed Pump is providing level control
- D. immediate scram is required because the Mechanical Vacuum Pumps can not be cycled

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295018	2.4.11
	Importance Rating	4.0	
K&A: Knowledge of abnormal condition procedures.			
Partial or Total Loss of CCW			
<p>Explanation: Answer A - per ONI-P44 an immediate scram may not be necessary if the turbine is not in operation. TBCC C Pump available for start.</p> <p>B – Generator stator is main concern, not related pressure control on bypass valves.</p> <p>C - TBCC supplies Motor Feed Pump Bearing, immediate scram is not required</p> <p>D – TBCC supplies Mechanical Vacuum Pumps ONI-P44 does not allow operation of Vacuum pumps, immediate scram is not required</p>			
Technical Reference(s): ONI-P44 Rev 7		Reference Attached: ONI-P44 pp 4 and 5	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-P44 J			
Question Source:	<div style="display: flex; justify-content: space-between;"> Bank # Modified Bank # </div> <div style="display: flex; justify-content: space-between;"> New X </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> Memory or Fundamental Knowledge Comprehension or Analysis </div> <div style="display: flex; justify-content: space-between;"> X </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> 55.41 X </div> <div style="display: flex; justify-content: space-between;"> 55.43 </div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 18

The plant is operating at 100% power. The Safety Related Instrument Air Compressor is out of service due to a failed motor.

Air pressures as indicated on ADS AIR STRG PRESS, 1P57-R026A and 1P57-R026B, are 155 psig and slowly decreasing.

Which of the following describes the impact on the ADS valves if air pressure continues to decrease, including the action that will restore air pressure to the normal band?

The ADS valves will become Inoperable when air pressure decreases to __ (1) __; Restore air pressure using __ (2) __.

- | | (1) | (2) |
|----|------------|------------------------|
| A. | < 90 psig | Instrument Air (P52) |
| B. | < 90 psig | portable air cylinders |
| C. | < 150 psig | Instrument Air (P52) |
| D. | < 150 psig | portable air cylinders |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295019	AK2.18
	Importance Rating	3.5	
K&A: Knowledge of the interrelations between Partial or Complete Loss of Instrument Air and the following: ADS plant specific			
Partial or Total Loss of Instrument Air			
<p>Explanation: Answer D, correct pressure of 150 psig and correct method</p> <p>A – wrong pressure, wrong method to restore; P52 can be connected but not enough pressure to restore Operability.</p> <p>B – wrong pressure – 90 psig is INOP pressure for MSIV's</p> <p>C – wrong method</p>			
Technical Reference(s): SOI-P57 Rev 10 ARI-1H13-P601-19 Rev 8		Reference Attached: SOI-P57 p 3 ARI-1H13-P601-19 pp 125, 126, 129 and 130	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-P57 J.1			
Question Source:	Bank # Modified Bank # New	RQL-15766	
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 19

The plant is in Mode 4.

- An RHR Pump is running in Normal Shutdown Cooling Mode

Which of the following would require entry into ONI-E12-2 Loss of Decay Heat Removal?

- A. RHR Pump flow of 6800 gpm and Reactor Level of 255"
- B. RHR Pump flow of 7100 gpm and no Reactor Recirculation Pump operating
- C. RHR Pump flow of 3000 gpm, Reactor Level 245" and a Reactor Recirculation Pump operating
- D. RHR Pump flow of 6900 gpm, Reactor Level of 245", and no Reactor Recirculation Pump operating

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295021	AK2.07
	Importance Rating	3.1	
K&A: Knowledge of the interrelations between Loss of Shutdown Cooling and the following: Reactor Recirculation			
Loss of Shutdown Cooling			
Explanation: Answer D , entry condition 1.2.3 of ONI-E12-2 A and B – incorrect - RHR Pump flow can be less than 7000 if a means of circulation is available either natural or forced. C – incorrect - RHR Pump flow of >7000 is a means of circulation and does not require entry to ONI-E12-2			
Technical Reference(s): ONI-E12-2 Rev 19		Reference Attached: ONI-E12-2 p 4	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3035-11(LP) A.1			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 20

Describe the safety function of the Containment Ventilation Exhaust Radiation Monitor (D17-K609A-D) during a refueling outage.

Detect a gross failure of the fuel cladding which _____.

- A. only actuates the Containment Evacuation alarm to ensure personnel doses remain below 10CFR20 limits
- B. only actuates the Containment and Drywell Evacuation alarms to ensure personnel doses remain below 10CFR20 limits
- C. only causes the CVDWP (M14) System to isolate to ensure off-site doses remain below 10CFR20 and 10CFR100 limits
- D. causes the CVDWP (M14) System to isolate to ensure off-site doses remain below 10CFR20 and 10CFR100 limits and actuates the Containment Evacuation alarm to ensure personnel doses remain below 10CFR20 limits

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295023	AK3.03
	Importance Rating	3.3	
K&A: Knowledge of the reasons for the following responses as they apply to Refueling Accidents: Ventilation Isolation			
Refueling Accidents			
<p>Explanation: Answer C - Per Tech Spec Bases detect gross failure of fuel cladding and to ensure offsite doses remain below limits of 10CFR20 and 100</p> <p>A, B and D – Does not cause Evacuation alarms, other D17 monitors in Containment and Drywell cause the evacuation alarm</p>			
Technical Reference(s): Technical Specifications Bases 3.3.6.1, ARI-H13-P680-7 Rev 13		Reference Attached: Technical Specifications Bases 3.3.6.1 p 3.3-149, ARI-H13-P680-7 pp 27 and 28	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-07 G			
Question Source:	Bank # Perry 2001 & Perry Audit 2007-2 Modified Bank # New		
Question History:	Previous NRC Exam Perry 2001		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 21

A High Drywell pressure signal is received due to a small high pressure leak in the drywell. The Annulus Exhaust Gas Treatment System (AEGTS) has responded correctly. The operator places the AEGT Fan B control switch to the STOP position, then returns the control switch to the STANDBY position.

Which of the following describes the response of the AEGTS Fan B to this action?

- A. The fan stops and cannot automatically restart on any signal.
- B. The fan stops but will automatically start if a low flow is sensed across AEGTS Fan A.
- C. The fan stops then will restart due to the presence of the High Drywell pressure signal.
- D. The fan remains running because the High Drywell pressure signal cannot be overridden.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295024	EA1.20
	Importance Rating	3.5	
K&A: Ability to operate and/or monitor the following as they apply to High Drywell Pressure: Standby Gas Treatment: plant specific			
High Drywell Pressure			
<p>Explanation: Answer B - the fan will auto start on low flow, low flow switch bypasses the LOCA override.</p> <p>A – will start on low flow from running fan</p> <p>C – Fan will not restart, LOCA override locks in until reset</p> <p>D – LOCA override is provided</p>			
Technical Reference(s): SOI-M15 Rev 8 208-0109 sheet 1 and 2		Reference Attached: SOI-M15 p 11 and System Description Manual M15 pp 13 and 26	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-M15 D.1			
Question Source:	Bank # RQL-1240 Modified Bank # New		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 2.5			

NRC EXAM - 2009

QUESTION RO 22

With the plant operating at 100% power, the following plant transient occurs:

- Main Turbine trip on Loss of Vacuum
- Vacuum 21" HgA and degrading
- Reactor Pressure peaked at 1120 psig

Reactor pressure is still lowering from the initial pressure transient and one SRV remains open in AUTO. NO operator action has been taken.

Reactor pressure is _____.

- A. 970 psig
- B. 950 psig
- C. 930 psig
- D. 910 psig

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO												
	Tier #	1													
	Group #	1													
	K/A#	295025	EA2.01												
	Importance Rating	4.3													
K&A: Ability to determine and/or interpret the following as they apply to High Reactor Pressure: Reactor Pressure															
High Reactor Pressure															
<p>Explanation: Answer C - the last LLS SRV closes at 926 psig</p> <p>A, B and D – 6 LLS SRVs would open on the transient, four close at 946 psig, one closes at 936 and the last LLS SRV closes at 926 psig, the only possible Reactor pressure is 930 psig with only one valve open.</p>															
Technical Reference(s): 302-608, ONI-B21-1 Rev 8, ARI-H13-P601-19 Rev 8		Reference Attached: SDM B21/N11 p 21, ARI-H13-P601-19 p 57 and ONI-B21-1 p 10													
Proposed references to be provided to applicants during examination: None															
Learning Objective (As available): OT-Combined-B21_N11 E.1															
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question Source:</td> <td style="width: 20%;">Bank #</td> <td style="width: 10%;"></td> <td style="width: 40%;"></td> </tr> <tr> <td></td> <td>Modified Bank #</td> <td></td> <td></td> </tr> <tr> <td></td> <td>New</td> <td style="text-align: center;">X</td> <td></td> </tr> </table>				Question Source:	Bank #				Modified Bank #				New	X	
Question Source:	Bank #														
	Modified Bank #														
	New	X													
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question History:</td> <td style="width: 70%;">Previous NRC Exam</td> </tr> </table>				Question History:	Previous NRC Exam										
Question History:	Previous NRC Exam														
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question Cognitive Level:</td> <td style="width: 70%;">Memory or Fundamental Knowledge</td> </tr> <tr> <td></td> <td>Comprehension or Analysis X</td> </tr> </table>				Question Cognitive Level:	Memory or Fundamental Knowledge		Comprehension or Analysis X								
Question Cognitive Level:	Memory or Fundamental Knowledge														
	Comprehension or Analysis X														
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">10 CFR Part 55 Content:</td> <td style="width: 70%;">55.41 X</td> </tr> <tr> <td></td> <td>55.43</td> </tr> </table>				10 CFR Part 55 Content:	55.41 X		55.43								
10 CFR Part 55 Content:	55.41 X														
	55.43														
Comments: Level of Difficulty = 2															

NRC EXAM - 2009

QUESTION RO 23

The following plant conditions exist:

- The Mode Switch is in STARTUP
- The plant is operating at 2% reactor power

Per Technical Specifications, a reactor scram is required at a minimum Suppression Pool temperature of ____ to prevent the pool from being heated beyond design limits.

- A. 101°F
- B. 106°F
- C. 111°F
- D. 121°F

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295026	2.1.27
	Importance Rating	3.9	
K&A: Knowledge of System Purpose and/or Function.			
Suppression Pool High Water Temperature			
<p>Explanation: Answer C – TS 3.6.2.1 LCO</p> <p>A – incorrect – conservative temp for scrambling</p> <p>B – incorrect - 105 F is limit for testing that adds heat to pool at greater than 1% power</p> <p>D – incorrect – temperature for depressurizing the RPV to < 200 psig.</p>			
Technical Reference(s): TS 3.6.2.1		Reference Attached: TS 3.6.2.1 pp 36-38	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-10 B			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank #</div> <div>Modified Bank #</div> <div>New</div> </div> <div style="text-align: right; margin-top: -10px;">X</div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge</div> <div>Comprehension or Analysis</div> </div> <div style="text-align: right; margin-top: -10px;">X</div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41</div> <div>55.43</div> </div> <div style="text-align: right; margin-top: -10px;">X</div>		
Comment: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 24

A Loss of Coolant Accident (LOCA) has occurred. From the conditions below, select the set of conditions that would preclude the use of one or more ranges of RPV Water Level Instrumentation to determine reactor water level.

- | | | |
|----|-------------------------|---------|
| A. | Reactor Pressure | 0 psig |
| | Drywell Temperature | 190 °F |
| | Containment Temperature | 215 °F |
| B. | Reactor Pressure | 0 psig |
| | Drywell Temperature | 190 °F |
| | Containment Temperature | 145 °F |
| C. | Reactor Pressure | 50 psig |
| | Drywell Temperature | 205 °F |
| | Containment Temperature | 160 °F |
| D. | Reactor Pressure | 50 psig |
| | Drywell Temperature | 160 °F |
| | Containment Temperature | 210 °F |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295027	EK1.02
	Importance Rating	3.0	
K&A: Knowledge of the operational implications of the following concepts as they apply to High Containment Temperature (Mark III Containment Only): Reactor water level measurement: Mark-III			
High Containment Temperature (Mark III Containment Only)			
<p>Explanation: Answer A – Containment temperature is greater than RPV saturation temperature for 0 psig.</p> <p>B, C, & D – Drywell & Containment temperatures are less than RPV saturation pressure/temperature</p>			
Technical Reference(s): EOP Bases Rev 0		Reference Attached: EOP Bases pp 45-47	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-01-D			
Question Source:	<div style="display: flex; justify-content: space-between;"> Bank # Perry 2001-1 </div> <div style="display: flex; justify-content: space-between;"> Modified Bank # </div> <div style="display: flex; justify-content: space-between;"> New </div>		
Question History:	<div style="display: flex; justify-content: space-between;"> Previous NRC Exam Perry 2001-1 </div>		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> Memory or Fundamental Knowledge </div> <div style="display: flex; justify-content: space-between;"> Comprehension or Analysis X </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> 55.41 X </div> <div style="display: flex; justify-content: space-between;"> 55.43 </div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 25

The plant is operating in EOP-2 Primary Containment Control. The following alarms have been received:

- DRYWELL AVERAGE TEMP A HI – H13-P601-20
- DRYWELL AVERAGE TEMP B HI – H13-P601-18

The Unit Supervisor has directed the BOP Operator to operate all available Drywell cooling and restore NCC to Drywell coolers.

A loss of Instrument Air to the containment and drywell occurs.

The Drywell Ventilation system will respond to the loss of air as follows:

- A. The DW Cooler NCC Supply Valves fail to the A coils
- B. The DW Cooler NCC Supply Valves fail to the B coils
- C. The DW Cooler NCC Supply Valves fail as is to the on-service coils
- D. The Lower Drywell Cooler NCC Bypass Valve fails as is

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295028	EK2.04
	Importance Rating	3.6	
K&A: Knowledge of the interrelations between High Drywell Temperature and the following: Drywell ventilation			
High Drywell Temperature			
Explanation: Answer B – per ONI-P52 A & C – incorrect – valve fails to B coils on loss of air D – Incorrect - Lower Drywell Cooler NCC Bypass Valve is an MOV			
Technical Reference(s): ONI-P52 Rev 13 & OT-Combined-M13 lesson plan		Reference Attached: ONI-P52 p 32 & OT-Combined-M13 lesson plan pp 7 & 8	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT- COMBINED M13 D.2			
Question Source:	Bank # Modified Bank # New	INL-0631	
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comment: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 26

Why is a water level of 7.25 feet in the Suppression Pool a concern to the Control Room Operators when operating in the EOPs?

- A. Operation at this level could cause air entrapment at the RCIC suction.
- B. Operation at this level will uncover the Suppression Pool suction strainer.
- C. Operation at this level could result in exceeding the stress limits of the SRV tail pipe.
- D. Operation at this level will cause rapid pressurization of Containment during an SRV lift.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295030	EK3.03
	Importance Rating	3.6	
K&A: Knowledge of the reasons for the following responses as they apply to Low Suppression Pool Water Level: RCIC Operation: plant specific			
Low Suppression Pool Water Level			
Explanation: Answer A - Caution #3 form EOPs B – Suction strainer remains underwater until less than 5 feet C – SRV Tail pipe stress limit is a high suppression pool level concern D – SRV quenchers are uncovered at 5.25 feet			
Technical Reference(s): EOP Bases Rev 0		Reference Attached: EOP Bases p 48	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-01 B.2			
Question Source:	Bank # Perry 2001-2 Modified Bank # New		
Question History:	Previous NRC Exam Perry 2001-2		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 27

Given the following conditions:

- The plant was initially operating at 100% power
- Drywell Pressure is 1.7 psig and rising
- HPCS Injection Valve E22-F004 was overridden closed
- RFPTs tripped on RPV Level 8

Which of the following describes the response of the HPCS Injection Valve E22-F004?

When RPV Level 2 is reached HPCS Injection Valve E22-F004 will _____.

- A. automatically open
- B. open when control switch is taken to open
- C. automatically open after depressing the RX WTR LVL High Seal In Reset
- D. only open when both the RX WTR LVL High Seal In Reset is depressed and the control switch is taken to open

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295031	EA1.04
	Importance Rating	4.3	
K&A: Ability to operate and/or monitor the following as they apply to Reactor Low Water Level: High Pressure Core Spray: plant specific			
Reactor Low Water Level			
<p>Explanation: Answer B - when level 2 is reached manual override is bypassed when control switch is taken to open</p> <p>A – would be correct if valve was not overridden closed</p> <p>C – depressing reset is the same as reaching level 2</p> <p>D – do not have to take both actions, when level two is reached level 8 seal in is reset allowing injection.</p>			
Technical Reference(s): 208-0065 sheet 3 and 14		Reference Attached: 208-0065 sheet 14	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-E22A E.3			
Question Source:	Bank # Modified Bank # Perry 2005 New		
Question History:	Previous NRC Exam Perry 2005		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 28

The following conditions exist after a Reactor Scram:

- Reactor Level 178", stabilized in auto on the Motor Feed Pump
- Reactor Pressure 940 psig on the bypass valves
- Reactor Power 6%
- No EOP-2, Primary Containment Control entry conditions

The Unit Supervisor is preparing to give the Reactor Operator a level band from EOP-001A, Level Power Control.

What should the Reactor Operator expect as the top of the level band for current plant conditions?

- A. 219"
- B. 150"
- C. 100"
- D. level at which APRMs are downscale

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	295037	EA2.02
	Importance Rating	4.1	
K&A: Ability to determine and/or interpret the following as they apply SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown: Reactor Water Level			
SCRAM condition present and Reactor Power above APRM Downscale or Unknown			
<p>Explanation: Answer C - Top of level band with APRMs not downscale and RPV level above 100" initially</p> <p>A – Top of level band with APRMs downscale</p> <p>B – Typical Level Band Number but usually the lower number for example 150 to 219"</p> <p>D – APRMs not downscale and Containment Problems T23 Entry conditions</p>			
Technical Reference(s): EOP Bases Rev 0		Reference Attached: EOP Bases p 32	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-11 D.3			
Question Source:	Bank # Perry 2007-2 Audit Modified Bank # New		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 2.5			

NRC EXAM - 2009

QUESTION RO 29

The plant is operating at 100% power with Annulus Exhaust Gas Treatment System Fan B in operation.

The following conditions are present:

- A steam leak in the annulus
- ALERT and HIGH alarms on ANN EXH B GAS Radiation Monitor

Inform the Unit Supervisor that entry into EOP(s) __ (1) __ is required.
Monitor __ (2) __ Plant Vent Radiation Monitor to determine if a release is occurring.

Reference Provided: EPI-A1 Attachment 1 and 2

	(1)	(2)
A.	Secondary Containment Control EOP-03 only	Unit 1
B.	Secondary Containment EOP-03 and Radioactivity Release Control EOP-05	Unit 1
C.	Secondary Containment Control EOP-03 only	Unit 2
D.	Secondary Containment EOP-03 and Radioactivity Release Control EOP-05	Unit 2

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO												
	Tier #	1													
	Group #	1													
	K/A#	295038	2.4.2												
	Importance Rating	4.5													
K&A: Knowledge of system setpoints, interlocks and automatic actions associated with EOP entry conditions.															
High Off-Site Release Rate															
Explanation: Answer C – correct vent and EOP-03 Secondary Containment only required. A & B – incorrect plant vent D – no entry to EOP-05 required															
Technical Reference(s): EOP-03 Rev 0 Drawing 912-605 and EPI-A1 rev 19		Reference Attached: EOP-03 Bases page 7 & 8 Drawing 912-605													
Proposed references to be provided to applicants during examination: EPI-A1 Attachment 2															
Learning Objective (As available): OT-Combined M15-B.1 & 3402-17B															
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question Source:</td> <td style="width: 20%;">Bank #</td> <td style="width: 20%;"></td> <td style="width: 30%;"></td> </tr> <tr> <td></td> <td>Modified Bank #</td> <td></td> <td></td> </tr> <tr> <td></td> <td>New</td> <td></td> <td style="text-align: center;">X</td> </tr> </table>				Question Source:	Bank #				Modified Bank #				New		X
Question Source:	Bank #														
	Modified Bank #														
	New		X												
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question History:</td> <td style="width: 70%;">Previous NRC Exam</td> </tr> </table>				Question History:	Previous NRC Exam										
Question History:	Previous NRC Exam														
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question Cognitive Level:</td> <td style="width: 40%;">Memory or Fundamental Knowledge</td> <td style="width: 30%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td>Comprehension or Analysis</td> <td></td> <td style="text-align: center;">X</td> </tr> </table>				Question Cognitive Level:	Memory or Fundamental Knowledge				Comprehension or Analysis		X				
Question Cognitive Level:	Memory or Fundamental Knowledge														
	Comprehension or Analysis		X												
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">10 CFR Part 55 Content:</td> <td style="width: 20%;">55.41</td> <td style="width: 20%;">X</td> <td style="width: 30%;"></td> </tr> <tr> <td></td> <td>55.43</td> <td></td> <td></td> </tr> </table>				10 CFR Part 55 Content:	55.41	X			55.43						
10 CFR Part 55 Content:	55.41	X													
	55.43														
Comments: Level of Difficulty = 3															

NRC EXAM - 2009

QUESTION RO 30

The plant is operating at 100% power. The following conditions exist:

- Unit Supervisor has entered ONI-S11 HI/LOW VOLTAGE
- Bus 1 voltage is 343 Kv
- Main Generator output is 1290 Mwe
- Main Generator power factor is 0.98 lagging
- Main Generator is carrying 200 Mvar

System Control has asked Perry to raise Main Generator voltage to increase Bus 1 voltage to 345 Kv. Raising Main Generator voltage will cause __ (1) __ and __ (2) __.

(1)

(2)

- | | | |
|----|------------------|---------------------------------|
| A. | VARs to decrease | power factor closer to unity |
| B. | VARs to decrease | power factor further from unity |
| C. | VARs to increase | power factor closer to unity |
| D. | VARs to increase | power factor further from unity |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	1	
	K/A#	700000	AK1.01
	Importance Rating	3.3	
K&A: Knowledge of the operational implications of the following concepts as they apply to Generator Voltage and Electric Grid Disturbances: Definition of terms: volts, watts, amps, VARs, power factor			
Generator Voltage and Electric Grid Disturbances			
Explanation: Answer D , when lagging, raising volts will further increase VARs and power factor will go further from 1.0 or unity A and B – VARs decrease when voltage is raised and the generator is leading, toward 0 C – closer to unity if leading when voltage is raised, closer to 1.0			
Technical Reference(s): None		Reference Attached: Power Factor Triangle	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-N41_N51 D.6			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 31

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

The Main Turbine Bypass Valves will automatically close at __ (1) __ to prevent over pressurizing the Main Condenser __ (2) __.

- | | (1) | (2) |
|----|-----------|--|
| A. | 20" HgA | to prevent damage to the Main Turbine |
| B. | 20" HgA | to prevent damaging the condenser thereby preventing a release of radioactive material |
| C. | 21.5" HgA | to prevent damage to the Main Turbine |
| D. | 21.5" HgA | to prevent damaging the condenser thereby preventing a release of radioactive material |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	2	
	K/A#	295002	AK3.04
	Importance Rating	3.4	
K&A: Knowledge of the reasons for the following responses as they apply to Loss of Main Condenser Vacuum: Bypass valve closure			
Loss of Main Condenser Vacuum			
<p>Explanation: Answer B - Bypass Valves close at 20" HgA to prevent over pressurizing the main condenser and rupture of the diaphragm installed to protect the turbine exhaust hood, thereby preventing a release of radioactive material.</p> <p>A – Correct pressure, this is the reason for a the main turbine trip on degrading vacuum</p> <p>C and D – this is the MSIV closure pressure</p>			
Technical Reference(s): ONI-N62 Rev 8, Tech Spec Bases 3.3.6.1		Reference Attached: ONI-N62 p 4, Tech Spec Bases p B 3.3-143	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-N32_C85 K.8			
Question Source:	Bank # Perry 2002 Modified Bank # New		
Question History:	Previous NRC Exam Perry 2002		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 2			

NRC EXAM - 2009

QUESTION RO 32

The following plant conditions exist:

- The plant is operating at 50% power
- RFPT A and the Motor Feed Pump are operating in AUTO on DFWCS
- RFPT B is being returned to service following repair
- B RFP DISCH VALVE 1N27-F100B is open
- The Reactor Recirculation System FCVs indicate 70% open

A speed signal problem with RFPT A causes RFPT A to go to the low speed stop.

A Reactor scram occurs on Level 3.

Motor Feed pump has restored RPV level from 135”.

Which one of the following describes the current status of the Reactor Recirculation System?

- A. The Reactor Recirculation Pumps are Off and the FCVs indicate 17% open.
- B. The Reactor Recirculation Pumps are Off and the FCVs indicate 70% open.
- C. The Reactor Recirculation Pumps are in Slow speed and the FCVs indicate 17% open.
- D. The Reactor Recirculation Pumps are in Slow speed and the FCVs indicate 70% open.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	2	
	K/A#	295009	AA1.03
	Importance Rating	3.0	
K&A: Ability to operate or monitor the following as they apply to Low Reactor Water Level: Recirculation System: plant specific			
Low Reactor Water Level			
Explanation: Answer D – transfer to slow on Level 3 with no FCV runback. A & B – off is valid for Level 2 signal C – valid for FCV runback with RFPT trip and Level 4			
Technical Reference(s): ARI-H13-P680-005 rev 10, ONI-C71 rev 12		Reference Attached: ARI-H13-P680-005 p 27, ONI-C71 p 5,	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined_B33 E.12			
Question Source:	Bank # Modified Bank # New	Perry 2003	
Question History:	Previous NRC Exam	Perry 2003	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	X	
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 33

The plant is at 100% power. The following conditions exist:

- Drywell Pressure is 0.6 psig and rising
- Drywell Average Temperature 135 °F and rising
- Drywell Air Cooler Drain Flow Rate is 4 gpm and rising
- Alarm DRYWELL AIR COOLERS DRAIN FLOW HI is locked in

Drywell Air Cooler drain flow instrument measures flow from which of the following coolers?

- A. Lower, Middle, and Upper
- B. only Lower and Middle
- C. only Lower and Upper
- D. only Middle and Upper

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	295010	AA2.05
	Importance Rating	3.3	
K&A: Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE: Drywell air cooler drain flow: BWR 6			
HIGH DRYWELL PRESSURE			
<p>Explanation: Answer D – upper and middle coolers are monitored by instrument per drawing 302-961</p> <p>A, B, & C incorrect – misconception of which coolers are monitored</p>			
Technical Reference(s): ARI-H13-P601 rev 12, Drawing 302-961		Reference Attached: ARI-H13-P601 p 59, Drawing 302-961	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined_E31 C.1			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank # Modified Bank # New</div> <div>X</div> </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge Comprehension or Analysis</div> <div>X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41 55.43</div> <div>X</div> </div>		
Comments: Level of Difficulty = 2.5			

NRC EXAM - 2009

QUESTION RO 34

Given the following plant conditions following a LOCA:

- Drywell Temperature 460°F
- Containment Temperature 205°F
- Reactor Pressure 930 psig
- Only on-scale level instrument is Post Accident Monitoring Fuel Zone

What is the minimum Fuel Zone indicated level available?

Reference Provided: EOP-SPI Supplement Figure #2b

- A. minus 139 inches
- B. minus 143 inches
- C. minus 146 inches
- D. minus 150 inches

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO												
	Tier #	1													
	Group #	2													
	K/A#	295011	G2.2.37												
	Importance Rating	3.6													
K&A: Ability to determine operability and/or availability of safety related equipment.															
High Containment Temperature															
Explanation: Answer A graph interpretation B – use incorrect DW axis C – use incorrect containment temperature line D – use incorrect containment temperature line and incorrect DW axis															
Technical Reference(s): EOP-SPI Supplement rev 0		Reference Attached: EOP-SPI Supplement p 5													
Proposed references to be provided to applicants during examination: EOP-SPI Supplement page 5															
Learning Objective (As available): 3402-01.D															
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question Source:</td> <td style="width: 20%;">Bank #</td> <td style="width: 20%;"></td> <td style="width: 30%;"></td> </tr> <tr> <td></td> <td>Modified Bank #</td> <td></td> <td></td> </tr> <tr> <td></td> <td>New</td> <td></td> <td style="text-align: center;">X</td> </tr> </table>				Question Source:	Bank #				Modified Bank #				New		X
Question Source:	Bank #														
	Modified Bank #														
	New		X												
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question History:</td> <td style="width: 70%;">Previous NRC Exam</td> </tr> </table>				Question History:	Previous NRC Exam										
Question History:	Previous NRC Exam														
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question Cognitive Level:</td> <td style="width: 40%;">Memory or Fundamental Knowledge</td> <td style="width: 30%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td>Comprehension or Analysis</td> <td></td> <td style="text-align: center;">X</td> </tr> </table>				Question Cognitive Level:	Memory or Fundamental Knowledge				Comprehension or Analysis		X				
Question Cognitive Level:	Memory or Fundamental Knowledge														
	Comprehension or Analysis		X												
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">10 CFR Part 55 Content:</td> <td style="width: 20%;">55.41</td> <td style="width: 20%; text-align: center;">X</td> <td style="width: 30%;"></td> </tr> <tr> <td></td> <td>55.43</td> <td></td> <td></td> </tr> </table>				10 CFR Part 55 Content:	55.41	X			55.43						
10 CFR Part 55 Content:	55.41	X													
	55.43														
Comments: Level of Difficulty = 2															

NRC EXAM - 2009

QUESTION RO 35

Which of the following conditions by itself assures adequate core cooling by maintaining minimum steam cooling pressure during an ATWS with RPV level below TAF?

	# of open SRVs	RPV Pressure
A.	8	300 psig
B.	6	150 psig
C.	4	250 psig
D.	2	500 psig

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	1	
	Group #	2	
	K/A#	295015	AK1.04
	Importance Rating	3.8	
K&A: Knowledge of the operational implications of the following concepts as they apply to Incomplete Scram: Reactor Pressure Plant-Specific			
Incomplete Scram			
<p>Explanation: Answer A - MSCP is >140 psig with 8 SRVs open</p> <p>B, C, & D – incorrect – plausible for other MSCP's based on other SRV numbers</p>			
Technical Reference(s): EOP-001A Bases document rev 0 & EOP Bases rev 0		Reference Attached EOP-001A Bases document pp 34, 40, 46, & 48 and EOP Bases document p 40	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-01.C.1			
Question Source:	Bank # Modified Bank # Cooper 2003 New		
Question History:	Previous NRC Exam Cooper 2003		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis x		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 4.5			

NRC EXAM - 2009

QUESTION RO 36

The plant is operating in ONI-R10 Loss of AC Power, due to a loss of off-site power (LOOP). The following conditions exist:

- Divisional DGs are carrying their respective buses
- RCIC is providing level and pressure control

Then the RCIC Steam Supply Pressure-Low Instrument 1E31-N065B fails low.

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

- 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.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	295020	AK2.07
	Importance Rating	3.4	
K&A: Knowledge of the interrelations between Inadvertent Containment Isolation and the following: RCIC Plant-Specific			
Inadvertent Containment Isolation			
Explanation: Answer C – Division 2 valve isolates A – Correct in a total loss of AC when isolations are bypassed B – Receives close signal from level 8 D – If 'A' instrument E31-N685A failed, this valve closes			
Technical Reference(s): PDB-I005 rev 7		Reference Attached: PDB-I005 p 30	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-E51 D.3			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 37

Plant startup is in progress. The following conditions exist:

- Mode Switch in STARTUP
- Feed water shift in progress from RFBPs on Low flow controller to the Motor Feed Pump
- CRD 'A' pump is out of service for bearing replacement
- CRD 'B' pump trips on over current
- 2 accumulator faults come in on control rods at position 48

Per TS 3.1.5 Control Rod Scram Accumulators, the following is correct with respect to current plant conditions?

- A. 2 accumulators @ 1600 psig would require the Mode Switch to be placed in SHUTDOWN immediately
- B. 1 accumulator @ 1500 psig and 1 accumulator @ 1600 psig would require the Mode Switch to be placed in SHUTDOWN immediately
- C. 2 accumulators @ 1600 psig would require the Mode Switch to be placed in SHUTDOWN within 20 minutes
- D. 1 accumulator @ 1500 psig and 1 accumulator @ 1600 psig would require the Mode Switch to be placed in SHUTDOWN within 20 minutes

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	295022	AA2.01
	Importance Rating	3.5	
K&A: Ability to determine and/or interpret the following as they apply to LOSS OF CRD PUMPS: Accumulator Pressure			
Loss of CRD Pumps			
<p>Explanation: Answer B per TS 3.1.5 required action for reactor pressure < 600 psig. (RFBP to MFP shift @ 250 psig max)</p> <p>A – Per TS 3.1.5, 1520 psig – ONI-C11-1 uses 1600psig for readability</p> <p>C – incorrect – correct if > 600 psig</p> <p>D – incorrect – action for declaring rod slow</p>			
Technical Reference(s): TS 3.1.5, ONI-C11-1 Rev 10		Reference Attached: TS 3.1.5 pp 3.1-15 to 17, ONI-C11-1 p 5	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-05.D			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank # Modified Bank # New</div> <div>Perry static 09-455</div> </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge Comprehension or Analysis</div> <div>X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41 55.43</div> <div>X</div> </div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 38

RHR B has initiated in the Low Pressure Coolant Injection mode on a high drywell pressure signal.

The RHR B pump is then over-ridden off by momentarily taking its control switch to STOP. The amber over ride light is now illuminated.

Which of the following will restart the RHR B pump?

- A. RPV water level lowering below Level 1
- B. RHR B pump control switch taken to START
- C. The high drywell pressure signal clears then re-initiates
- D. Arm and depress LPCI B & C MANUAL INITIATION push button

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	203000	A4.11
	Importance Rating	3.7	
K&A: Ability to manually operate and/or monitor in the control room: Indicating lights and alarms			
RHR/LPCI: Injection Mode (Plant Specific)			
Explanation: Answer B – Pump control switch will always start the pump A – incorrect – once over ridden off, Level 1 will not reinitiate C – incorrect – this is correct for HPCS logic D – incorrect – once over ridden off, will not reinitiate, however, Containment Spray A/D will work.			
Technical Reference(s): 208-055 sheet 18		Reference Attached: 208-055 sheet 18	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-E12-H.1.a			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comment: Level of Difficulty = 4			

NRC EXAM - 2009

QUESTION RO 39

The plant is in a refueling outage with RHR 'A' loop in Refuel Mode Shutdown Cooling.

Which of the following conditions would require immediate entry into ONI-E12-2 Loss Of Shutdown Cooling?

- A. An inadvertent trip of level instrument B21-N680A, RPV Water Level – Low Level 3
- B. Fuel movement stopped while investigating an unexpected increase in upper pool level
- C. NUMAC E31-N700A point A6-4, RHR Equip Area 1 Ambient Temp reading 250 °F
- D. An unexplained increase in Drywell sump level reported by the Radwaste Control Room Operator

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	205000	2.4.4
	Importance Rating	4.5	
K&A: Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.			
Shutdown Cooling			
Explanation: Answer C – correct per ONI-E12-2, will cause an isolation of SDC sys. A – requires 2 channels for isolation B – unexpected decrease in level is entry condition D - this is a potential entry condition – need evaluation/confirmation (not immediate)			
Technical Reference(s): ONI-E12-2 rev 19 and PDB-I005 rev 8		Reference Attached: ONI-E12-2 pp 4 & 5 and PDB-I005 rev 8	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3035-11(LP) A.1			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 40

By design, what is the minimum number of LPRM inputs for Oscillation Power Range Monitor (OPRM) Operability?

- A. 1
- B. 2
- C. 4
- D. 14

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	215005	K1.04
	Importance Rating	3.6	
K&A: Knowledge of the physical connections and/or cause-effect relationships between OSCILLATION POWER RANGE MONITOR SYSTEM and the following: LPRM Channels			
OPRMs			
<p>Explanation: Answer A – Per SOI-C51 (APRM) OPRMs require 1 LPRM input for Operability</p> <p>B, C, and D – incorrect – valid numbers for APRM/LPRM Operability</p>			
Technical Reference(s): SOI-C51(APRM) Rev 8 & Lesson Plan OT-Combined-C51-APRM_OPRM		Reference Attached: SOI-C51 (APRM) p 19 & Lesson Plan OT-Combined-C51-APRM_OPRM p 18	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C51-AP_OPRM-J.2			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank #</div> <div>Modified Bank #</div> <div>New</div> </div> <div style="text-align: right; margin-top: -10px;">X</div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge</div> <div>Comprehension or Analysis</div> </div> <div style="text-align: right; margin-top: -10px;">X</div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41</div> <div>55.43</div> </div> <div style="text-align: right; margin-top: -10px;">X</div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 41

Low Pressure Core Spray (LPCS) is running in Test Mode at 3000 gpm.

A loss of Bus ED-1-A occurs.

The Low Pressure Core Spray System _____.

- A. can be manually aligned to inject from the Control Room
- B. will automatically realign on a LOCA signal
- C. will trip and be unavailable for operation
- D. will continue to operate in Test Mode

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	209001	K2.03
	Importance Rating	2.9	
K&A: Knowledge of electrical power supplies to the following: Initiation logic			
LPCS			
<p>Explanation: Answer D – loss of initiation logic power causes system to fail as-is</p> <p>A – loss of ED-1-A prevents opening the injection valve from the Control Room</p> <p>B - loss of ED-1-A prevents initiation</p> <p>C – no control power – pump breaker stays closes.</p>			
Technical Reference(s): PDB-H001 rev 1 & 208-060 Series		Reference Attached: PDB-H001 pp 7 & 9 and dwgs 208-060 sheets 4 & 11	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-E21-E.1			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank #</div> <div>Modified Bank #</div> <div>New</div> </div> <div style="text-align: right; margin-top: -10px;">X</div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge</div> <div>Comprehension or Analysis</div> <div>X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41</div> <div>X</div> <div>55.43</div> </div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 42

Plant conditions are as follows:

- Mode 2, plant startup is in progress
- Reactor Pressure 600 psig
- Reactor Level 195"

An inadvertent initiation of Low Pressure Core Spray (LPCS) occurs.

What immediate action is required? And predict if injection occurred.

- A. Shut the LPCS Injection Valve; LPCS injection occurred.
- B. Shut the LPCS Injection Valve; LPCS injection did not occur.
- C. Stop the LPCS Pump; LPCS injection occurred.
- D. Stop the LPCS Pump; LPCS injection did not occur.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	209001	A3.03
	Importance Rating	3.5	
K&A: Ability to monitor automatic operation of the LOW PRESSURE CORE SPRAY system including: System Pressure.			
LPCS			
<p>Explanation: Answer D – no injection above 450 psig. ONI-E12 Action to stop the pump</p> <p>A and B – required action is to stop LPCS pump</p> <p>C - no injection above 450 psig</p> <p>600 psig is LPCS Injection valve permissive</p>			
Technical Reference(s): ONI-E12-1 rev 8		Reference Attached: ONI-E12-1 pp 3, 5, & 6	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3035-15(LP) A.1			
Question Source:	Bank # Modified Bank # Perry 2007-2 New		
Question History:	Previous NRC Exam Perry 2007-2		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 2			

NRC EXAM - 2009

QUESTION RO 43

The plant is in Mode 1. The following conditions exist:

- High Pressure Core Spray (HPCS) is Inoperable and in Secured Status
- HPCS Injection Valve 1E22-F004 is down powered and tagged closed

If an ATWS occurs, when Standby Liquid Control (SLC) is initiated, SLC will inject because it connects __ (1) __. If required, the Alternate Boron Injection System (ABI) will be __ (2) __ for injection.

	(1)	(2)
A.	downstream of the HPCS MANUAL SHUTOFF VLV, 1E22-F036	unavailable
B.	between the HPCS INJ CHECK VLV, 1E22-F005 and the HPCS MANUAL SHUTOFF VLV, 1E22-F036	unavailable
C.	downstream of the HPCS MANUAL SHUTOFF VLV, 1E22-F036	available
D.	between the HPCS INJ CHECK VLV, 1E22-F005 and the HPCS MANUAL SHUTOFF VLV, 1E22-F036	available

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	209002	K3.02
	Importance Rating	3.3	
K&A: Knowledge of the effect that a loss or malfunction of HIGH PRESSURE CORE SPRAY system (HPCS) will have on the following: Standby Liquid Control System (plant specific)			
HPCS			
<p>Explanation: Answer A - SLC connects downstream of the manual shutoff valve. ABI connects upstream of the injection valve.</p> <p>B & D – wrong connection location</p> <p>C – ABI connects upstream of the injection valve</p>			
Technical Reference(s): Drawing 302-701		Reference Attached: 302-701	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C41-I.5			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank #</div> <div>Modified Bank #</div> <div>New</div> <div>X</div> </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge</div> <div>X</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Comprehension or Analysis</div> <div></div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41</div> <div>X</div> </div> <div style="display: flex; justify-content: space-between;"> <div>55.43</div> <div></div> </div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 44

High Pressure Core Spray (HPCS) is in Standby with its suction on the Condensate Storage Tank (CST). The following events occur:

- A LOCA is in progress
- CST Level Instrument 1E22-N654C, COND STG TK LVL – LOW fails low

HPCS Suction source _____.

- A. will shift to the Suppression Pool, and can be shifted to the CST with the control switches on H13-P601
- B. will shift to the Suppression Pool and can not be shifted to the CST with the control switches on H13-P601
- C. will not shift to the Suppression Pool, but can be shifted to the Suppression Pool with the control switches on H13-P601
- D. will not shift to the Suppression Pool, and can not be shifted to the Suppression Pool with the control switches on H13-P601

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	209002	K6.02
	Importance Rating	3.4	
K&A: Knowledge of the effect that a loss or malfunction of the following will have on the High Pressure Core Spray System (HPCS): Condensate Storage Tank Water Level			
HPCS			
<p>Explanation: Answer A - shifts to pool on low CST level - override to CST is always available</p> <p>B – override to CST is always available</p> <p>C & D – auto transfer to Suppression Pool will occur on a low CST level during a LOCA</p>			
Technical Reference(s): PDB-I0005 rev 7, dwg 208-065 series		Reference Attached: PDB-I0005 p 12 and dwg 208-065 sheet 12	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-E22-E.3			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank #</div> <div>Modified Bank #</div> </div> <div style="display: flex; justify-content: space-between;"> <div>New</div> <div>X</div> </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge</div> <div>Comprehension or Analysis</div> </div> <div style="display: flex; justify-content: space-between;"> <div></div> <div>X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41</div> <div>X</div> </div> <div style="display: flex; justify-content: space-between;"> <div>55.43</div> <div></div> </div>		
Comments: Level of Difficulty = 3.5			

NRC EXAM - 2009

QUESTION RO 45

An ATWS is in progress. The Unit Supervisor has directed you to start Standby Liquid Control (SLC).

When SLC Pump 'B' switch is taken to START, the following sequence occurs:

- A Squib Valve fires
1G33-F001 RWCU SUCT FM CNTMT INBD ISOL starts to close
1C41-F001B SLC PMP SUCT VALVE B starts to open
SLC B PUMP starts when 1C41-F001B indicates intermediate position
- B Squib Valve fires
1G33-F001 RWCU SUCT FM CNTMT INBD ISOL starts to close
1C41-F001B SLC PMP SUCT VALVE B starts to open
SLC B PUMP starts when 1C41-F001B is full open
- C Squib Valve fires
1C41-F001B SLC PMP SUCT VALVE B starts to open
SLC B PUMP starts when 1C41-F001B is full open
1G33-F001 RWCU SUCT FM CNTMT INBD ISOL starts to close after SLC B PUMP starts
- D Squib Valve fires
1C41-F001B SLC PMP SUCT VALVE B starts to open
SLC B PUMP starts when 1C41-F001B indicates intermediate position
1G33-F001 RWCU SUCT FM CNTMT INBD ISOL starts to close after SLC B PUMP starts

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	211000	K4.08
	Importance Rating	4.2	
K&A: Knowledge of STANDBY LIQUID CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following: System initiation upon operation of SBLC control switch.			
STANDBY LIQUID CONTROL			
Explanation: Answer B - squib valves, G33-F001 and C41-F001B stroke sequence are initiated off the start switch. The pump start is initiated off the full open limit switch of the C41-F001B A – pump starts when C41-F001B full open C & D G33-F001 closing is off the SLC B pump switch not the pump start			
Technical Reference(s): SOI-C41 rev 14 Dwgs 208-013 sheets 12 & 26 and 208-030 sheets 4 & 6		Reference Attached: SOI-C41 pp 7 & 8, Dwgs 208-013 sheets 12 & 26 and 208-030 sheets 4 & 6	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C41-E.1			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 46

The following conditions exist:

- The RO observes one of the RPS CH A&C SCRAM SOL VALVES indicating lights on H13-P680 (lights are located above each scram pushbutton) for RPS channel 'A' is out due to a blown fuse.
- All RPS 'B' Scram Pilot Solenoid Valve lights are energized.
- Several minutes later, Average Power Range Monitor (APRM) 'F' fails upscale.

Which of the following describes the direct effect to the plant for these conditions?

- A. Full Scram
- B. only 1/2 scram 'B' RPS channel
- C. 1/2 of the control rods fully insert
- D. 1/4 of the control rods fully insert

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	212000	K5.02
	Importance Rating	3.3	
K&A: Knowledge of the operational implications of the following concepts as they apply to REACTOR PROTECTION SYSTEM: Specific logic arrangements.			
RPS			
Explanation: Answer D – only ¼ of rods will insert – ½ scram signal on channel A and ¼ scram signal on B channel of RPS A – misconception that 1 light out is ½ scram signal B – will not get ONLY ½ scram on B channel C – misconception that that this situation would cause ½ rods to insert			
Technical Reference(s): SVI-C71-T0051 rev 5, drawing 208-040 sheet 10		Reference Attached: SVI-C71-T0051 p 14, drawing 208-040 sheet 10	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C71-I.2			
Question Source:	Bank # Columbia 2003 Modified Bank # New		
Question History:	Previous NRC Exam Columbia 2003		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 2.5			

NRC EXAM - 2009

QUESTION RO 47

The REACTOR MODE SWITCH in STARTUP/STANDBY.

Select the one statement that describes a condition in which the Intermediate Range Monitor (IRM) detector(s) is(are) functioning properly.

- A. IRM G and IRM A detectors both fail upscale and a reactor scram occurs
- B. IRM A indicates 84/125 of scale on range 7 and no rod block signal occurs
- C. IRM B indicates 122/125 of scale on range 6, a rod block and a half-scram occurs
- D. IRM C detector drawer mode switch is placed in STANDBY and only a rod block occurs

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	215003	K6.04
	Importance Rating	3.0	
K&A: Knowledge of the effect that a loss or malfunction of the following will have on the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM: Detectors			
IRM			
Explanation: Answer C – rod block and scram occurs at 120/125 of scale A – IRM's A & G on same RPS channel (A) ½ scram only B - rod block occurs at 80/125 of scale D – switch out of Operate is a scram and a rod block			
Technical Reference(s): ARI-H13P680-06 rev 7		Reference Attached: ARI-H13P680-06 pp 23 & 31	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C51_IRM D.3			
Question Source:	Bank # Modified Bank # Perry INL-0724 New		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty 3.5			

NRC EXAM - 2009

QUESTION RO 48

The following conditions exist:

- Plant startup is in progress.
- Intermediate Range Monitors (IRM) are all on Range 5
- All IRMs are Operable

Subsequently, a Rod Block signal is generated due to IRM C __ (1) __ voltage.

In order to continue plant startup, the Unit Supervisor directs you take action to clear the Rod Block signal using __ (2) __.

	(1)	(2)
A.	High	SOI-C11 (RCIS) ROD CONTROL AND INFORMATION SYSTEM
B.	High	SOI-C51 (IRM) INTERMEDIATE RANGE MONITORING SYSTEM
C.	Low	SOI-C51 (IRM) INTERMEDIATE RANGE MONITORING SYSTEM
D.	Low	SOI-C11 (RCIS) ROD CONTROL AND INFORMATION SYSTEM

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	215003	A2.0.2
	Importance Rating	3.5	
K&A: Ability to (a) predict the impacts of the following on the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: IRM inop condition			
IRM			
Explanation: Answer C – rod block signal is caused by low volts and is cleared by bypassing IRM per SOI-C51 A and B – wrong voltage D – wrong procedure			
Technical Reference(s): SOI-C51(IRM) rev 5 & ARI-H13-P680 rev 7		Reference Attached: SOI-C51(IRM) p 23 & ARI-H13-P680 p 11	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3035-18(LP) A.3			
Question Source:		Bank # Modified Bank # New X	
Question History:		Previous NRC Exam	
Question Cognitive Level:		Memory or Fundamental Knowledge Comprehension or Analysis X	
10 CFR Part 55 Content:		55.41 X 55.43	
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 49

A plant start up is in progress. A control rod block has occurred. The following nuclear instrument indications are noted:

	SRM A	SRM B	SRM C	SRM D
Position	Full in	Mid-position	Mid-position	Full in
Counts (CPS)	9.5×10^4	95	80	8.0×10^4

IRM A	IRM B	IRM C	IRM D	IRM E	IRM F	IRM G	IRM H
25/125	15/125	35/125	55/125	75/125	75/125	30/125	25/125
Range 3	Range 2	Range 3	Range 3	Range 2	Range 2	Range 3	Range 3

What is the minimum action needed to clear the ROD WITHDRAWAL BLOCK?

- A. Only Insert SRM B
- B. Insert SRM B and SRM C
- C. Range up on IRM B & IRM F to range 3
- D. Range up on IRM E & IRM F to range 3

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	215004	A1.01
	Importance Rating	3.0	
K&A: Ability to predict and/or monitor changes in parameters associated with operating the SOURCE RANGE MONITOR (SRM) SYSTEM controls including: Detector position			
SRM			
<p>Explanation: Answer A – Rod block if IRM < range 3 with SRM < 100 CPS (SRM detector not full in)</p> <p>B – no rod blocks if associated IRM's are on range 3 or above</p> <p>C – ranging up on IRM B would cause rod block due to IRM downscale</p> <p>D – plausible since rod block occurs at 80/125</p>			
Technical Reference(s): Dwg 208-037 sh 29, ARI-H13-P680 rev 7		Reference Attached: Dwg 208-037 sh 29, ARI-H13-P680 p 69	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C51-SRM.D.3			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank # Modified Bank # New</div> <div>Perry 2005</div> </div>		
Question History:	<div style="display: flex; justify-content: space-between;"> <div>Previous NRC Exam</div> <div>Perry 2005</div> </div>		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge Comprehension or Analysis</div> <div>X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41 55.43</div> <div>X</div> </div>		
Comments: Level of Difficulty = 4			

NRC EXAM - 2009

QUESTION RO 50

A reactor startup is in progress with the REACTOR MODE SWITCH in STARTUP/STANDBY.

The following is the present status of the APRM versus LPRM inputs, and the indicated power.

APRM:	A	B	C	D	E	F	G	H
LPRMs:								
D Level Inputs:	4	5	3	4	4	4	6	6
C Level Inputs:	4	3	4	3	6	2	4	4
B Level Inputs:	3	4	4	3	4	4	6	4
A Level Inputs:	3	3	4	3	6	4	1	2
Indicated Power:	11%	10%	11%	11%	10%	10%	11%	10%

Select the consequences and the required action(s) to mitigate the plant response to the conditions above?

- A. Full Scram - Enter ONI-C71 Reactor Scram
- B. Only rod block - Bypass appropriate APRM
- C. Only half scram - Bypass appropriate APRM and reset the half scram per SOI-C71 RPS Power Supply Distribution
- D. Rod block and half scram - Bypass appropriate APRM and reset the half scram per SOI-C71 RPS Power Supply Distribution

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	215005	A2.04
	Importance Rating	3.8	
<p>K&A: Ability to (a) predict the impacts of the following on the AVERAGE POWER RANGE Monitor/Local Power Range Monitor System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Scram trip signals.</p>			
<p>APRM</p>			
<p>Explanation: Answer D – APRM D will cause ½ scram and rod block (<14 LPRM inputs).</p> <p>A – incorrect – misconception that < 2 LPRM (APRM G) inputs will cause ½ scram – this is an administrative INOP condition not scram signal</p> <p>B – incorrect – partially correct – will also get ½ scram</p> <p>C – incorrect - partially correct – will also get a rod block</p>			
<p>Technical Reference(s): ARI-H13-P680-6-E5 rev 7, ONI-C11-1 rev 10</p>		<p>Reference Attached: ARI-H13-P680-6-E5 pp 75 & 76 and ONI-C11-1 p 14</p>	
<p>Proposed references to be provided to applicants during examination: None</p>			
<p>Learning Objective (As available): OT-Combined-C51-AP_OPRM.D.8</p>			
Question Source:	<div style="display: flex; justify-content: space-between;"> Bank # Modified Bank # RQL-26686 </div> <div style="display: flex; justify-content: space-between;"> New </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> Memory or Fundamental Knowledge Comprehension or Analysis X </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> 55.41 X </div> <div style="display: flex; justify-content: space-between;"> 55.43 </div>		
<p>Comments: Level of Difficulty = 4</p>			

NRC EXAM - 2009

QUESTION RO 51

Which of the following RCIC system valves receive an OPEN signal from RPV level instruments?

- A. RCIC STEAM SHUTOFF, 1E51-F045 and
RCIC PUMP SUPR PL SUCT ISOL, 1E51-F031
- B. RCIC STEAM SHUTOFF, 1E51-F045 and
RCIC PUMP CST SUCTION VALVE, 1E51-F010
- C. RCIC STEAM SHUTOFF, 1E51-F045 and
RCIC PUMP CST SUCTION VALVE, 1E51-F010 and
RCIC PUMP MIN FLOW VALVE, 1E51-F019
- D. RCIC STEAM SHUTOFF, 1E51-F045 and
RCIC PUMP SUPR PL SUCT ISOL, 1E51-F031 and
RCIC INJECTION VLV, 1E51-F013

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	217000	A3.01
	Importance Rating	3.5	
K&A: Ability to monitor automatic operation of the REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) including: Valve operation			
RCIC			
<p>Explanation: Answer B – E51-F045 and E51-F010 receive a signal from RPV level instruments.</p> <p>A & D – E51-F031 receives a signal from the control switch or high CST level or Low suppression pool level</p> <p>C – E51-F019 receives signal based on flow and pump discharge pressure</p>			
Technical Reference(s): Dwgs 208-075 sheets 4, 15, & 17		Reference Attached: Dwgs 208-075 sheets 4, 15, & 17	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-E51 D.2			
<div style="display: flex; justify-content: space-between;"> <div>Question Source:</div> <div> Bank # Modified Bank # Perry 2007-01 New </div> </div>			
<div style="display: flex; justify-content: space-between;"> <div>Question History:</div> <div>Previous NRC Exam Perry 2007-01</div> </div>			
<div style="display: flex; justify-content: space-between;"> <div>Question Cognitive Level:</div> <div> Memory or Fundamental Knowledge X Comprehension or Analysis </div> </div>			
<div style="display: flex; justify-content: space-between;"> <div>10 CFR Part 55 Content:</div> <div> 55.41 X 55.43 </div> </div>			
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 52

The plant has experienced a LOCA:

- ADS A and B Inhibit switches are in INHIBIT
- ADS A INHIBIT light failed to illuminate

The operator reports the following alarm on 1H13-P601, “ADS A TIME DELAY LOGIC TIMER RUNNING”.

This indicates that __ (1) __.

To delay ADS actuation the Operator must depress __ (2) __.

- A. (1) Reactor Level 3 and 1 have been reached and RHR A or LPCS is running
(2) both ADS A and B Logic Seal In Reset pushbutton
- B. (1) Reactor Level 3 and 1 have been reached
(2) both ADS A and B Logic Seal In Reset pushbutton
- C. (1) Reactor Level 3 and 1 have been reached and RHR A or LPCS is running
(2) only ADS A Logic Seal In Reset pushbutton
- D. (1) Reactor Level 3 and 1 have been reached
(2) only ADS A Logic Seal In Reset pushbutton

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	218000	A4.10
	Importance Rating	3.8	
K&A: Ability to manually operate and/or monitor in the control room: Lights and alarms			
AUTOMATIC DEPRESSURIZATION SYSTEM			
Explanation: Answer D – Need L1 & L3 signals only to start 105 sec timer A & C – incorrect – do not need RHR/LPCS pump running for timer start A & B – incorrect – do not need B seal-in reset depressed			
Technical Reference(s): ARI-H13-P601-19-D8 rev 10		Reference Attached: ARI-H13-P601-19-D8 p 71	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-B21C E.1 and 2			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 53

Following a reactor scram, MSL DRN & MSIV BYP INBD ISOL 1B21-F016 was closed for pressure control. The MSL DRN & MSIV BYP INBD ISOL B21-F016 was closed 5 hours ago when Reactor pressure was 200 psig.

RPV Cooldown rate since B21-F016 was closed has been 12 psig/hr.

Given the formulas:

Time Formula:

$$\text{TIME} = (\text{RX}/2)/(40^\circ\text{F}/\text{hour})$$

Where:

RX = Temperature ($^\circ\text{F}$) of the Reactor at the time when the valves were closed

Temperature Formula:

$$\text{TEMP} = \text{RX} - (\text{TIME} \times (40^\circ\text{F}/\text{hour}))$$

Where:

RX = Reactor Temperature ($^\circ\text{F}$) at the time the valves were closed

TIME = Time that has elapsed since the valve(s) were closed.

Which of the following allows opening of the MSL DRN & MSIV BYP INBD ISOL B21-F016 valve?

Reference Provided: Steam Tables

- A. Reactor pressure is ≤ 150 psig
- B. Penetration isolated for < 6 hours
- C. Temperature of the reactor is greater than penetration temperature
- D. MSL DRN & MSIV BYP OTBD ISOL 1B21-F019 and MSIV BEFORE SEAT NORM DRN 1B21-F033 remained open

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	223002	G2.1.32
	Importance Rating	3.8	
K&A: Ability to explain and apply system limits and precautions.			
PCIS/ Nuclear Steam Supply System			
Explanation: Answer A –from SOI-B21 Precautions and Limitations section B – incorrect due to exceeding time limit of 4.85 hrs C – incorrect – temperature of reactor must be < penetration temperature D – incorrect valves to maintain flow through penetration			
Technical Reference(s): SOI-B21 rev 12		Reference Attached: SOI-B21 p 5	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-B21_N11-H			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 4.5			

NRC EXAM - 2009

QUESTION RO 54

With the plant operating at 40% power a high drywell pressure due to an air leak caused a reactor scram. INST AIR DRYWELL ISOL 1P52-F646 was closed and can not be reopened.

How many of the SRVs no longer have a continuous supply of air available for long-term pressure control?

- A. 8
- B. 9
- C. 10
- D. 19

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	239002	K1.06
	Importance Rating	3.4	
K&A: Knowledge of the physical connections and/or cause-effect relationships between RELIEF/SAFETY VALVES and the following: Drywell instrument air/ drywell pneumatics: Plant-Specific			
Safety Relief Valves			
Explanation: Answer C – Inst Air supplies 10 SRV & Safety Related Inst Air supplies 8 ADS & 1 LLS SRV A, B, & D – misunderstanding of air supplies to SRV			
Technical Reference(s): Drawing 302-244 & 302-608		Reference Attached: Drawing 302-244	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-P51/52 B			
Question Source:	Bank # Modified Bank # Perry 2007-02 New		
Question History:	Previous NRC Exam Perry Perry 2007-02		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 2.5			

NRC EXAM - 2009

QUESTION RO 55

The Digital Reactor Feedwater Control System circuits are supplied electrical power from the __ (1) __ power supplies.

These power supplies are energized from plant distribution system buses __ (2) __.

- | | 1 | 2 |
|----|--------------------------------|------------------|
| A. | Primary, Secondary, and Backup | ED-1-B and D-1-B |
| B. | Primary, Secondary, and Backup | V-1-A and D-1-B |
| C. | Primary and Secondary | ED-1-B and D-1-B |
| D. | Primary and Secondary | V-1-A and D-1-B |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	259002	K2.01
	Importance Rating	2.4	
K&A: Knowledge of electrical power supplies to the following: Reactor water level control system circuits			
Reactor Water Level Control			
Explanation: Answer B - From ARI A & C – incorrect – ED-1-B does not supply DFWCS power C & D – incorrect – Secondary power supply added after plant loss of feedwater event.			
Technical Reference(s): ARI-H13-P680 rev 3		Reference Attached: ARI-H13-P680 p 58	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C34 F.6			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Perry experienced a scram on loss of DFWCS power. Perry upgraded system, alarm response instructions, and required knowledge. Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 56

AEGTS fan M15-C001A is running and AEGTS fan M15-C001B is in standby.

The power supply to the dampers of the running AEGTS fan fails. This causes the dampers to fail as designed.

The effect of this would be to __ (1) __ the annulus ΔP , thus __ (2) __ the potential for unfiltered radioactive release to the environment.

- | | 1 | 2 |
|----|-------|------------|
| A. | lower | decreasing |
| B. | lower | increasing |
| C. | raise | decreasing |
| D. | raise | increasing |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	261000	K3.02
	Importance Rating	3.6	
K&A: Knowledge of the effect that a loss or malfunction of the STANDBY GAS TREATMENT SYSTEM will have on the following: Off-Site Release Rate			
Standby Gas Treatment System			
<p>Explanation: Answer C – exhaust damper fails open, recirc damper fails closed causing ΔP to increase and reduce the potential for radiation release.</p> <p>D – misconception that higher ΔP will increase radiation release</p> <p>A & B – correct if recirc damper fails open and exhaust damper fails closed.</p>			
Technical Reference(s): drawing 208-109 sheet 201		Reference Attached: AEGTS Lecture PowerPoint p 65	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-M15-D.2			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank # Modified Bank # New</div> <div>X</div> </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge Comprehension or Analysis</div> <div>X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41 55.43</div> <div>X</div> </div>		
Comments: Level of Difficulty = 2			

NRC EXAM - 2009

QUESTION RO 57

Which of the following statements correctly describes the function of the AUXILIARY TRANSFER SWITCH (ATS) on panel H13-P870, when the switch is in the AUTO position?

The ATS prevents the Normal and Alternate supply breakers to the ____.

- A. EH buses from being closed at the same time
- B. H buses from being closed at the same time
- C. TH buses from being closed at the same time
- D. L buses from being closed at the same time

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	262001	K4.03
	Importance Rating	3.1	
K&A: Knowledge of A.C. ELECTRICAL DISTRIBUTION design feature(s) and/or interlocks which provide for the following: Interlocks between automatic bus transfer and breakers			
AC Electrical Distribution			
<p>Explanation: Answer D – from SDM-R10</p> <p>A, B, & C – The ATS does not affect these bus breakers. The H Bus alternate supply breaker will auto close under certain conditions, but not associated with the ATS. The time that the Normal and Alternate feeds are both closed is to be minimized manually for EH, TH, & H buses.</p>			
Technical Reference(s): SDM-R10 rev 9		Reference Attached: SDM-R10 p 24 & 25	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-R10 D.1			
Question Source:	Bank # INL-1355 Modified Bank # New		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 2			

NRC EXAM - 2009

QUESTION RO 58

Which of the following is correct for the Non-Essential Vital Power Inverter (BOP Static Inverter) static transfer switch operation?

- A. A ground fault sensed on bus V-1-A causes an automatic shift to a bypass transformer powered from bus EF-1-D.
- B. Low voltage sensed at the output of the BOP Static Inverter causes an automatic shift to a bypass transformer powered from bus EF-1-D.
- C. High voltage sensed at the output of the BOP Static Inverter causes an automatic shift to a regulating transformer powered from bus F-1-D.
- D. A failure of bus D-1-A's normal and reserve battery chargers for more than 15 minutes causes an automatic shift to a regulating transformer powered from bus F-1-D.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	262002	A3.01
	Importance Rating	2.8	
K&A: Ability to monitor automatic operations of the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) including: Transfer from preferred to alternate source			
Uninterruptable Power Supply (A.C./D.C.)			
Explanation: Answer D A & B - BOP Static Inverter powered from F-1-D not from EF-1-D C – Low voltage causes a transfer, not hi voltage. Hi voltage causes alarm.			
Technical Reference(s): SOI-R42 (Sys A) rev 2		Reference Attached: SOI-R42 (Sys A) p 1 and SDM R14 Figure	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-R14_R15			
Question Source:	Bank # Modified Bank # New	Perry 2005	
Question History:	Previous NRC Exam Perry 2005		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 4.5			

NRC EXAM - 2009

QUESTION RO 59

The Plant was operating at 100% power when a major electrical transient occurred causing a reactor scram. Prior to the transient the plant electrical systems were in the normal operating lineups and all DC buses were being supplied by the Normal battery chargers. A Plant Operator reports that Battery 1A is supplying Bus D-1-A with no battery chargers in service.

Which buses were lost?

- A. F-1-D and XH11
- B. F-1-D and XH12
- C. F-1-E and XH11
- D. F-1-E and XH12

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	263000	K6.01
	Importance Rating	3.2	
K&A: Knowledge of the effect that a loss or malfunction of the following will have on the D.C. ELECTRICAL DISTRIBUTION : A.C. electrical distribution			
D.C. Electrical Distribution			
<p>Explanation: Answer B – The Normal Charger is supplied through F1D08, and Bus XH12 which is the alternate supply to F1D08.</p> <p>A - incorrect – XH11 does not supply any non-divisional chargers</p> <p>C - incorrect – F-1-E does not supply any chargers and XH11 does not supply any non-divisional chargers</p> <p>D - incorrect – F-1-E does not supply any chargers</p>			
Technical Reference(s): SDM-R42 Rev 7 Drawing 206-052		Reference Attached: SDM-R42 p 39 Drawing 206-052	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined R42-B.1.B			
Question Source:	<div style="display: flex; justify-content: space-between;"> Bank # Modified Bank # New </div> <div style="text-align: right; margin-top: -10px;">X</div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> Memory or Fundamental Knowledge Comprehension or Analysis </div> <div style="text-align: right; margin-top: -10px;">X</div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> 55.41 55.43 </div> <div style="text-align: right; margin-top: -10px;">X</div>		
Comments: Level of Difficulty = 4.5			

NRC EXAM - 2009

QUESTION RO 60

The ED-1-B battery is being removed from service for cell replacement.

Which one of the following describes the breaker manipulation(s) that must be performed to defeat the Kirk Key Interlock and 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.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	263000	K4.02
	Importance Rating	3.1	
K&A: Knowledge of D.C. ELECTRICAL DISTRIBUTION design feature(s) and/or interlocks which provide for the following: Breaker interlocks, permissives, bypasses and cross ties: Plant-Specific			
D.C. Electrical Distribution			
<p>Explanation: Answer B describes the Kirk Key interlock for battery fuse removal. Kirk keys in Normal Charger Output and Main Breakers only.</p> <p>A – Incorrect – Must also have key from Normal Charger Output Breaker</p> <p>C & D – Incorrect – No Kirk key in Reserve Charger output breakers</p>			
Technical Reference(s): SOI-R42 (Div 2) Rev 9, SDM-R42 Rev 7		Reference Attached: SOI-R42 (Div 2) pp 8, 81, & 119 & SDM-R42 p 12	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-R42 D			
Question Source:	Bank # Perry 2002 Modified Bank # New		
Question History:	Previous NRC Exam Perry 2002		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 4			

NRC EXAM - 2009

QUESTION RO 61

The following conditions exist for the Division 2 Diesel Generator and bus EH12.

- The diesel generator is running in parallel with the grid
- Div 2 Diesel Generator Governor Mode switch is selected to DROOP

An under-frequency condition on Bus EH12 occurs.

Bus EH12 is __ (1) __ and the Diesel Governor control is operating in __ (2) __.

	(1)	(2)
A.	de- energized	droop
B.	de- energized	isochronous
C.	energized	droop
D.	energized	isochronous

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	264000	A1.03
	Importance Rating	2.8	
<p>K&A: Ability to predict and/or monitor changes in parameters associated with operating the EMERGENCY GENERATORS (DIESEL/JET) controls including: Operating voltages, currents, and temperatures</p>			
<p>Emergency Generators (Diesel/Jet)</p>			
<p>Explanation: Answer D – Bus under-frequency trips the Preferred or Alternate Preferred breakers when DG running in parallel leaving DG carrying the bus. Governor mode auto shifts to Isochronous when not in parallel. A & B – incorrect – DG will remain tied to bus. (A) misconception of governor control mode prior to paralleling DG C – incorrect – governor mode auto shifts to Isochronous when not in parallel</p>			
<p>Technical Reference(s): Drawing 208-206 Sheets 33, 34, & 67 and SDM R43 rev 11</p>		<p>Reference Attached: Drawing 208-206 Sheets 33, 34, & 67 and SDM R43 p 3</p>	
<p>Proposed references to be provided to applicants during examination: None</p>			
<p>Learning Objective (As available): OT-Combined R43_48 B.2 & D.10</p>			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank # Modified Bank # New</div> <div style="text-align: right;">X</div> </div>		
Question History:	<div style="display: flex; justify-content: space-between;"> <div>Previous NRC Exam</div> </div>		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge Comprehension or Analysis</div> <div style="text-align: right;">X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41 55.43</div> <div style="text-align: right;">X</div> </div>		
<p>Comments: Level of Difficulty = 2.5</p>			

QUESTION RO 62

A Non-Licensed Operator reports that the refrigeration unit for in-service Instrument Air (IA) Dryer 1P52-D003A is not operating.

Which one of the following contaminants will be introduced into the Instrument Air System if this condition is left uncorrected, including an action that can be taken to terminate further introduction of this contaminant?

- A. Desiccant particles; open the IA Desiccant Air Dryer Bypass Valve to bypass malfunctioning IA Dryer 1P52-D003A.
- B. Desiccant particles; shift from malfunctioning IA Dryer 1P52-D003A to the standby IA Dryer 1P52-D003B.
- C. Water droplets; open the IA Desiccant Air Dryer Bypass Valve to bypass malfunctioning IA Dryer 1P52-D003A.
- D. Water droplets; shift from malfunctioning IA Dryer 1P52-D003A to the standby IA Dryer 1P52-D003B.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	300000	A2.01
	Importance Rating	2.9	
<p>K&A: Ability to (a) predict the impacts of the following on the INSTRUMENT AIR SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: Air dryer and filter malfunctions</p>			
Instrument Air System			
<p>Explanation: Answer D – Water is the correct contaminant. Shifting dryers would maintain a low dew point.</p> <p>A&B - malfunctioning IA Dryer refrig unit won't introduce desiccant particles into the IA System. The function of the IA Dryer is to remove moisture. A failure of the refrig unit would cause the IA dew point to go up resulting in the potential introduction of water into the IA System.</p> <p>C – Water is the correct contaminant. However, just bypassing the malfunctioning IA Dryer would not correct the problem. No procedure for bypassing dryers.</p>			
Technical Reference(s): Dwg 302-241, SDM-P51/P52 rev 0		Reference Attached: Dwg 302-241, SDM-P51/P52 pp 6 & 7	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT Combined P51_52 C.4			
Question Source:	Bank # Modified Bank # New	Perry 2001-2	
Question History:	Previous NRC Exam	Perry 2001-2	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	X	
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 2			

NRC EXAM - 2009

QUESTION RO 63

With the plant operating at power with the following Chillers operating:

- Containment Vessel Chill Water (CVCW) Chiller C
- Turbine Building Chill Water (TBCW) Chiller B
- Control Complex Chill Water (CCCW) Chiller C is aligned to the 'A' loop.

One of the running NCC Pumps has tripped and the NCC COMMON HEADER FLOW LOW alarm is locked in. The Unit Supervisor has entered ONI-P43 Loss of Nuclear Closed Cooling. An NLO has reported NCC flows and attachment 2 – Determining NCC System Flow has been completed.

Unit 1 Header Flow (1P43-N051)	=	4250 gpm
+ Common Header Flow (P43-N261)	=	350 gpm
= Total NCC System Flow	=	4600 gpm
Number of running NCC Pumps	=	1
= Pump flow per running NCC Pump	=	4600 gpm

Which plant Chill Water Chiller(s) has/have tripped?

- A. Only the CVCW Chiller
- B. Only the TBCW Chiller
- C. CVCW Chiller and CCCW Chiller
- D. TBCW Chiller and CCCW Chiller

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	1	
	K/A#	400000	A3.01
	Importance Rating	3.0	
K&A: Ability to monitor automatic operations of the CCWS including: Setpoints on instrument signal levels for normal operations, warnings, and trips that are applicable to the CCWS			
Component Cooling Water System			
<p>Explanation: Answer C – NCC to CVCW Chiller and CCCW Chiller are off the common header and with NCC flow to the common header less than 400 gpm the CCCW Chiller trips on low flow of 523 gpm and CVCW chiller trips on low flow of 400 gpm.</p> <p>A – CCCW Chiller C is also supplied from NCC, CCCW Chillers A and B are supplied from ECC.</p> <p>B and D – TBCW Chiller is off the Unit 1 Header and flow much greater than 900 gpm</p>			
Technical Reference(s): ONI-P43 Rev 9 and ARI-H51-P320-1 Rev 4, 302-0611 Rev Z		Reference Attached: ONI-P43 pg 3 and ARI-H51-P320-1 pg 17, 302-0611	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-P43 F.4			
Question Source:	<div style="display: flex; justify-content: space-between;"> Bank # Modified Bank # </div> <div style="display: flex; justify-content: space-between;"> New X </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> Memory or Fundamental Knowledge Comprehension or Analysis </div> <div style="display: flex; justify-content: space-between;"> X </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> 55.41 X </div> <div style="display: flex; justify-content: space-between;"> 55.43 </div>		
Comments: Level of Difficulty = 4.5			

NRC EXAM - 2009

QUESTION RO 64

Select the expected response of the Control Rod Drive Hydraulic System stabilizing valves when the Rod Control and Information System demands a Single control rod Insertion.

- A. Two stabilizing valves open directing flow to the selected hydraulic control unit.
- B. Two stabilizing valves closed diverting flow to the selected hydraulic control unit.
- C. One stabilizing valve opens directing flow to the selected hydraulic control unit.
- D. One stabilizing valve closes diverting flow to the selected hydraulic control unit.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	201001	K5.08
	Importance Rating	2.5	
K&A: Knowledge of the operational implications of the following concepts as they apply to Control Rod Drive Hydraulic System: Solenoid operated valves			
Control Rod Drive Hydraulic System			
<p>Explanation: Answer B – Stabilizing Valves are normally open they close for rod motion, one stab valve closes for a withdrawal and two close for an insert.</p> <p>A and C – Stab valves close</p> <p>D – correct if withdrawing a control rod</p>			
Technical Reference(s): 302-871 Rev EE		Reference Attached: 302-871	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C11_CRDH-C.10.B			
Question Source:	Bank # Modified Bank # New	Perry INL-1001	
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 2			

NRC EXAM - 2009

QUESTION RO 65

The plant is operating at 100% power with a Reactor Pressure of 1025 psig. Control Rod 30-31 accumulator pressure is 1600 psig.

What effect would a lowering Reactor Pressure have on Control Rod 30-31 scram time?

Control Rod 30-31 scram time would _____.

- A. become longer as Reactor Pressure lowered
- B. become shorter as Reactor Pressure lowered
- C. initially become longer and then get shorter once Reactor Pressure lowered <950psig
- D. initially become shorter and then get longer once Reactor Pressure lowered <600 psig

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	201003	K6.02
	Importance Rating	3.0	
K&A: Knowledge of the effect that a loss or malfunction of the following will have on the Control Rod and Drive Mechanism: Reactor Pressure			
Control Rod and Drive Mechanism			
<p>Explanation: Answer B – Accumulator is operable >1520 psig, as reactor pressure lowers scram time will become shorter.</p> <p>A – incorrect, opposite of B, misconception of Ball Check valve operation</p> <p>C – incorrect, if the accumulator was inoperable the control rod would be declared slow, (longer scram time) and 950 psig is the lower pressure that the control rod scram times are determined</p> <p>D – incorrect, true for an inoperable accumulator</p>			
Technical Reference(s): Tech Spec 3.1.4 and 3.1.5		Reference Attached: Tech Spec 3.1.4 p 3.1.22 & 25, TS 3.1.5 p 3.1.30 & 33	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C11_CRDM C.1.A, OT-3037-05-H			
Question Source:	<div style="display: flex; justify-content: space-between;"> Bank # Monticello 2005 </div> <div style="display: flex; justify-content: space-between;"> Modified Bank # </div> <div style="display: flex; justify-content: space-between;"> New </div>		
Question History:	<div style="display: flex; justify-content: space-between;"> Previous NRC Exam Monticello 2005 </div>		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> Memory or Fundamental Knowledge </div> <div style="display: flex; justify-content: space-between;"> Comprehension or Analysis X </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> 55.41 X </div> <div style="display: flex; justify-content: space-between;"> 55.43 </div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 66

The RO takes the 'B' Rx Recirc pump RCIRC BRKR 5B to START. Which of the following is the correct sequence for starting Rx Recirc pump 'B' in slow speed?

- A. '1B' breaker closes,
'5B' breaker opens at 25% speed,
'2B' breaker closes immediately
- B. '2B' breaker closes,
'5B' breaker opens at 25% speed,
'1B' breaker closes immediately
- C. '1B' breaker closes,
'5B' breaker opens at 95% speed,
'2B' breaker closes at 25% speed
- D. '2B' breaker closes,
'5B' breaker opens at 95% speed,
'1B' breaker closes at 25% speed

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO						
	Tier #	2							
	Group #	2							
	K/A#	202002	A1.01						
	Importance Rating	3.2							
K&A: Ability to predict and / or monitor changes in parameters associated with operating the Recirculation Flow Control System controls including: Recirculation Pump Speed: BWR-2, 3, 4, 5, 6									
Recirculation Flow Control System									
Explanation: Answer C – per SOI-B33, start sequence for RR pump. A & B – incorrect – the 5B breaker opens at 95% speed D – incorrect – the 1B (MG supply breaker) closes before the 2B breaker.									
Technical Reference(s): SOI-B33 Rev 25		Reference Attached: SOI-B33 pp 15 & 16							
Proposed references to be provided to applicants during examination: None									
Learning Objective (As available): OT-Combined-B33-E									
Question Source:	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Bank #</td> <td></td> </tr> <tr> <td>Modified Bank #</td> <td></td> </tr> <tr> <td>New</td> <td style="text-align: center;">X</td> </tr> </table>			Bank #		Modified Bank #		New	X
Bank #									
Modified Bank #									
New	X								
Question History:	Previous NRC Exam								
Question Cognitive Level:	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Memory or Fundamental Knowledge</td> <td style="text-align: center;">X</td> </tr> <tr> <td>Comprehension or Analysis</td> <td></td> </tr> </table>			Memory or Fundamental Knowledge	X	Comprehension or Analysis			
Memory or Fundamental Knowledge	X								
Comprehension or Analysis									
10 CFR Part 55 Content:	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">55.41</td> <td style="text-align: center;">X</td> </tr> <tr> <td>55.43</td> <td></td> </tr> </table>			55.41	X	55.43			
55.41	X								
55.43									
Comments: Level of Difficulty = 2.5									

NRC EXAM - 2009

QUESTION RO 67

Given the following conditions:

- The Reactor Water Cleanup System (RWCU) is operating in the Normal Recirculation Mode
- The RWCU LD ISOLATION BYPASS Switches (E31-S1A and B) on panels H13-P632 and P642 have been placed in "BYPASS"

The following annunciators on H13-P680 alarm:

- RWCU ISOL PUMP A/B RM TEMP HI
- AIRBORNE RAD P804

A Reactor Operator checks Auxiliary BLDG Vent Exhaust Airborne radiation monitors and reports the following:

- Particulate Channel ALERT alarm
- Iodine Channel Elevated reading no Alert or High alarms
- Gas Channel ALERT alarm

The Reactor Operator shall __ (1) __ RWCU isolation and identifies that entry into __ (2) __ is required.

1

2

- | | | |
|----|---------|--|
| A. | confirm | ONI-D17 High Radiation Levels Within Plant |
| B. | confirm | EOP-3 Secondary Containment Control |
| C. | perform | ONI-D17 High Radiation Levels Within Plant |
| D. | perform | EOP-3 Secondary Containment Control |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	204000	A2.13
	Importance Rating	3.4	
<p>K&A: Ability to (a) predict the impacts of the following on the Reactor Water Cleanup System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Signal received which results in a system isolation</p>			
Reactor Water Cleanup System			
<p>Explanation: Answer D – With LD switches in bypass, no automatic isolation will occur. Hi temp in RWCU pump room is entry condition for EOP-3.</p> <p>A & B – incorrect – automatic isolation will not occur.</p> <p>C – incorrect – ALERT is not entry for ONI-D17, need HIGH.</p>			
Technical Reference(s): dwg 208-013 sh 12 rev FF and OAI-1703 rev 2		Reference Attached: dwg 208-013 sh 12 rev FF, OAI-1703 p 36, ARI-H13-P680-01 pp 33-34	
Proposed references to be provided to applicants during examination:			
Learning Objective (As available): OT-Combined G33_G36 E.2 / J.7			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 68

Following a refuel outage, a reactor startup is commencing with the following conditions:

- RPV water level is reading 196 inches on all DFWCS level instruments
- Bulk reactor coolant temperature is 100°F and stable

Indicated RPV water level is __ (1) __ actual level because the variable leg density is __ (2) __ the calibrated conditions for these level instruments.

	1	2
A.	higher than	higher than
B.	higher than	lower than
C.	lower than	higher than
D.	lower than	lower than

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	216000	A3.01
	Importance Rating	3.4	
K&A: Ability to monitor automatic operation of the Nuclear Boiler Instrumentation including: Relationship between meter / recorder readings and actual parameter values: Plant Specific			
Nuclear Boiler Instrumentation			
<p>Explanation: Answer A – DFWLC system is fed from Narrow Range RPV level instruments calibrated for NOP/NOT & normal operating DW temperature.</p> <p>B, C, & D – Incorrect – indicated level is higher and density of variable leg is higher.</p>			
Technical Reference(s): PDB-C005 Rev 0		Reference Attached: PDB-C005 p 5 and SDM-B21 (NBPI) pp 15 & 16	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined B21 (INST) B.3.E.1			
Question Source:	Bank # Modified Bank # New	Monticello 2005	
Question History:	Previous NRC Exam	Monticello 2005	
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 69

The plant has experienced a LOCA and the following plant conditions exist:

- Reactor Level minus 25"
- Time Reactor Level below TAF 20 minutes
- Containment Pressure 10 psig
- Containment Hydrogen Concentration 7.5%
- Drywell Hydrogen Concentration 8.5%

As the RO, you have been directed to energize the Hydrogen Igniters per the Hardcard.

The Hydrogen Igniters ____.

Reference Provided: Modified EOP-SPI Supplement Figure #7 HDOL

- A. should be energized because Drywell HDOL has been exceeded
- B. should be energized because level has been below TAF for < 30 minutes
- C. should not be energized because level has been below TAF for > 15 minutes
- D. should not be energized because Containment HDOL is in the UNSAFE region

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	223001	A4.14
	Importance Rating	3.7	
K&A: Ability to manually operate and / or monitor in the control room: Hydrogen igniters: Plant Specific			
Primary Containment System and Auxiliaries			
Explanation: Answer B – Energize H2 Igniters due to < 30 minutes below TAF A – incorrect – HDOL has not been exceeded C – incorrect – Perry Lic. Commitments allow 30 min to start H2 igniters D – incorrect – Containment HDOL is in safe region and H2 igniters can be energized			
Technical Reference(s): OAI-1703 Rev 2		Reference Attached: OAI-1703 p 41, Figure 7 HDOL curve & Modified Figure 7 HDOL curve	
Proposed references to be provided to applicants during examination: Modified Figure 7 HDOL curve			
Learning Objective (As available): OT-3402-02 F.4			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 70

The plant is operating at 50% power when a loss of the Instrument Air header feeding the Hot Surge Tank Level Control valve 1N21F230 and the Hot Surge Tank Level Control Bypass valve 1N21F220 occurred.

These valves fail __ (1) __ on a loss of Instrument Air. An operator can control these valves manually from __ (2) __.

- | | 1 | 2 |
|----|-------|-------------------|
| A. | open | Heater Bay – 580' |
| B. | open | Heater Bay – 600' |
| C. | as-is | Heater Bay – 580' |
| D. | as-is | Heater Bay – 600' |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	256000	G2.1.30
	Importance Rating	4.4	
K&A: Ability to locate and operate components, including local controls.			
Reactor Condensate System			
Explanation: Answer D – Fail as-is per ONI-P52. Manual operation directed from ARI-H13-P680-002-E2 & E3 A & B – incorrect – valves fail as-is per ONI-P52 C – incorrect valves are on HB-600'			
Technical Reference(s): ONI-P52 Rev 12		Reference Attached: ONI-P52 p 29	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined N21_N61 C.14			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 71

The plant is operating with the following conditions:

- Reactor power is 63%.
- RFPT B is operating in 3 Element control in AUTO.
- RFPT B is operating at the suction flow limit per SOI-C34, Feedwater Control System.
- Motor Feed Pump is shutdown to Casing Warmup.
- RFPT A is shutdown on the turning gear.

The plant has entered ONI-P52, Loss of Service and/or Instrument Air. The cause of the air leak has been isolated from the Instrument Air header by closing INSTRUMENT AIR TO HEATER BAY ISOL 1P52-F591. Instrument Air pressure in the Heater Bay is 50 psig and steadily dropping.

Which one of the following describes the required operator response, if any, to the above conditions?

- A. No response is required. RFPT B will automatically recover RPV water level.
- B. Start the Motor Feed Pump and maintain RPV water level.
- C. Scram the Reactor due to lowering RPV water level.
- D. Take RFPT B Recirc Flow Controller output to 0% to close RFPT B Recirc Control Valve, N27-F160B and maintain RPV water level.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	259001	K1.06
	Importance Rating	2.9	
K&A: Knowledge of the physical connections and / or cause-effect relationship between Reactor Feedwater System and the following: Plant Air Systems.			
Reactor Feedwater System			
<p>Explanation: Answer C with inst air to heater bay less than 70 psig and dropping, RFPT recirc control valves fail open and motor feed pump flow control valves fail closed. Lowering reactor level will require a Reactor scram prior to Level 3 scram.</p> <p>A - would be true if RFPT B was not at suction limit</p> <p>B - would be true if MFP flow control valves could be opened</p> <p>D - would be true if inst air was available to close the recirc flow control valves.</p>			
Technical Reference(s): ONI-P52 Rev 12, ONI-C34 Rev 8 and SOI-C34 Rev 24		Reference Attached: ONI-P52 p 30, ONI-C34 p 6 and SOI-C34 p 4	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-COMBINED-N27-K.4			
Question Source:	<div style="display: flex; justify-content: space-between;"> Bank # Perry 2007-1 </div> <div style="display: flex; justify-content: space-between;"> Modified Bank # </div> <div style="display: flex; justify-content: space-between;"> New </div>		
Question History:	<div style="display: flex; justify-content: space-between;"> Previous NRC Exam Perry 2007-1 </div>		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> Memory or Fundamental Knowledge </div> <div style="display: flex; justify-content: space-between;"> Comprehension or Analysis X </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> 55.41 X </div> <div style="display: flex; justify-content: space-between;"> 55.43 </div>		
Comments: Level of Difficulty = 4			

QUESTION RO 72

Preparations are being made for a plant startup.

IOI-1 Cold Startup prerequisites are in progress. You have been directed to establish a Main Condenser Vacuum and commence startup of the Offgas System.

Which of the following describes the process for startup of Offgas to prevent excessive levels of explosive gas buildup?

Prior to startup of the Steam Jet Air Ejectors, _____.

- A. preheat the Offgas System using air from the Instrument Air System to scavenge any residual hydrogen and recombining the two in the Hydrogen Recombiners
- B. establish an air purge of the Offgas System using the Instrument Air System to obtain the temperature profile in the Hydrogen Recombiner and maintain a constant flow through Offgas
- C. preheat the Offgas System using Oxygen from the Hydrogen Water Chemistry System to scavenge any residual Hydrogen and recombining the two in the Hydrogen Recombiners
- D. establish a purge of the Offgas System using Oxygen from the Hydrogen Water Chemistry System to obtain the temperature profile in the Hydrogen Recombiner and maintain a constant flow through Offgas

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	271000	A4.09
	Importance Rating	3.3	
K&A: Ability to manually operate and / or monitor in the control room: Offgas system controls / components			
Offgas System			
<p>Explanation: Answer B an air purge is established to obtain the proper temperature profile in the Recombiners prior to air ejector start and a constant air flow rate is maintained</p> <p>A – Hydrogen Recombiners are not at the temperature required for recombination</p> <p>C and D – Oxygen is not used to purge the Offgas system.</p>			
Technical Reference(s): SOI-N64/N62 Rev 20, IOI-1 Rev 27		Reference Attached: SOI-N64/N62 p 31-33, IOI-1 p 103	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3046-02(LP)			
Question Source:	Bank # Modified Bank # New	Grand Gulf 2002	
Question History:	Previous NRC Exam Grand Gulf 2002		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 73

The following conditions exist:

- Reactor power is 100%.
- Seasonal Variations, IOI-15 actions for outside ambient air temperature $< 5^{\circ}\text{F}$ have been completed
- A failure of the Auxiliary Building Ventilation System supply air temperature controller has resulted in a trip of the Auxiliary Building Ventilation Supply Fan.

Select the statement below that describes the impact that this malfunction will have on plant operation.

- A. To prevent freezing of the cooling coils for the Steam Tunnel Cooling System, the coils will have to be drained.
- B. Elevated temperatures in the RWCU pump and valve rooms may lead to a system shutdown to prevent automatic system isolation.
- C. The plant will have to be shutdown due to inability to maintain room air temperatures above the minimum required to ensure operability of the ECCS components.
- D. The plant will have to be shutdown due to inability to maintain room air temperatures below the maximum required ensuring operability of the ECCS components.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	288000	K3.03
	Importance Rating	2.5	
K&A: Knowledge of the effect that a loss or malfunction of the Plant Ventilation Systems will have on the following: Auxiliary Building Temperature: Plant-Specific			
Plant Ventilation Systems			
<p>Explanation: Answer B – AB Ventilation cools RWCU pump rooms. Loss of AB ventilation can cause RWCU isolation.</p> <p>A - Incorrect – The Steam Tunnel Cooling System takes it's suction on the Aux Building atmosphere which is expected to remain well above freezing due to heat generated from operating equipment.</p> <p>C - Incorrect – Auxiliary Building temperatures are expected to remain well above freezing temperatures under the described condition.</p> <p>D - Incorrect – ECCS Pump Room Cooling System units can be run to maintain temperatures below any operability limits.</p>			
Technical Reference(s): SOI-M38/47 Rev 5		Reference Attached: SOI-M38/47 p 3	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-M38-D.6			
Question Source:	Bank # Modified Bank # New	Perry 2005	
Question History:	Previous NRC Exam Perry 2005		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 74

The following conditions exist:

- The plant is shutdown for a refueling outage
- M25/26 Control Room Ventilation train A is running in NORMAL Mode
- M25/26 Control Room Ventilation train B is in standby

A loss of input from Control Room Atmosphere Gas Module D17-K776 to the M25/26 logic has been experienced due to an electrical switching error on buses K1A and K1N.

What is the current status of the Control Room HVAC system?

	A Train	B Train
A.	running in NORMAL mode	remains in STANDBY
B.	running in NORMAL mode	running in EMERGENCY RECIRC mode
C.	running in EMERGENCY RECIRC mode	remains in STANDBY
D.	running in EMERGENCY RECIRC mode	running in EMERGENCY RECIRC mode

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	290003	K1.01
	Importance Rating	3.4	
K&A: Knowledge of the physical connections and / or cause-effect relationships between Control Room HVAC and the following: Radiation monitors			
Control Room HVAC			
<p>Explanation: Answer D – Both trains initiate in ER on loss of radiation monitor signal.</p> <p>A – incorrect – plausible – loss of power will not have any affect.</p> <p>B&C – incorrect – both trains initiate in ER</p>			
Technical Reference(s): SOI-M25/26 Rev 16 & dwg 208-117 sh 11 rev S		Reference Attached: SOI-M25/26 p 5 & dwg 208-117 sh 11	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT Combined-M25/26 F & G			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank #</div> <div>Modified Bank #</div> </div> <div style="display: flex; justify-content: space-between;"> <div>New</div> <div>X</div> </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge</div> <div>Comprehension or Analysis</div> </div> <div style="display: flex; justify-content: space-between;"> <div></div> <div>X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41</div> <div>X</div> </div> <div style="display: flex; justify-content: space-between;"> <div>55.43</div> <div></div> </div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION RO 75

Which one of the following statements is correct regarding the potential safety concern when operating with a displaced jet pump caused by a failed hold down beam?

- A. following a LOCA, insufficient core submergence may result
- B. during an ATWS, the effectiveness of lowering RPV level will be reduced
- C. following a loss of Recirculation Pump, inadequate core circulation may occur
- D. when operating at high power/low flow, the potential for core instabilities will increase

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #	2	
	Group #	2	
	K/A#	290002	K4.01
	Importance Rating	3.7	
K&A: Knowledge of Reactor Vessel Internals design feature(s) and / or interlocks which provide for the following: 2/3 core coverage following a DBA LOCA			
Reactor Vessel Internals			
Explanation: Answer A – from OT-Combined-B33 Lesson Plan and industry OE B – incorrect – no effect on lowering level, ATWS strategy not impacted C – incorrect – only a concern during a LOCA for design coastdown assumptions D – incorrect – would be true of Recirc Pump trip			
Technical Reference(s): OT-Combined-B33 Lesson Plan pgs 13,14 and 42		Reference Attached: OT-Combined-B33 Lesson Plan pgs 13,14 and 42	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-B13 D.2.e, OT-Combined-B33 C.9 and P.6			
Question Source:	Bank # Peach Bottom 2002 Modified Bank # New		
Question History:	Previous NRC Exam Peach Bottom 2002		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 X 55.43		
Comments: Level of Difficulty = 4			

NRC EXAM - 2009

QUESTION SRO 1

While operating at 70% reactor power in the Back-up Stability Protection Power - Flow Map, a trip of Reactor Recirculation Pump B occurs.

The following indications are noted after plant parameters stabilize:

- Reactor Power 47%
- Core Flow 36 Mlbm/hr
- Load Line 85%

As the Unit Supervisor, which one of the following actions would you direct the RO to perform?

- A. Insert a Manual Scram; enter ONI-C71-1, Reactor Scram.
- B. Insert CRAM Rods; per FTI-B0002, Control Rod Movements.
- C. Increase Recirculation Flow using the A FCV, per SOI-B33, Reactor Recirculation System.
- D. Insert Control Rods, using the normal insert sequence; per FTI-B0002, Control Rod Movements.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295001	AA2.01
	Importance Rating		3.8
K&A: Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Power/flow map			
Partial or Complete Loss of Forced Core Flow Circulation			
<p>Explanation: Answer A – scram required per ONI-C51 Immediate Actions</p> <p>B – incorrect – would be correct if OPRMs were operable</p> <p>C – incorrect – would be correct for a FCV runback</p> <p>D – incorrect – would be correct action to lower Rod Line if not in the Immediate Exit Region of the Power to Flow Map.</p>			
Technical Reference(s): ONI-C51 Rev 24 & PDB-A0006 Rev 14		Reference Attached: ONI-C51 p 6 & PDB-A0006 p 5	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined AP-OPRM I			
Question Source:	Bank # Modified Bank # New <div style="float: right; text-align: right;">Perry Bank (Audit 2007-01)</div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis <div style="float: right; text-align: right;">X</div>		
10 CFR Part 55 Content:	55.41 55.43 X b.5		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION SRO 2

The following plant conditions exist:

- A reactor cooldown is in progress.
- Reactor pressure is 48 psig.
- Reactor temperature is 275°F.
- RHR Loop 'B' is operating in the Shutdown Cooling mode.
- Based on surveillance results, the standby loop of RHR SDC has just been declared inoperable.

Which one of the following Technical Specification Required Actions must be completed within one hour?

- A. Suspend the reactor cooldown.
- B. Monitor reactor coolant temperature and pressure.
- C. Verify one Reactor Recirculation Pump is in operation.
- D. Verify an alternate method of decay heat removal is available

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295021	2.2.40
	Importance Rating		4.7
K&A: Ability to apply Technical Specifications for a system.			
Loss of Shutdown Cooling			
<p>Explanation: Answer D – Required by Tech Spec 3.4.9 Condition A</p> <p>A – incorrect – action not required by Tech Specs.</p> <p>B – incorrect – correct if 3.4.9 Condition B were applicable.</p> <p>C – incorrect – correct if no SDC pump in operation.</p>			
Technical Reference(s): Tech Specs 3.4.9		Reference Attached: Tech Specs 3.4.9 pp 3.4-21 & 22	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-006-08 OBJ B&D			
Question Source:	Bank # Modified Bank # New	Perry 2002	
Question History:	Previous NRC Exam	Perry 2002	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	X	
10 CFR Part 55 Content:	55.41 55.43 X b.2		
Comments: Level of Difficulty = 3.5			

NRC EXAM - 2009

QUESTION SRO 3

The plant was at 100% power when one Safety Relief Valve failed open and was unable to be closed. The Reactor Mode Switch was placed in SHUTDOWN.

The following conditions exist:

- Reactor power 8% and stable
- Reactor pressure 933 psig and stable
- Suppression pool temperature 110 ° F and rising
- Suppression pool level 18.9 ft and slowly rising

For the stated conditions, the Unit Supervisor should direct:

Reference Provided: EOP-SPI Supplement Figure #4 HCL Curve

- A. raising suppression pool level per EOP-2 Primary Containment Control
- B. lowering reactor pressure and disregarding cool down rate as required, per EOP-1A Level Power Control
- C. lowering reactor pressure by anticipating Emergency Depressurization per EOP-1A Level Power Control
- D. immediate Emergency Depressurization of the reactor per EOP-4-2 Emergency Depressurization

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295025	EA2.03
	Importance Rating		4.1
<p>K&A: Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE: Suppression pool temperature</p>			
<p>High Reactor Pressure</p>			
<p>Explanation: Answer B – lowering Rx pressure and disregarding cooldown rate is correct for these conditions.</p> <p>A – incorrect – would increase margin to HCL, but not an approved strategy for EOPs</p> <p>C – incorrect – can not anticipate ED during an ATWS</p> <p>D – incorrect – immediate ED not proper strategy with current margin to HCL</p>			
<p>Technical Reference(s): EOP-1A Bases Rev 0, EOP-2 Bases Rev 0, EOP-SPI Supplement Rev 0</p>		<p>Reference Attached: EOP-1A Bases pp 65 & 66, EOP-2 Bases p 25, EOP-SPI Supplement p 9</p>	
<p>Proposed references to be provided to applicants during examination: HCL Curve</p>			
<p>Learning Objective (As available): OT-3402-06 C</p>			
Question Source:	<p>Bank #</p> <p>Modified Bank #</p> <p>New</p>	Grand Gulf 2007	
Question History:	Previous NRC Exam	Grand Gulf 2007	
Question Cognitive Level:	<p>Memory or Fundamental Knowledge</p> <p>Comprehension or Analysis</p> <p style="text-align: right;">X</p>		
10 CFR Part 55 Content:	<p>55.41</p> <p>55.43 X b.5</p>		
<p>Comments: Level of Difficulty = 3</p>			

NRC EXAM - 2009

QUESTION SRO 4

Which one of the following conditions requires an Hourly Fire Watch Patrol?

Reference Provided: PAP-1910 Fire Protection Program Body & Attachment #3

- A. RCIC Pump Room Wet-Pipe Sprinkler will not deliver water.
- B. Heat Detection for Reactor Recirculation Pump B is out of service.
- C. Unit 1 Division 1 Cable Spreading Pre-Action Spray System will not deliver water.
- D. General area smoke detectors in Containment are functional but the detection system will not transmit an alarm to SAS.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	600000	2.1.25
	Importance Rating		4.2
K&A: Ability to interpret reference materials, such as graphs, curves, tables, etc.			
PLANT FIRE ON SITE			
Explanation: Answer D - Correct - required to be functional and transmit an alarm or establish hourly fire watch. A - Incorrect - continuous fire watch required B - Incorrect - fire watch not required, remote monitoring required C - Incorrect - continuous fire watch with each area inspected every 15 minutes			
Technical Reference(s): PAP-1910 Rev 15		Reference Attached: PAP-1910 pp 57-59, 63-64, 77-78, 81, & 83	
Proposed references to be provided to applicants during examination: PAP-1910 Fire Protection Program			
Learning Objective (As available): OT-3039- Admin-03-J			
Question Source:	Bank # Modified Bank # New	INL-3069	
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41 55.43 X b.5		
Comments: Level of Difficulty = 2.5			

NRC EXAM - 2009

QUESTION SRO 5

The plant has experienced a transient. The following conditions exist:

- Containment pressure 1.9 psig
- Containment temperature 152° F
- Drywell pressure 2.2 psig
- Drywell temperature 146° F

You are operating in EOP-1 RPV Control and EOP-2 Primary Containment Control.

As the Unit Supervisor you would direct the Reactor Operator to _____.

Reference provided: EOP-SPI Supplement Figure #10 Containment Spray Initiation Limit Curve

- A. Restore Containment cooling
- B. Spray Containment
- C. Anticipate Emergency Depressurization
- D. Emergency Depressurize the RPV

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295027	EA2.02
	Importance Rating		3.7
K&A: Ability to determine and/or interpret the following as they apply to HIGH CONTAINMENT TEMPERATURE (MARK III CONTAINMENT ONLY): Containment pressure: Mark-III			
High Containment Temperature (Mark III Containment Only)			
Explanation: Answer A – required per EOP-2 Containment Temp Control leg. B – incorrect – plausible because approaching PSP but has not cleared CSIL yet. C & D – incorrect – plausible, but margin still exists on Containment and DW temperatures			
Technical Reference(s): EOP-2 Rev 0 & EOP-SPI Supplement Rev 0		Reference Attached: EOP-2 pp 49, 51 and 52 & EOP-SPI Supplement p 12	
Proposed references to be provided to applicants during examination: Containment Spray Initiation Limit Curve			
Learning Objective (As available): OT-3402-07			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 55.43 X b.5		
Comments: Level of Difficulty = 3.0			

NRC EXAM - 2009

QUESTION SRO 6

Given the attached Tech Spec Rounds sheets for Unit Supervisor review, evaluate Drywell average air temperature.

Tech Spec 3.6.5.5 Drywell Air Temperature is __(1)__. Sufficient channels __(2)__ available to obtain a true average.

Reference Provided: Modified TS Rounds sheets 9 and 26 and Calculator

- | | 1 | 2 |
|----|-------------|---------|
| A. | not entered | are |
| B. | not entered | are not |
| C. | entered | are |
| D. | entered | are not |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295028	2.2.12
	Importance Rating		4.1
K&A: Knowledge of surveillance procedures.			
High Drywell Temperature			
<p>Explanation: Answer C – TS 3.6.5.5 requires at least 1 channel per elevation and each elevation is averaged separately then averaged together.</p> <p>A & B – incorrect – plausible if temperatures are averaged incorrectly</p> <p>B & D – incorrect – TS requires at least 1 channel per elevation</p>			
Technical Reference(s): TS Rounds Rev 21, TS 3.6.5.5 & TS 3.6.5.5 Bases		Reference Attached: TS Rounds sheets 9 and 26, TS 3.6.5.5 p 3.6-70 & TS 3.6.5.5 Bases pp B 3.6-148 to 150	
Proposed references to be provided to applicants during examination: Modified TS Rounds sheets 9 and 26			
Learning Objective (As available): OT-3037-10.A			
Question Source:		Bank # Modified Bank # New X	
Question History:		Previous NRC Exam	
Question Cognitive Level:		Memory or Fundamental Knowledge Comprehension or Analysis X	
10 CFR Part 55 Content:		55.41 55.43 X b.2	
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION SRO 7

Given the following conditions:

- Plant is operating in EOP-1A Level Power Control
- Reactor water level is being deliberately lowered to reduce power

Per EOP-1A Level Power Control, level must not be lowered less than __ (1) __ to ensure __ (2) __.

- | | 1 | 2 |
|----|------|---|
| A. | 0" | adequate core cooling is maintained |
| B. | 0" | thermal hydraulic instabilities (oscillations) will not occur |
| C. | -25" | adequate core cooling is maintained |
| D. | -25" | thermal hydraulic instabilities (oscillations) will not occur |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		1
	K/A#	295031	A2.04
	Importance Rating		4.8
<p>K&A: Ability to determine and/or interpret the following as they apply to REACTOR LOW WATER LEVEL: Adequate core cooling.</p>			
Reactor Low Water Level			
<p>Explanation: Answer C – per EOP-1A Level Leg</p> <p>A & B– incorrect – 0” is TAF. EOP Bases allows level to be lowered to –25” for adequate core cooling</p> <p>B & D – incorrect – EOP Bases is adequate core cooling. Instability level is < 100” in bases</p>			
Technical Reference(s): EOP Bases Rev 0 & EOP-1A Bases Rev 0		Reference Attached: EOP Bases pp 33,34, and 40 & EOP-1A Bases pp 44, 46, and 47.	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-01.C.1			
Question Source:	Bank # Modified Bank # New	Vermont Yankee 2002	
Question History:	Previous NRC Exam	Vermont Yankee 2002	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	X	
10 CFR Part 55 Content:	55.41 55.43 X b.5		
Comments: Level of Difficulty = 2.5			

NRC EXAM - 2009

QUESTION SRO 8

In accordance with Technical Specification Bases, the RPV water level high (Level 8) trip function, of Reactor Protection System, ensures that ____.

- A. fuel clad and reactor coolant pressure boundary challenge is minimized
- B. the Minimum Critical Power Ratio (MCPR) does not exceed the MCPR Safety Limit
- C. along with safety relief valves, limits the peak reactor pressure to less than the ASME code limits
- D. the possibility of fuel damage is minimized and to reduce the amount of energy being added to the coolant

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		2
	K/A#	295014	2.2.25
	Importance Rating		4.2
K&A: Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits.			
Inadvertent Reactivity Addition			
<p>Explanation: Answer B – per Tech Spec Bases for RPS Instrumentation on high Rx Water level.</p> <p>A – incorrect – TS Bases for Steam Dome Pressure High</p> <p>C – incorrect – TS Bases for APRM Fixed Neutron Flux High</p> <p>D – incorrect – TS bases for DW Pressure High</p>			
Technical Reference(s): TS 3.3.1.1 Bases		Reference Attached: TS 3.3.1.1 Bases p B 3.3-13	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-07.G			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank # Modified Bank # New</div> <div>Perry 2005</div> </div>		
Question History:	<div style="display: flex; justify-content: space-between;"> <div>Previous NRC Exam</div> <div>Perry 2005</div> </div>		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge Comprehension or Analysis</div> <div>X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41 55.43</div> <div>X b.2</div> </div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION SRO 9

Following a plant transient, the following conditions existed:

- Operating in EOP-1A Level Power Control
- No boron has been injected

A short time later, the Reactor Operator reports the following:

- Reactor Power is on the IRMs on Range 2 and lowering
- 16 control rods remain to be inserted

As the Unit Supervisor you would ____.

- A. continue to operate in EOP-1A Level Power Control only
- B. continue to operate in EOP-1A Level Power Control and transition power control actions to ONI-C71-1 Reactor Scram
- C. exit EOP-1A Level Power Control and transition to EOP-1 RPV Control with power control actions directed from ONI-C71-1 Reactor Scram
- D. exit EOP-1A Level Power Control and transition to ONI-C71-1 Reactor Scram

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		2
	K/A#	295015	AA2.02
	Importance Rating		4.2
K&A: Ability to determine and/or interpret the following as they apply to INCOMPLETE SCRAM: Control rod position.			
Incomplete SCRAM			
<p>Explanation: Answer B – per EOP-1A – suspend power control actions of EOP-1A and transition to ONI-C71-1 with reactor not critical (IRM range 3 or lower) and no boron injection</p> <p>A – incorrect – will also operate in ONI-C71-1</p> <p>C & D – incorrect – cannot exit EOP-1A until Rx shutdown under all conditions without boron</p>			
Technical Reference(s): EOP-1A rev 0		Reference Attached: EOP-1A pp 9 & 12	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3402-03.C & D			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank #</div> <div>Modified Bank #</div> <div>New</div> </div> <div style="text-align: right; margin-top: -10px;">X</div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge</div> <div>Comprehension or Analysis</div> </div> <div style="text-align: right; margin-top: -10px;">X</div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41</div> <div>55.43</div> <div>X b.5</div> </div>		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION SRO 10

The following alarms and indications are noted on the Plant Airborne Radiation Monitors (D17) and the following Post Accident Radiation Monitors (D19):

- Auxiliary Bldg Vent 1D17-K700: Particulate, Iodine and Gas Channels - off scale High.
- Unit 2 Plant Vent 2D17-K780: Particulate, Iodine, and Gas Channels - Normal
- Unit 1 Plant Vent 1D17-K780: Particulate and Iodine channels - Alert, Gas - off scale High
- Off Gas Vent Pipe 1D17-K830: Particulate, Iodine, and Gas Channels - Normal
- TB/HB Vent 1D17-K850: Particulate, Iodine and Gas Channels - off scale High
- Unit 1 Plant Vent 1D19-K300: 1.0E-3 $\mu\text{Ci/cc}$ on Mid Range Gas Channel
- TB/HB Vent 1D19-K500: 1.0 $\mu\text{Ci/cc}$ on Mid Range Gas Channel
- Chemistry reports Fuel Clad Damage Source term on Reactor coolant sample
- Chemistry predicts emergency dose calculations to be complete in 20 minutes

The source of the primary system leak is a pipe break in the __ (1) __. As the Unit Supervisor you would direct __ (2) __.

Reference Provided: EOP-5 and EPI-A1 Attachment 2

1	2
A. steam tunnel / turbine building east	emergency depressurization per EOP-5 Radioactive Release Control
B. steam tunnel / turbine building east	anticipate emergency depressurization per EOP-1 RPV Control
C. Reactor Water Cleanup Pump room	emergency depressurization per EOP-5 Radioactive Release Control
D. Reactor Water Cleanup Pump room	anticipate emergency depressurization per EOP-1 RPV Control

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		1
	Group #		2
	K/A#	295017	AA2.04
	Importance Rating		4.3
K&A: Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE: Source of off-site release.			
High Off-Site Release Rate			
<p>Explanation: Answer A – leak in steam tunnel would cause high on TB/HB, Aux Bldg and U1 vent rad monitors. With TB/HB rad monitor high off scale, EPI-A1 requires General Emergency. General Emergency requires ED per EOP-5</p> <p>B – incorrect – requirements for GE are met. Can no longer anticipate ED</p> <p>C & D incorrect – leak in RWCU would only cause high on Aux Bldg and U1 vent rad monitors</p>			
Technical Reference(s): EOP-3, Rev 0, EPI-A1 Rev 18, dwgs 912-614 rev v & 912-615 rev AA		Reference Attached: EOP-3, pp 33-34, EPI-A1 47,49, 51, & 52, dwgs 912-614 & 912-615	
Proposed references to be provided to applicants during examination: EOP-5 and EPI-A1 Att. 2 H series			
Learning Objective (As available): OT-Combined-M47.B, OT-3402-15.C			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank #</div> <div>Modified Bank #</div> <div>New</div> </div> <div style="text-align: right; margin-top: 5px;">X</div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge</div> <div>Comprehension or Analysis</div> <div>X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41</div> <div>55.43 X b.4</div> </div>		
Comments: Level of Difficulty = 3.5			

NRC EXAM - 2009

QUESTION SRO 11

The following conditions exist:

- The plant is operating in EOP-1A Level Power Control
- APRMs are downscale

Under which of the following conditions would you as the Unit Supervisor be required to direct boron injection per EOP-1A Level Power Control?

- A. Reactor power is approximately 4%
- B. Reactor power is 1% with a Heat Capacity Limit challenge
- C. Reactor power is on range 2 of IRMs with a loss of level indication
- D. Reactor power is on range 2 of IRMs with a Pressure Suppression Pressure challenge

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		1
	K/A#	211000	2.4.20
	Importance Rating		4.3
K&A: Knowledge of the operational implications of EOP warnings, cautions, and notes.			
Standby Liquid Control System			
<p>Explanation: Answer B – per EOP-1A Bases, SLC must be injected prior to reaching 110 degrees in Suppression Pool – challenge to HCL.</p> <p>A, C, & D – incorrect – these previously required boron injection under the old PEIs</p>			
Technical Reference(s): EOP-1A Rev 0		Reference Attached: EOP-1A pp 18-22	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C41-B			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank #</div> <div>Modified Bank #</div> <div>New</div> </div> <div style="text-align: right; margin-top: -10px;">X</div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge</div> <div>Comprehension or Analysis</div> <div>X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41</div> <div>55.43 X b.5</div> </div>		
<p>Comments: Level of Difficulty = 4</p> <p>Major change for Perry from PEI's to EOP's. Boron injection is more restrictive under EOP's based on potential reactivity excursion if boron is injected early.</p>			

NRC EXAM - 2009

QUESTION SRO 12

The plant was operating at 100% reactor power when a grid disturbance caused a generator load rejection. This resulted in a reactor scram. All plant equipment responded as designed.

Per RPS Instrumentation Tech Spec Bases, the primary scram signal analyzed to provide protection from a generator load rejection event is __ (1) __.

As the Unit Supervisor you direct a reactor level band of __ (2) __ per EOP-1 RPV Control.

1

2

- | | | |
|----|---|--------------|
| A. | reactor vessel steam dome pressure high | 130" to 219" |
| B. | reactor vessel steam dome pressure high | 178" to 219" |
| C. | turbine control valve fast closure, trip oil pressure low | 130" to 219" |
| D. | turbine control valve fast closure, trip oil pressure low | 178" to 219" |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		1
	K/A#	212000	A2.15
	Importance Rating		3.8
<p>K&A: Ability to (a) predict the impacts of the following on the REACTOR PROTECTION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Load rejection</p>			
<p>Reactor Protection System</p>			
<p>Explanation: Answer D – per Tech Spec Bases, TCV fast closure is primary scram signal for load reject. The level band for pressure control on bypass valves is 185” to 215”.</p> <p>A & B – incorrect – high steam dome pressure is backup protection</p> <p>C incorrect – 150” to 215” is the expanded level band for pressure control on SRVs. SRV actuation will occur on scram then will reclose.</p>			
<p>Technical Reference(s): TS 3.3.1.1 Bases & USAR Rev 12 and EOP-1 Guideline rev 0</p>		<p>Reference Attached: TS 3.3.1.1 Bases pp B3.3-11 & 18 & USAR p 15.2-57 and EOP-1 Guideline</p>	
<p>Proposed references to be provided to applicants during examination: None</p>			
<p>Learning Objective (As available): OT-3037-07-G, OT-3402-02.B</p>			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank # Modified Bank # New</div> <div style="text-align: right;">X</div> </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge Comprehension or Analysis</div> <div style="text-align: right;">X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41 55.43</div> <div style="text-align: right;">X b.2</div> </div>		
<p>Comments: Level of Difficulty = 3.5</p>			

NRC EXAM - 2009

QUESTION SRO 13

The following plant conditions exist:

- Plant is in Mode 5
- CORE ALTERATIONS are in progress per IOI-9 Refueling, Section 4.7, Mode 5/ Core Alterations
- The next fuel bundle move is designated for reactor core position 09-42
- The fuel bundle is currently in the Containment Fuel Pool Storage area
- Source Range Monitor (SRM) Channel 'A' fails and is declared INOPERABLE
- All other SRMs are OPERABLE

As the Refueling Supervisor, which one of the following actions regarding the next fuel bundle move should you perform, including the bases for this action?

Reference Provided: Reactor Core Map

- A. Continue the fuel bundle move; it can be completed since the SRM in the affected core quadrant is OPERABLE.
- B. Continue the fuel bundle move; it can be completed since the SRM in the adjacent core quadrant is OPERABLE
- C. Suspend the fuel bundle move; it cannot be completed since the SRM in the affected core quadrant is inoperable
- D. Suspend the fuel bundle move; it cannot be completed since the SRM in the adjacent core quadrant is inoperable

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		1
	K/A#	215004	2.1.23
	Importance Rating		4.4
K&A: Ability to perform specific system and integrated plant procedures during all modes of plant operation.			
Source Range Monitor (SRM) System			
<p>Explanation: Answer C</p> <p>A & B - incorrect – Technical Specifications require the SRM in the quadrant where the fuel is being loaded to be OPERABLE in order to allow core alterations.</p> <p>D – incorrect – SRM A is in the affected quadrant.</p>			
Technical Reference(s): Tech Spec 3.3.1.2 Bases	Reference Attached: Tech Spec 3.3.1.2 Bases pp B 3.3-35 & 38 and SOI-F15 p 126 (Reactor Core Map)		
Proposed references to be provided to applicants during examination: Reactor Core Map			
Learning Objective (As available): OT-3037-005-07 F&H			
Question Source:	Bank # Modified Bank # New	Perry 2002	
Question History:	Previous NRC Exam	Perry 2002	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41 55.43 X b.6		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION SRO 14

The plant is operating at 70% power with the following conditions:

- RFPT A & B on DFWCS in 3-Element control
- Motor Feed Pump in Standby with MFP AUTO Xfer feature ARMED

The following occurs:

- DFWCS RPV Level Channel A fails upscale
- DFWCS RPV Level Channel B fails downscale

The failure of these channels will cause the DFWCS to shift __ (1) __.

As the Unit Supervisor you would direct the Reactor Operator to __ (2) __.

1

2

- | | | |
|----|---|---|
| A. | to the manual speed control dial | transfer DFWCS to AUTO per SOI-C34
Feedwater Control System |
| B. | to the manual speed control dial | maintain RPV level 192" to 200" per ONI-C34
Feedwater Flow Malfunction |
| C. | the feed pump flow controllers to
manual | transfer DFWCS to AUTO per SOI-C34
Feedwater Control System |
| D. | the feed pump flow controllers to
manual | maintain RPV level 192" to 200" per ONI-C34
Feedwater Flow Malfunction |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		1
	K/A#	259002 A2.03	
	Importance Rating		3.7
<p>K&A: Ability to (a) predict the impacts of the following on the REACTOR WATER LEVEL CONTROL SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Loss of reactor water level input</p>			
<p>Reactor Water Level Control System</p>			
<p>Explanation: Answer D – loss of 2 RPV level inputs shifts DFWCS to manual flow controllers and level is maintained per ONI-C34</p> <p>A & B incorrect – DFWCS will no longer auto shift to manual speed control dials. C – incorrect – can not transfer DFWCS to auto with 2 RPV level inputs lost</p>			
<p>Technical Reference(s): ONI-C34 Rev 8 and SOI-C34 Rev 24</p>		<p>Reference Attached: ONI-C34 pp 5 & 6 and SOI-C34 p 6</p>	
<p>Proposed references to be provided to applicants during examination: None</p>			
<p>Learning Objective (As available): OT-Combined-C34-D.1</p>			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank # Modified Bank # New</div> <div>X</div> </div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge Comprehension or Analysis</div> <div>X</div> </div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41 55.43</div> <div>X b.5</div> </div>		
<p>Comments: Level of Difficulty = 3.5</p>			

NRC EXAM - 2009

QUESTION SRO 15

The plant is in Mode 5 with refueling operations in progress. The following plant conditions exist:

- High Pressure Core Spray and Bus EH13 are out of service
- Division 1 and 2 Diesel Generators are Operable
- RHR B is operating in Refuel Mode Shutdown Cooling
- Reactor water temperature is 100°F and stable
- RHR A Shutdown Cooling is Available
- Bus EH11 is on Alternate Preferred source
- Bus EH12 is on Preferred source

The following occurs:

- Lockout of Unit 1 Startup Transformer
- SAS reports a confirmed fire in Division 2 Diesel Generator room

As the Shift Manager, evaluate entry into the Emergency Plan. Update the crew as follows:

A ____ will result in an ALERT classification.

Reference Provided: EPI-A1 Attachments 1 & 2

- A. loss of the Alternate Preferred source
- B. loss of RHR A loop Shutdown Cooling
- C. report of damage to Division 2 Diesel Generator
- D. report that the DG fire cannot be extinguished within 15 minutes

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		1
	K/A#	264000	2.4.21
	Importance Rating		4.6
<p>K&A: Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.</p>			
<p>Emergency Generators (Diesel/Jet)</p>			
<p>Explanation: Answer C – report of damage results in Alert entry at FA-1 A – incorrect – still have Div 1 DG – DA2 B – incorrect – must exceed or rapidly approach 200°F – BA1 D – incorrect – fire for 15 minutes is unusual event – FU1</p>			
Technical Reference(s): EPI-A1 Rev 18		Reference Attached: EPI-A1 pp 21, 31, 37, 39, & 40	
Proposed references to be provided to applicants during examination: EPI-A1 Attachments 1 & 2			
Learning Objective (As available): EPL-0804-01 4			
Question Source:		Bank # Modified Bank # New X	
Question History:		Previous NRC Exam	
Question Cognitive Level:		Memory or Fundamental Knowledge Comprehension or Analysis X	
10 CFR Part 55 Content:		55.41 55.43 X b.5	
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION SRO 16

A plant startup is in progress with reactor power at 29%.

- Number 1 Turbine Bypass Valve fails open.
- Full Core Display, RPC MODE light is between GP1-4 Full Out and LO Power Set PT marks.

The __ (1) __ and the Unit Supervisor would suspend control rod __ (2) __.

(1)

(2)

- | | | |
|----|--------------------------------------|--------------------------|
| A. | Rod Withdrawal Limiter is Inoperable | withdrawal |
| B. | Rod Withdrawal Limiter is Inoperable | movement except by scram |
| C. | Rod Pattern Controller is Inoperable | withdrawal |
| D. | Rod Pattern Controller is Inoperable | movement except by scram |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		2
	K/A#	201005	2.1.7
	Importance Rating		4.7
K&A: Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretation.			
Rod Control and Information System			
<p>Explanation: Answer A – Power greater than low power setpoint with RWL INOP suspend control rod withdrawal</p> <p>B – incorrect, this is the action for Rod Pattern Controller Inoperable</p> <p>C – incorrect wrong control rod block instrument but correct action</p> <p>D – incorrect, wrong Control Rod Block Instrument but correct action for that instrument</p>			
Technical Reference(s): Tech Spec 3.3.2.1 and ARI-H13-P680-0005-C9 Rev 11		Reference Attached: TS 3.3.2.1 p 3.3-15 and TS Bases p B3.3-46 and ARI-H13-P680-0005-C9	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-Combined-C11_RC&IS J.5			
Question Source:	Bank # Modified Bank # New	Perry 2007-2 Audit	
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 55.43 X b.2		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION SRO 17

Core Alterations were stopped for scheduled Surveillance SVI-C71-T0427 Rx Mode Switch Refuel Mode Channel Functional.

SVI-C71-T0427 Scope states in part:

- Instruction verifies operability for Reactor Mode Switch REFUEL Position interlocks:
 1. Refuel Position One-Rod-Out Interlock
 2. Refueling Equipment Interlocks
 - a. All-rods-in
 - b. Refuel platform position
 - c. Refuel platform main hoist, fuel loaded

All Tech Spec dollar sign (\$) steps in the SVI were found unsatisfactory.

NOT including Special Operations, what are the required Tech Spec Actions?

- A. Insert a control rod withdrawal block.
AND
Verify all control rods are fully inserted.
- B. Suspend control rod withdrawal.
AND
Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.
- C. Suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s).
AND
Suspend control rod withdrawal.
AND
Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.
- D. Suspend control rod withdrawal.
OR
Insert a control rod withdrawal block.
AND
Verify all control rods are fully inserted.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		2
	Group #		2
	K/A#	234000	K4.02
	Importance Rating		4.1
K&A: Knowledge of Fuel Handling Equipment design feature(s) and / or interlocks which provide for the following: Prevention of control rod movement during core alterations			
Fuel Handling Equipment			
<p>Explanation: Answer C – SVI verifies TS 3.9.1 and 3.9.2 Operability Correct answer includes TS 3.9.1 A.1 and TS 3.9.2 A.1 and A.2</p> <p>A – incorrect – This is correct answer for TS 3.9.1 only</p> <p>B – incorrect – This is the Correct answer for TS 3.9.2 only</p> <p>D – incorrect – this is a combination of TS 3.9.1 and 3.9.2.</p>			
Technical Reference(s): SVI-C71-T0427 Rev 7, TS 3.9.1, and TS 3.9.2		Reference Attached: SVI-C71-T0427 pp 1 & 4, TS 3.9.1, and TS 3.9.2	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3601-01-F.2 & F.3			
Question Source:	<div style="display: flex; justify-content: space-between;"> <div>Bank #</div> <div>Modified Bank #</div> <div>New</div> </div> <div style="text-align: right; margin-top: 5px;">X</div>		
Question History:	Previous NRC Exam		
Question Cognitive Level:	<div style="display: flex; justify-content: space-between;"> <div>Memory or Fundamental Knowledge</div> <div>Comprehension or Analysis</div> </div> <div style="text-align: right; margin-top: 5px;">X</div>		
10 CFR Part 55 Content:	<div style="display: flex; justify-content: space-between;"> <div>55.41</div> <div>55.43</div> </div> <div style="margin-top: 5px;">X b.7 and b.2</div>		
Comments: Level of Difficulty = 4			

NRC EXAM - 2009

QUESTION SRO 18

The plant is operating at 20% power with the Pressure Regulator operating on Channel A. Channel B is out of service.

A failure in the pressure transmitters is causing the sensed pressure signal to the pressure regulation system to slowly degrade from 950 psig towards 0 psig.

Reactor Pressure will __ (1) __, and as the Unit Supervisor you would enter __ (2) __ to control pressure.

- | | (1) | (2) |
|----|----------|---|
| A. | increase | ONI-C85-1 Pressure Regulator Failure - Closed |
| B. | increase | ONI-C85-2 Pressure Regulator Failure – Open |
| C. | decrease | ONI-C85-1 Pressure Regulator Failure - Closed |
| D. | decrease | ONI-C85-2 Pressure Regulator Failure - Open |

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO						
	Tier #		2						
	Group #		2						
	K/A#	241000	A2.16						
	Importance Rating		3.4						
<p>K&A: Ability to (a) predict the impacts of the following on the REACTOR/TURBINE PRESSURE REGULATING SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Low turbine inlet pressure (loss of pressure signal)</p>									
<p>Reactor/Turbine Pressure Regulating System</p>									
<p>Explanation: Answer A – Pressure signal failing low the control valves will close to raise pressure as the valves close Reactor Pressure will rise, ONI-C85-1 is the correct Off Normal instruction.</p> <p>B – incorrect, wrong procedure</p> <p>C and D – incorrect, pressure will increase</p>									
<p>Technical Reference(s): ONI-C85-1 Rev 7</p>		<p>Reference Attached: ONI-C85-1 pp 3 and 4 N32/C85 Block Diagram</p>							
<p>Proposed references to be provided to applicants during examination: None</p>									
<p>Learning Objective (As available): OT-Combined-N32_C85-O</p>									
<p>Question Source:</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Bank #</td> <td></td> </tr> <tr> <td>Modified Bank #</td> <td></td> </tr> <tr> <td>New</td> <td style="text-align: center;">X</td> </tr> </table>			Bank #		Modified Bank #		New	X
Bank #									
Modified Bank #									
New	X								
<p>Question History:</p>	<p>Previous NRC Exam</p>								
<p>Question Cognitive Level:</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Memory or Fundamental Knowledge</td> <td></td> </tr> <tr> <td>Comprehension or Analysis</td> <td style="text-align: center;">X</td> </tr> </table>			Memory or Fundamental Knowledge		Comprehension or Analysis	X		
Memory or Fundamental Knowledge									
Comprehension or Analysis	X								
<p>10 CFR Part 55 Content:</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">55.41</td> <td></td> </tr> <tr> <td>55.43</td> <td style="text-align: center;">X b.5</td> </tr> </table>			55.41		55.43	X b.5		
55.41									
55.43	X b.5								
<p>Comments: Level of Difficulty = 2</p>									

NRC EXAM - 2009

QUESTION SRO 19

Plant is in Mode 1. It is January 20th 2009.

Prior to assuming the shift as the Unit Supervisor, a check of the FITS qualification matrix for Unit Supervisor Certification shows that you are **not** qualified.

Which condition would have caused you to be De-Certified as a Unit Supervisor?

- A. Successfully completed a re-qualification exam in October 2006 in training cycle 11 and then again in December 2008 in training cycle 11.
- B. NRC Form 396 Certification of Medical Examination by Facility Licensee completed in December of 2006.
- C. Last quarter you stood 6 – 8 hour watches as the ATC and 5 – 12 hour watches as the Unit Supervisor.
- D. SRO License was issued in December of 2004.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO									
	Tier #		3									
	Group #											
	K/A#	2.1.4										
	Importance Rating		3.8									
K&A: Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, “no-solo” operation, maintenance of active license status, 10CFR55, etc.												
Conduct of Operations												
Explanation: Answer B – require a medical exam every two years, expired 12/31/2008 A – incorrect, exceeded two years but within the 24 month training cycle C – incorrect, decertified Reactor Operator for not standing required RO watches, a number of SRO at Perry stand RO and SRO watches. D – incorrect, expires in December of 2010												
Technical Reference(s): 10CFR55		Reference Attached: None										
Proposed references to be provided to applicants during examination: None												
Learning Objective (As available): OT-2600-01												
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question Source:</td> <td style="width: 30%;">Bank #</td> <td style="width: 40%;"></td> </tr> <tr> <td></td> <td>Modified Bank #</td> <td></td> </tr> <tr> <td></td> <td>New</td> <td style="text-align: center;">X</td> </tr> </table>				Question Source:	Bank #			Modified Bank #			New	X
Question Source:	Bank #											
	Modified Bank #											
	New	X										
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question History:</td> <td style="width: 70%;">Previous NRC Exam</td> </tr> </table>				Question History:	Previous NRC Exam							
Question History:	Previous NRC Exam											
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Question Cognitive Level:</td> <td style="width: 40%;">Memory or Fundamental Knowledge</td> <td style="width: 30%; text-align: center;">X</td> </tr> <tr> <td></td> <td>Comprehension or Analysis</td> <td></td> </tr> </table>				Question Cognitive Level:	Memory or Fundamental Knowledge	X		Comprehension or Analysis				
Question Cognitive Level:	Memory or Fundamental Knowledge	X										
	Comprehension or Analysis											
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">10 CFR Part 55 Content:</td> <td style="width: 70%;">55.41</td> </tr> <tr> <td></td> <td>55.43 X b.1</td> </tr> </table>				10 CFR Part 55 Content:	55.41		55.43 X b.1					
10 CFR Part 55 Content:	55.41											
	55.43 X b.1											
Comments: Level of Difficulty = 3												

NRC EXAM - 2009

QUESTION SRO 20

As the Command SRO you are tasked with making conservative decisions in regard to plant operation.

1. OPRMs are Operable, 100% Loadline, 50% Rated Flow, OPRM ALARM annunciator is alarming and clearing at a steady frequency, INHIBIT ROD MOTION RCIS OOS annunciator is locked in.
2. OPRMs are Operable, 75% Loadline, 70% Rated Flow, OPRM ALARM annunciator alarmed and cleared, INHIBIT ROD MOTION RCIS OOS annunciator is locked in.
3. With the plant at rated conditions, a SRV has failed open, all actions of the off normal instruction are complete. Suppression Pool Temperature is 105°F and rising, I&C has found the cause of the failure.
4. Power is at 50% and power ascension is in progress after a refuel outage. An accident in the FHB involving spent fuel has caused the Shift Manager to declare a Site Area Emergency. No MAX safe condition is met.
5. Security reports a Probable Aircraft Threat.
6. A Homeland Security Advisory System (HSAS) declaration of a RED threat level specific to the Perry Plant has been issued.
7. With the plant at 18% power, SCC reports an actual Grid attack on Perry.
8. Indications exist that OBE levels have been exceeded, all other plant indications indicate the plant is currently stable.

Evaluate the above listed events and determine which events would require you to insert a Reactor Scram in order maintain safe operation of the facility?

- A. Events 2, 4, 5, and 8
- B. Events 1, 3, 5, and 7
- C. Events 2, 6, 7, and 8
- D. Events 1, 3, 4, and 6

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		
	K/A#	2.1.39	
	Importance Rating		4.3
K&A: Knowledge of conservative decision making practices.			
Conduct of Operations			
<p>Explanation: Answer B – Event 1, 3, 5, and 7</p> <p>Event 1 – Perry Event, automatic scram resulted</p> <p>Event 2 – OPRM alarm problem only, not in tripped region no reason to scram</p> <p>Event 3 – Perry Event, scram should have been performed</p> <p>Event 4 – no max safe, no primary system discharging, scrambling the reactor will not help</p> <p>Event 5 – Scram required per ONI-P56-3</p> <p>Event 6 – this a NON imminent threat, scram not warranted</p> <p>Event 7 – turbine trip and grid separation required per ONI-P56-4, if just a turbine trip bypass valves would function if they forget they have to separate from the grid</p> <p>Event 8 – no plant problems, Normal Shutdown required per ONI-D51</p>			
Technical Reference(s): ONI-P56-2 Rev 14, ONI-P56-3 Rev 8, ONI-P56-4 Rev 0, and ONI-D51Rev 12, Tech Spec 3.3.1.3		Reference Attached: ONI-P56-2 p 10, ONI-P56-3 p 6, ONI-P56-4 p 6, and ONI-D51p 5, and TS p B 3.3-41c	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): Conservative Decision Making process throughout the program			
Question Source:	Bank # Modified Bank # New		X
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis		X
10 CFR Part 55 Content:	55.41 55.43 X b.5		
Comments: Level of Difficulty = 4			

NRC EXAM - 2009

QUESTION SRO 21

A proposed plant modification must always have prior approval from the NRC if ____.

- A. it requires a 50.59 evaluation
- B. it involves a system described in the UFSAR
- C. it involves a system included in the Technical Specifications
- D. it results in a design basis limit for Primary Containment being altered

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		
	K/A#	2.2.5	
	Importance Rating		3.2
K&A: Knowledge of the process for making design or operating changes to the facility.			
Equipment Control			
<p>Explanation: Answer D – design bases alteration requires a license amendment prior to implementation.</p> <p>A – incorrect, this evaluation will determine if NRC approval is required</p> <p>B - incorrect, must have a 50.59 evaluation but not necessarily NRC approval</p> <p>C - incorrect, must have a 50.59 evaluation but not necessarily NRC approval</p>			
Technical Reference(s): 10-CFR-50.59 NOP-LP-4003 Rev 4, NOP-CC-2003 Rev 14		Reference Attached: Forms NOP-LP-4003-01, 02 and 03	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039 Admin and OT-3037-01			
Question Source:	Bank # Modified Bank # New	River Bend 2004	
Question History:	Previous NRC Exam River Bend 2004		
Question Cognitive Level:	Memory or Fundamental Knowledge X Comprehension or Analysis		
10 CFR Part 55 Content:	55.41 55.43 X b.3		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION SRO 22

A plant startup is in progress with the reactor critical and the Reactor Mode Switch in STARTUP. Reactor Power is 10% with preparation being made to place the Reactor Mode Switch to RUN.

The following alarms are received in the Control Room:

- STARTING AIR PRESSURE LOW on Division 1 DG
- STARTING AIR PRESSURE LOW on Division 2 DG

Plant Operator reports that the Division 1 DG air receiver pressures are 155 psig and the Division 2 DG air receiver pressures are 205 psig.

What should the Unit Supervisor direct and how is this direction justified?

- A. Stop actions to place the Reactor Mode Switch to Run because Division 1 DG is Inoperable.
- B. Stop actions to place the Reactor Mode Switch to Run because Division 1 and 2 DGs are Inoperable.
- C. Continue the startup including actions to place the Reactor Mode Switch to Run because both Division 1 and 2 DGs remain Operable.
- D. Continue the startup including actions to place the Reactor Mode Switch to Run because Division 2 remains Operable and therefore sufficient AC sources are Operable.

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		
	K/A#	2.2.44	
	Importance Rating		4.4
K&A: Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.			
Equipment Control			
<p>Explanation: Answer A – with receiver pressure less than 165 psig the DG would immediately be declared Inoperable, Per LCO 3.0.4 would prevent a mode change.</p> <p>B – incorrect, less than 220 psig requires entry to LCO 3.8.3 but DG remains Operable and you have 48 hours to restore air pressure to greater than 220 psig</p> <p>C – incorrect, Div 1 DG is Inoperable</p> <p>D – incorrect, Per LCO 3.0.4 Mode change can not be made, although the actions of 3.8.1 would allow time to restore due to having sufficient sources</p>			
Technical Reference(s): Tech Spec 3.8.3, ARI-H13-P877-001-D4 rev 8		Reference Attached: TS 3.8.3 pp 3.8-21 and 3.8-22, ARI-H13-P877-001-D4 p 41	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3037-04-D and OT-3037-12-A			
Question Source:	Bank # Modified Bank # New	Clinton 2004	
Question History:	Previous NRC Exam	Clinton 2004	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 55.43 X b.2		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION SRO 23

Plant is in Mode 1.

Preparations are in progress for a liquid release per SVI-G50-T5266 Liquid Radwaste Release Permit and RWI-G50 (RWDS) Radwaste Discharge System.

Prior to the discharge commencing authorization must be obtained from the ____.

- A. Chemistry Supervisor and the Unit Supervisor
- B. Radwaste Supervising Operator and the Unit Supervisor
- C. Unit Supervisor and the Chemistry Manager
- D. Shift Manager only

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		
	K/A#	2.3.6	
	Importance Rating		3.8
K&A: Ability to approve release permits.			
Radiation Control			
<p>Explanation: Answer D – Shift Manager authorization is required</p> <p>A – incorrect, Shift Manager Required</p> <p>B – incorrect, RWSO performs line up and obtains the authorization from the shift manager</p> <p>C – incorrect, chemistry performs all sampling and calculations, but shift manager authorizes</p>			
Technical Reference(s): SVI-G50-T5266 Rev 18		Reference Attached: SVI-G50-T5266 p 8	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): OT-3039-01			
Question Source:	Bank # Modified Bank # New	LaSalle 2003	
Question History:	Previous NRC Exam	LaSalle 2003	
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis	X	
10 CFR Part 55 Content:	55.41 55.43 X b.4		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION SRO 24

An Alert was classified at 1200

Initial notification was complete at 1210

First Follow-up notification is due at __ (1) __

Site Area Emergency was classified at 1330

Initial notification was completed at 1340

First Follow-up notification was completed at 1420

Second Follow-up notification is due at __ (2) __

	(1)	(2)
A.	1300	1520
B.	1300	1530
C.	1310	1520
D.	1310	1540

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO
	Tier #		3
	Group #		
	K/A#	2.4.29	
	Importance Rating		4.4
K&A: Knowledge of the emergency plan.			
Emergency Procedures / Plan			
<p>Explanation: Answer A – First follow-up is one hour from classification, second and subsequent follow-ups are 1 hour from when follow-ups completed</p> <p>B – incorrect, 1300 is correct, 1530 is the time 2 hours from initial classification</p> <p>C – incorrect, 1310 is one hour from notification, and 1520 is one hour from when first follow-up completed which is correct</p> <p>D – incorrect, 1310 is one hour from notification, and 1540 is two hours from when initial notification was completed if they believe the clock starts from initial notification</p>			
Technical Reference(s): EPI-A2 Rev 14		Reference Attached: EPI-A2 p 18	
Proposed references to be provided to applicants during examination: None			
Learning Objective (As available): EPL-0804-01-11			
Question Source:	Bank # Modified Bank # New X		
Question History:	Previous NRC Exam		
Question Cognitive Level:	Memory or Fundamental Knowledge Comprehension or Analysis X		
10 CFR Part 55 Content:	55.41 55.43 X b.5 or 7		
Comments: Level of Difficulty = 3			

NRC EXAM - 2009

QUESTION SRO 25

Alert JA1 was declared.

Emergency Coordinator duties remain with the Shift Manager.

When the Shift Manager is ready to terminate from event, the Shift Manager is responsible to terminate the event ____.

Reference Provided: EPI-A1 Attachments 1 & 2

- A. after consulting with the NRC, State and local counties
- B. after consulting with the State and local counties
- C. after consulting with the NRC
- D. without consultation

NRC EXAM - 2009

Examination Outline Cross-Reference	Level:	RO	SRO						
	Tier #		3						
	Group #								
	K/A#	2.4.38							
	Importance Rating		4.4						
<p>K&A: Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.</p>									
<p>Emergency Procedures / Plan</p>									
<p>Explanation: Answer A – PNPP is responsible for all event termination, consultation with NRC, State, & local counties is required for Alert or greater.</p> <p>B, C, and D – incorrect – the Emergency Coordinator must consult with NRC, State, & local counties for Alert or higher</p>									
<p>Technical Reference(s): EPI-A1 rev 19 & EPI-A2 rev 14</p>		<p>Reference Attached: EPI-A1 p 11 & EPI-A2 pp 13 and 17</p>							
<p>Proposed references to be provided to applicants during examination: EPI-A1 Attachments 1 & 2</p>									
<p>Learning Objective (As available): EPL-0804-01-7</p>									
<p>Question Source:</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">Bank #</td> <td></td> </tr> <tr> <td>Modified Bank #</td> <td></td> </tr> <tr> <td>New</td> <td style="text-align: center;">X</td> </tr> </table>			Bank #		Modified Bank #		New	X
Bank #									
Modified Bank #									
New	X								
<p>Question History:</p>	<p>Previous NRC Exam</p>								
<p>Question Cognitive Level:</p>	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Memory or Fundamental Knowledge</td> <td style="text-align: center;">X</td> </tr> <tr> <td>Comprehension or Analysis</td> <td></td> </tr> </table>			Memory or Fundamental Knowledge	X	Comprehension or Analysis			
Memory or Fundamental Knowledge	X								
Comprehension or Analysis									
<p>10 CFR Part 55 Content:</p>	<p>55.41 55.43 X b.5 or 7</p>								
<p>Comments: Level of Difficulty = 3</p>									

RO Exam Answer Key - Corrected

Perry 2009 NRC Exam

Question	Answer	Question	Answer	Question	Answer
1	A	26	A	51	B
2	A	27	B	52	D
3	C	28	C	53	A
4	C	29	C	54	C
5	B	30	D	55	B
6	C	31	B	56	C
7	D	32	D	57	D
8	C	33	D	58	D
9	D	34	A	59	B
10	B	35	A	60	B
11	D	36	C	61	D
12	C	37	B	62	D
13	B	38	B	63	C
14	B	39	C	64	B
15	A	40	A	65	B
16	D	41	D	66	C
17	A	42	D	67	D
18	D	43	A	68	A
19	D	44	A	69	B
20	C	45	B	70	D
21	B	46	D	71	C
22	C	47	C	72	B
23	C	48	C	73	B
24	A	49	A	74	D
25	B	50	D	75	A

NOTE: Question 17 has been deleted

SRO Exam Answer Key

Perry 2009 NRC Exam - Corrected

Question	Answer
1	A
2	D
3	B
4	D
5	A
6	C
7	C
8	B
9	B
10	A
11	B
12	D & C
13	C
14	D
15	C
16	A
17	C
18	A
19	B
20	B
21	D
22	A
23	D
24	A
25	A

NOTE: From Post-Exam comments,
Question 12 has two correct answers.
Questions 16 and 25 have been deleted