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Constellation
Nuclear

Nine Mile Point
Nuclear Station

A Member of the
Constellation Energy Group

NMP-97925
June 10, 2002

Mr. Hubert J. Miller
Regional Administrator
USNRC Region I
475 Allendale Road
King of Prussia, PA 19406

ATTENTION: Mr. John Caruso

SUBJECT: NINE MILE POINT UNIT 2 INITIAL OPERATOR WRITTEN EXAMINATION SUBMITTAL

Mr. Miller:

In response to the NRC Corporate Notification Letter dated April 1, 2002, arrangements were made for the administration of licensing examinations at Nine Mile Point, Unit 2 during the week of July 29, 2002. The examinations are being prepared based on the guidelines in Revision 8, Supplement 1, of NUREG 1021, "Operator Licensing Examination Standards for Power Reactors." To meet the examination schedule, Nine Mile Point Nuclear Station is required to furnish the examinations by June 11, 2002.

Please withhold these examination materials from public disclosure until after the examinations have been completed.

If you have any questions regarding the submittal, please contact me at (315) 349-2073 or Mr. Jerry Bobka at (315) 349-2569.

Sincerely,

for Louis E. Pisano
Manager Nuclear Training

LEP/crr

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

Applicant Information

Name:	Region: (I) / II / III / IV
Date: July 29, 2002	Facility/Unit: Nine Mile Point Unit 2
License Level: (RO) / SRO	Reactor Type: W / CE / BW (GE)
Start Time:	Finish Time:

Instructions

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

Applicant Certification

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

_____
Applicant's Signature

Results

Examination Value	100 Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

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

Proposed Question: **RO 1, SRO 32**

With the plant at 28% power, a Generator armature fault occurs.

Which one of the following identifies the effect this would have on the Main Turbine?

A. Main Turbine trips

B. Turbine Load Reject occurs

C. Turbine Load is runback to 25%

D. Main Turbine remains on-line at previous load

Proposed Answer: **A**

Justification:	**A** correct - Main Turbine trips/armature protected. **B** incorrect – 40% imbalance cannot actuate at the power level. **C** incorrect – Loss of stator water response **D** incorrect – reverse of RPS interlock knowledge

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		02-OPS-001-245-2-02 (Page.39), EO-1.5	
KA:	295005, Main Turbine Generator Trip	AK 2.04, Main Generator Protection	
10 CFR Part 55 Content:		55.41(4)	X
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	X
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	X
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	295006	295006
	Importance Rating	4.2	4.3

Proposed Question: **RO 2, SRO 2**

The plant is in Mode 2 at 11% power when the MSIV's close due to a spurious isolation signal. A reactor scram also occurs.

After the scram, the following plant data is obtained to determine the RPS signal that initiated the SCRAM.

- Reactor pressure spiked to 1050 psig
- Reactor power spiked to 16%

Stem focus
Licensee Reformatted Stem

Which one of the following RPS signals initiated the scram?

A. High Reactor Power

B. High Reactor Pressure

C. MSIV position switches

D. Turbine Stop Valve position switches

Proposed Answer: **A**

Justification:	**A** correct – in STARTUP position SCRAM occurs at 15% power. **B** incorrect – scram on pressure occurs at 1057 psig. **C** incorrect – MSIV position scram bypassed in STARTUP. **D** incorrect – TSV/TCV scram bypassed when less than 30% power.

Proposed references to be provided to applicants during examination- None

Technical Reference(s):		O2-OPS-212-02-00	
KA:	295006 SCRAM	AK2.06, Knowledge of the interrelations between SCRAM and the following: 'Reactor power'	
10 CFR Part 55 Content:		55.41	(7) X
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	X
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	X
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	295009	295009
	Importance Rating	3.9	3.9

Proposed Question: **RO 3, SRO 5**

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

- One of the two operating Reactor Feedwater (FWS) Pumps trips.
- Annunciator 603139, "REACTOR WATER LEVEL HIGH/LOW" alarms.
- Narrow Range RPV water level is 175 inches and slowly lowering.
- The Feedwater Level Control Valves (LV10s) are observed to be opening
- Reactor Recirculation flow has remained constant.

Which one of the following actions is required by N2-SOP-06, Feedwater Failures, to **stabilize** RPV water level above the scram setpoint?

A. Place LV10 controller for the tripped FWS Pump in "MANUAL"

B. Place the Feedwater Master Level Controller in "MANUAL"

C. Reduce power per N2-SOP-101D, Rapid Power Reduction

D. Reduce power per N2-OP-101D, Power Changes

Proposed Answer: **C**

Justification:	**C** is correct - Immediate Action per N2-SOP-06. **A&B** incorrect - placing any controller in "MANUAL" will not stabilize level as FWLCS is responding properly. **D** incorrect not N2-SOP-06 Immediate Action and would not stabilize level before automatic scram

Proposed references to be provided to applicants during examination - None

Technical Reference(s):		N2-SOP-06	
KA:	295009: Low Reactor Water Level	AA1.01: Ability to operate/monitor the following as they apply to LOW REACTOR WATER LEVEL: 'Reactor feedwater'	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	295014	295014
	Importance Rating	3.7	4.2

Proposed Question: **RO 4, SRO 8**

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

- Annunciator 603443, Control Rod Drift, alarms
- Rod 34-23, originally at notch 14, indicates at 18, then 20 and continuing

Which one of the following describes the reactivity control actions required to minimize the potential for a Thermal Limit violation?

A. Insert rod 34-23 to position 00, only

B. Lower Recirculation (RCS) flow until power drops by 40 MWe, only

C. Lower Recirculation (RCS) flow until power drops to 89%, only

D. Lower power to 89% and insert rod 34-23 to 00

Proposed Answer: **D**

Justification: D	**B** is correct – Both power reduction below 90% and rod insertion are required. **A/B** are incorrect – Outward rod drift will raise power so power must be reduced to below 90%. **C** is incorrect – In addition to power reduction below 90% the rod must be inserted.

Proposed references to be provided to applicants during examination - None

Technical Reference(s):		N2-SOP-08, 3.4/4.3	
KA:	295014, Inadvertent Reactivity Addition	AK1.05, Knowledge of the operational implications of the following concepts as they apply to INADVERTANT REACTIVITY ADDITION: 'Fuel Thermal limits'	
10 CFR Part 55 Content:		55.41.5	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	295014	295014
	Importance Rating	4.0	4.1

Proposed Question: **RO 5, SRO 10**

The plant is operating at 95% power, with the following:

- "B" 6th Point Feedwater Heater extraction steam isolation valve closes
- Steady state Feedwater temperature drops to 406°F
- Reactor power level rises to 99%.

Which one of the following is the required operator action?

A. Perform a reactor scram.

B. Reduce reactor power to 89%.

C. Reduce reactor power to 95%.

D. Maintain reactor power at 99%.

Proposed Answer: **B**

Justification:	**B** is correct - Step 3.4 of N2-SOP-08 requires an initial power reduction to less than 90%. **A** incorrect - reactor scram is not required per N2-SOP-08. **C&D** incorrect - reactor power level is too high per N2-SOP-08.

Proposed references to be provided to applicants during examination - None

Technical Reference(s):		N2-SOP-08	
KA:	295014: Inadvertent Reactivity Addition	AA1.07: Ability to operate and/or monitor the following as they apply to INADVERTENT REACTIVITY ADDITION: 'Cold water injection'	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	295015	295015
	Importance Rating	2.8	3.0

Proposed Question: **RO 6, SRO 11**

A reactor scram has occurred, with the following:

- Reactor power is 10% on all APRMs
- The MODE SELECT indicated on SPDS screen is RUN mode

Which one of the following indicates the color that the APRM POWER will be displayed in on the SPDS screen?

A. Green

B. Yellow

C. Red

D. Magenta

Proposed Answer: **A**

Justification:	**A** is correct- As long as the SPDS mode is RUN, power above 4% will be displayed as Green. **B** incorrect- Yellow would be correct if MODE SELECT was Shutdown. **C** incorrect- Red displayed if above high value limit. **D** incorrect. Magenta is displayed for invalid data.

Proposed references to be provided to applicants during examination - None

Technical Reference(s):		O2-OPS-001-226-2-01	
KA:	295015: Incomplete SCRAM	AK2.10 Knowledge of interrelationship between INCOMPLETE SCRAM and the following: 'SPDS/ERIS/CRIDS/GDS'	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	295024	295024
	Importance Rating	3.3	3.4

Proposed Question: **RO 7, SRO 16**

A large break LOCA is in progress, with the following:

- Suppression Pool level is 215 feet
- Primary Containment venting is required

Which one of the following identifies the appropriate path to vent the Primary Containment?

A. Only the Drywell vent flow path should be aligned.

B. Only the Suppression Chamber vent flow path should be aligned.

C. BOTH the Drywell AND Suppression Chamber vent flow paths should be aligned.

D. NEITHER the Drywell NOR the Suppression Chamber vent flow path should be aligned.

Proposed Answer: **B**

Justification:	**B** is correct - Venting is capable from both but is desired from SC for scrubbing with SPL below 217ft. **A&D** incorrect - The venting should occur from the SC. **C** is incorrect - The DW should not be vented since SPL is low enough to take advantage of scrubbing.

Proposed references to be provided to applicants during examination- N2-EOP-PC

Technical Reference(s):		N2-EOP-PC & N2-EOP 6 Att 21	
K/A:	295024: High D/W pressure.	EA1.19, Ability to operate and/or monitor the following as they apply to HIGH DRYWELL PRESSURE: Containment atmosphere control	
10 CFR Part 55 Content:		55.41(10)	x
		55.43	

Question Source:	Bank #	X
	Modified Bank #	
	New	
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	x
	LOD	3

Comments: Question from INPO bank Oyster Creek 13071 -1996 exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	295025	295025
	Importance Rating	3.9	4.1

Proposed Question: **RO 8, SRO 17**

With the plant at 100% power a Group 1 Primary Containment Isolation and reactor scram occurs, with the following:

- All rods are "FULL IN" except for one rod which is stuck at position "12"
- 2 SRVs are automatically controlling RPV pressure

Which one of the following describes the expected status of the Alternate Rod Insertion (ARI) valves AND the status of the Redundant Reactivity Control system (RRCS) Reactor Feedwater Runback logic?

	ARI VALVE STATUS	**RRCS RUNBACK STATUS**
A.	Open	Runback occurred
B.	Open	Runback did not occur
C.	Closed	Runback occurred
D.	Closed	Runback did not occur

Proposed Answer: **B**

Justification:	**B** correct - SRV opening in Relief Mode indicates RPV pressure >1065 psig which opens ARI valves. RFPs remain available since power < 4% after 25 sec. **A** incorrect - RFPs will not runback. **C&D** incorrect - RRCS ARI initiation setpiont (high RPV pressure) exceeded.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-294-2-08 (RRCS), EO-1.5	
KA:	295025, Reactor Pressure	EK2.04, Knowledge of interrelationships between HIGH REACTOR PRESSURE and the following: 'ARI, RPT, ATWS'	
10 CFR Part 55 Content:		55.41.7	X
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	X
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	X
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	295025	295025
	Importance Rating	3.3	3.7

Proposed Question: **RO 9, SRO 18**

The plant has scrammed due to an MSIV closure, with the following:

- A large number of control rods have failed to fully insert
- Reactor power is 6% and steady
- 6 SRVs initially lifted
- Pressure is being maintained with SRVs

Which one of the following describes the expected status of the Reactor Recirculation Pumps (RCS) and Standby Liquid Control Pumps (SLS) two minutes following the initial event?

	RCS Pumps	**SLS Pumps**
A.	Running	Running
B.	Running	Not running
C.	Not running	Running
D.	Not running	Not running

Proposed Answer: **C**

Justification:	**C** is correct-SLC pumps start with the APRM's >4% and RCS pumps trip on a RRCS reactor high press signal& pwr >4% after 25 sec. **A** is incorrect- RCS pumps initially downshift but then trip if pwr >4%. **B** is incorrect- this would be with power <4%. **D** is incorrect- NP

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-294-2-08-Rev 3 (RRCS), EO-1.5	
KA:	295025, High Reactor Pressure	EA1.08, Ability to operate and/or monitor RRCS as it applies to Reactor Pressure	
10 CFR Part 55 Content:		55.41.7	X
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	X
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	X
	LOD:	4

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	295031	295031
	Importance Rating	3.7	4.1

Proposed Question: **RO 10, SRO 23**

Which one of the following system lineups must be terminated and prevented in accordance with N2-EOP-C5, Failure To Scram, when level is required to be lowered to reduce reactor power?

A. RDS aligned to maximize injection

B. WCS aligned to inject boron solution

C. RCIC with suction aligned to the Suppression Pool

D. RHS aligned to inject through the Shutdown Cooling line

Proposed Answer: **D**

Justification:	**D** correct – injects outside shroud and will cause power excursion. **A** incorrect – used to S/D reactor. **B** incorrect – a boron injection system. **C** incorrect – RCIC excluded per EOP bases

Proposed references to be provided to applicants during examination: N2-EOP-C5

Technical Reference(s):		N2-EOP-C5 step L-7	
KA:	295031, Reactor Low Water Level	EK1.03, Knowledge of the operational implications of the following concepts as they apply to REACTOR LOW WATER LEVEL: 'Water level effects on reactor power'	
10 CFR Part 55 Content:		55.41	(10) X
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	295037	295037
	Importance Rating	4.0	4.2

Proposed Question: **RO 11, SRO 25**

A spurious reactor scram has occurred, with the following:

- 22 Control Rods failed to automatically insert
- Reactor Power is unknown
- Reactor Pressure is 940 psig and steady
- A steam leak, which **cannot** be isolated, has developed in the Reactor Water Cleanup (WCS) pump room
- WCS pump room temperature is 145°F and rising.

Which one of the following actions should be taken to lower the leak rate?

A. Manually insert control rods and then initiate a normal cooldown.

B. Immediately commence a cooldown at less then 100°F per hour.

C. Terminate and prevent injection into the RPV and blowdown the reactor.

D. Depressurize with Turbine Bypass valves regardless of cooldown rate.

Proposed Answer: **A**

Justification:	**A** is correct - EOP-C5 step P-6 only allows a cooldown if the reactor is shutdown with no boron injected. **B** is incorrect - With reactor power unknown, a cooldown is not permitted. **C** is incorrect - A blowdown per EOP-SC/RR is only warranted if two or more areas exceed their Max Safe values. **D** is incorrect – not permitted during ATWS.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-EOP-C5; N2-EOP-SC/RR	
KA:	295037, Scram Condition Present and Reactor Power Above 4% or Unknown	EK1.06, Knowledge of the operational implications of 'cooldown effects on reactor power'	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	**X** SSES – 2001 Q RO-8
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	4

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	500000	
	Importance Rating	2.9	

Proposed Question: **RO 12**

A LOCA is in progress, with the following:

- Hydrogen (H_2) has been released into the Primary Containment.
- Suppression Chamber sprays have been directed in accordance with N2-EOP-PCH, Hydrogen Control.

Which one of the following identifies the bases for initiating Suppression Chamber sprays under these conditions?

To reduce .....

A. H_2 concentration prior to purging.

B. radioactive particulate prior to purging.

C. H_2 concentration to prevent deflagration.

D. radioactive particulate to prevent deflagration.

Proposed Answer: **B**

Justification:	**B** is correct - per N2-EOP-PCH Bases. **B/C/D** incorrect - not correct per N2-EOP-PCH.

Proposed references to be provided to applicants during examination- N2-EOP-PCH

Technical Reference(s):		N2-EOP-PCH	
K/A:	500000, High Containment Hydrogen Concentration	EK3.05: Knowledge of the reasons for the following responses as they apply to HIGH PRIMARY CONTAINMENT HYDROGEN CONCENTRATIONS: Operation of wetwell (suppression pool) sprays'	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD	**2**

Comments: Question from INPO bank # 905 Grand Gulf 1998

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	500000	500000
	Importance Rating	3.4	3.8

Proposed Question: **RO 13, SRO 27**

Which one of the following identifies the reason for securing the H_2 Recombiners when H_2 concentration rises to 5% per N2-EOP-PCH, Hydrogen Control?

H_2 Recombiners are required to be shutdown to prevent damage from.....

A. excessive recombiner chamber temperatures.

B. excessive recombiner chamber moisture.

C. insufficient hydrogen and oxygen recombination.

D. insufficient hydrogen and oxygen flow.

Proposed Answer: **A**

Justification:	**A** is correct - per step 32 of N2-EOP-PCH, shutdown H_2 Recombiners if O_2 and H_2 concentrations > 5% because recombiner damage can result from excessive temperatures at the higher recombination rate. **B/C/D** incorrect - wrong reason.

Proposed references to be provided to applicants during examination – N2-EOP-PCH

Technical Reference(s):		N2-EOP-PCH & Bases, N2-OP-62, D.7.0	
K/A:	500000, High Containment Hydrogen Conc.	2.1.32, Ability to explain and apply system limits and precautions.	
10 CFR Part 55 Content:		55.41( )	X
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	X
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	X
	Comprehension or Analysis	
	LOD	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	295001	
	Importance Rating	3.1	

Proposed Question: **RO 14**

The plant is at 100% power when a jet pump rams head failure occurs.

Which one of the following describes the expected response of reactor power AND drive flow in the Recirculation loop containing the defective jet pump?

	REACTOR POWER	**RECIRC LOOP DRIVE FLOW**
A.	Rises	Rises
B.	Rises	Lowers
C.	Lowers	Rises
D.	Lowers	Lowers

Proposed Answer: **C**

Justification:	**C** is correct - less core flow results in lower reactor power. Drive flow in recirc loop with defective pump rises due to less flow resistance. **D** incorrect - drive flow does not lower. **A&B** incorrect – reactor power does not rise.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):			
K/A:	295001, Partial/complete loss of forced core circulation	AA2.05: Ability to determine and interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: 'Jet pump operability'	
10 CFR Part 55 Content:		55.41(2)	
		55.43	

Question Source:	Bank #	
	Modified Bank #	**X**
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A #	295002	295002
	Importance Rating	3.4	3.4

Proposed Question: **RO 15, SRO 28**

While operating at 100% power, a loss of main condenser vacuum occurs.

Which one of the following identifies the automatic action and the reason for that action should main condenser vacuum drop to 8.5" Hg VAC?

A. MSIVs close due to indication of a loss of the primary heat sink.

B. MSIVs close due to indication of excessive reactor vessel inventory loss.

C. Turbine Bypass Valves close due to indication of a loss of the primary heat sink.

D. Turbine Bypass Valves close due to indication of excessive reactor vessel inventory loss.

Distractors don't appear plausible Modified Stem & distractors

Proposed Answer: **A**

Justification:	**A** correct - Setpoint for MSIV closure is 8.5" Hg. vac basis per Op. Tech. **B** incorrect - wrong basis. **C&D** incorrect - Turb. BPVs close at 7.0" hg. vac.

Proposed references to be provided to applicants during examination- none

Technical Reference(s):		O2-OPS-001-223-2-02, N2 OP-83	
K/A:	295002, Loss of Main Condenser Vacuum	AK3.05, Knowledge of the reasons for the following responses as they apply to Loss of Main Condenser Vacuum: Main steam isolation valve	
10 CFR Part 55 Content:		55.41(7)	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A #	295002	295002
	Importance Rating	4.0	4.3

Proposed Question: **RO 16, SRO 29**

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

- Annunciator 851306, "OFF GAS SYSTEM TROUBLE", alarms
- Main condenser vacuum is 28 inches Hg and degrading slowly

Which one of the following identifies the required procedural entry for this condition?

A. N2-OP-101C, Plant Shutdown

B. N2-OP-101D, Power Changes

C. N2-SOP-101C, Reactor Scram

D. N2-SOP-101D, Rapid Power Reduction

Proposed Answer: **D**

Justification:	**D** is correct. Immediate action for loss of condenser vacuum is to reduce power per SOP-101D. **A** & **B** – incorrect. SOP-09 requires rapid power reduction or scram. **C** incorrect. Slow vac drop does not immediately threaten trip.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-SOP-09	
KA:	295002, Loss of Main Condenser Vacuum	G2.4.4 Ability to recognize abnormal indications for system operating parameters which are entry level conditions for emergency and abnormal operating procedures.	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A #	295003	295003
	Importance Rating	2.9	3.2

Proposed Question: **RO 17, SRO 01**

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

- A complete loss of off -site power has occurred.
- All three divisional diesels (EDGs) running and powering their respective switchgears.

Which one of the following describes the action required to be taken per N2-SOP-03, Loss of AC Power, when ready to start an additional Service Water Pump in Division I?

A. Re-open non-essential Service Water MOVs.

B. Verify Service Water crosstie MOVs are closed.

C. Start RHS Pump "A" and CSL Pump.

D. Verify RHS "A" and CSL Pumps are secured.

Proposed Answer **C**

Justification:	**C** is correct - RHS and CSL pumps need to be already running due to starting current considerations. **A** incorrect - if non-essentials opened prior to pump start, pump runout will occur. **B** incorrect - Service Water crosstie MOVs are required to be open when the additional pump is started. **D** incorrect - wrong sequence.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-SOP-03	
KA:	295003: Partial/ Complete Loss of AC Power	AK1.03: Knowledge of operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF AC POWER: " Under voltage/degraded voltage effects on electrical loads'	
10 CFR Part 55 Content:		55.41.5	**X**
		55.43	

Question Source:	Bank #	**X Question from NM2 bank - Group 3, Question #2**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	295004	295004
	Importance Rating	3.2	3.4

Proposed Question: **RO 18, SRO 18**

The plant is operating at 75% power when a fault in the Division II 125 VDC Battery, 2BYS*BAT2B, causes the following:

- Battery Breaker to Division II DC Switchgear, 2BYS*SWG002B, trips **OPEN**.
- Charger 2BYS*CHGR2B1, Output Breaker to Division II DC Switchgear, 2BYS*SWG002B, trips **OPEN**.

Which one of the following describes the effect on plant operation **and** conditions needed to restore power to the Division II 125 VDC Bus or loads?

A. Stop all activity that could result in a plant trip, DC power can **NOT** be restored until the battery is available.

B. Orderly plant shutdown is required, DC power can **NOT** be restored until the battery is available.

C. Orderly plant shutdown is required until DC power can be restored using the standby charger.

D. Immediate scram is required, DC power can be restored using the standby charger.

Proposed Answer: **D**

Justification:	**D** is correct. Plant must be scrammed because both recirculation pumps tripped. Power can be restored by placing the alternate charger in service. **C** is incorrect. Plant must immediately be scrammed due to the trip of both recirc pumps. **B** is incorrect. Plant must be scrammed because both recirculation pumps tripped. Power can be restored by placing the alternate charger in service. **A** is incorrect. Plant must be scrammed because both recirculation pumps tripped. Power can be restored by placing the alternate charger in service.

Proposed references to be provided to applicants during examination - None

Technical Reference(s):		N2-SOP-04 and N2-SOP-29	
KA:	295004 Partial or Complete Loss of D.C. Power	AK1.02: Knowledge of the operational implications of the following concepts as they apply to Partial or Complete Loss of D.C. Power: Redundant D.C. power supplies: Plant-Specific	
10 CFR Part 55 Content:		55.41(7)	**X**
		55.43	

Question Source:	Bank #	**X**
	Modified Bank #	
	New	
	History	Last NRC Exam 2000

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A #	295005	295005
	Importance Rating	3.6	3.6

Proposed Question: **RO 19, SRO 33**

The plant is operating at 100% power when an EHC malfunction causes all bypass valves to fail open, with the following:

- RPV pressure is at 900 psig and decreasing rapidly
- The mode switch is placed in "SHUTDOWN"
- RPV pressure continues to decrease.

K/A mismatch Replaced question

Which one of the following actions is required?

A. Trip the operating EHC pump.

B. Trip the main turbine before reaching 175 MWe.

C. Close the Outboard MSIVs before dropping below 500 psig.

D. Verify the backup EHC pressure regulator is in service.

Proposed Answer: **C**

Justification:	**C** is correct - SOP-23 has immediate action step to close MSIVs before pressure drops below 500 psig. **A** incorrect - may stop press drop but not per procedure. **B** incorrect- turbine already tripped either on high lvl or reverse power. **D** incorrect - Not per procedure.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-SOP-23	
KA:	295005: Main Turbine Generator Trip	AA1.05 Ability to operate and or monitor the following as they apply to MAIN TURBINE GENERATOR TRIP: 'Reactor/turbine pressure regulating system.	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	**X**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A #	295008	295008
	Importance Rating	2.8	2.8

Proposed Question: **RO 20, SRO 34**

A manual reactor scram is inserted due to rising Drywell Pressure, with the following:

- A Feedwater Level Control (FWLC) malfunction causes RPV level to rise.
- RPV water level rises to 212 inches then slowly lowers
- When RPV level drops to 210 inches Drywell pressure reaches 1.68 psig

Which one of the following identifies the RPV water level at which High Pressure Core Spray (CSH) System injection will begin? (Assume no operator action)

A. 210 inches

B. 202 inches

C. 159 inches

D. 108 inches

Low LOD doesn't document Replaced question

Proposed Answer: **D**

Justification:	**D** correct. Injection Valve re-opens automatically, but not until level lowers to 108 inches. **A/B/C** are incorrect. Injection Valve doesn't reopen until 108 inches. The High Pressure Core Spray Pump will start when DWP reaches 1.68 psig.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-206-2-00	
KA:	295008: Reactor High Level	AA1.06 Ability to operate and/or monitor the following as they apply to HIGH REACTOR WATER LEVEL: 'HPCS'	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	**X Question from INPO bank #18057 - Pilgrim 1998 exam**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	295008	
	Importance Rating	3.4	

Proposed Question: **RO 21**

The plant is operating at 50% power, with the following:

- A Feedwater Level Control (FWLC) malfunction causes RPV level to rise.
- Level continuing to rise after the controller is taken to manual.
- Level is rising on P601 indications.

Which one of the following describes the response of the Main Turbine if the current level trend continues?

The Main Turbine will trip when the following indicator(s) reach Level 8.....

A. both P601 PAM level indicators.

B. either P601 PAM level indicator.

C. any two P603 NR level indicators.

D. the selected P603 NR level indicator.

Proposed Answer: **C**

Justification:	**C** is correct - Main turbine trip on high level comes from narrow range detectors indicated on P603, 2 of 3 needed to produce trip. **A&B** incorrect – PAM indicates wide range and does not input to trip logic. **D** incorrect - not correct logic

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-216-2-01	
KA:	295008: High Reactor Water Level	High Reactor Water Level K/A Topic: AA 1.07 Ability to operate/monitor the following as they apply to HIGH REACTOR WATER LEVEL: Main turbine	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A #	295013	295013
	Importance Rating	3.6	3.7

Proposed Question: **RO 22, SRO 22**

A steam line break has occurred in the Primary Containment, **several control rods failed to fully insert,** with the following.

- RPV Level is 167 inches
- RPV Pressure is 420 psig
- Drywell Pressure is 7.0 psig
- Drywell Temperature is 180°F
- Suppression Chamber Pressure is 2 psig
- Suppression Pool Temperature is 106°F

Which one of the following Residual Heat Removal System lineups is required?

A. System "A" and "B" in suppression pool cooling.

B. System "A" in suppression pool cooling with "B" in LPCI.

C. System "A" and "B" in drywell and suppression chamber spray.

D. System "A" in suppression pool cooling and "B" in drywell spray.

Proposed Answer: **A**

Justification:	**A** is correct - N2-EOP-PC directs starting all available suppression pool cooling. **B** incorrect - B loop should also be started in SP cooling, RPV makeup is NOT needed. **C** is incorrect - because both loops should be in suppression pool cooling. **D** is incorrect - because both loops should be in suppression pool cooling.

Proposed references to be provided to applicants during examination: N2-EOP-PC

Technical Reference(s):		N2-EOP-PC	
KA:	295013: Low Suppression Pool Level	AK2.01: Knowledge or the interrelations between HIGH SUPPRESSION POOL TEMPERATURE and Suppression Pool Cooling.	
10 CFR Part 55 Content:		55.41.7	
		55.45.8	

Question Source:	Bank #	**X**
	Modified Bank #	
	New	
	History	Last NRC Exam 2000

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A #	295016	295016
	Importance Rating	3.7	3.8

Proposed Question: **RO 23, SRO 12**

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

- A fire forces an evacuation of the Control Room.
- Dense smoke prevented any Control Room actions from being taken.

Which one of the following describes the method employed per N2-SOP-78, Control Room Evacuation, for tripping the Main Turbine?

A. Locally scram the Reactor and then confirm the Main Turbine trips on reverse power.

B. Locally scram the Reactor and then manually trip the Main Turbine from the front standard.

C. Manually trip the Main Turbine from the front standard and confirm automatic reactor scram. Partially correct

D. Locally initiate a Group I isolation and confirm automatic reactor scram and Main Turbine trip on reverse power.

Modified Distractor

Proposed Answer: **B**

Justification:	**B** is correct, SOP- 78 directs the Operator to trip the Main Turbine from the front standard after the Reactor is scrammed locally. **A/C/D** incorrect - do not comply with procedural direction of SOP-78.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-SOP-78	
KA:	295016, Control Room Abandonment	AK 3.02, Knowledge of the reasons for the following responses as they to CONTROL ROOM ABANDONMENT: 'turbine trip'	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	295017	295017
	Importance Rating	3.6	3.8

Proposed Question: **RO 24, SRO 13**

N2-EOP-RR, Radioactive Release Control, is being executed with the following:

- Radioactive release rates approach the General Emergency level.
- A reactor scram AND RPV blowdown are required.

Which one of the following describes the basis for ordering the reactor scram prior to performing the RPV blowdown in accordance with N2-EOP-RR?

A. Prevents fuel damage from a reactor power excursion

B. Ensures that the Reactor Protection System is not challenged

C. Ensures isolation of the leak by closing the Main Steam Isolation Valves

D. Reduces the rate of energy production and thus the rate of radioactivity release

Distractors not plausible. Replaced with a Bank question

Proposed Answer: **D**

Justification:	**D** is correct - per N2-EOP-RR basis. **A/B/C** incorrect - not per N2-EOP-RR basis

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-EOP-RR basis	
KA:	295017: High Off-Site release Rate	AK3.04: Knowledge of the reasons for the following responses as they apply to HIGH OFF-SITE RELEASE RATE: 'Power reduction'	
10 CFR Part 55 Content:		55.41.10	
		55.43	

Question Source:	Bank #	**X NM-2 bank. Question 58/Group 6**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A #	295019	295019
	Importance Rating	3.5	3.4

Proposed Question: **RO 25, SRO 36**

An Instrument Air System transient occurs, with the following:

- The Instrument Air system is aligned with the Compressor Selector Switch on P851 selected to the "BCA" position.
- Instrument Air header pressure drops to 98 psig.

Which one of the following identifies the compressor that will automatically start and load AND the pressure at which this compressor will then unload?

	COMPRESSOR THAT STARTS	UNLOAD PRESSURE
A.	A	115 psig
B.	A	125 psig.
C.	C	115 psig
D.	C	125 psig

Proposed Answer: **D**

Justification:	**D** correct - Lag compressor "C" will start and load at 100 psig and unload at 125 psig. **A&B** incorrect - "A" will not start until 85 psig. **C** incorrect - unloading pressure is always 125 psig.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		02-OPS-001-279-2-00 pgs. 9, 27 & 29	
K/A:	295019, Partial or Total Loss of Instrument Air	AK3.02, Knowledge of the reasons for the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR: Standby compressor operation	
10 CFR Part 55 Content:		55.41(5)	
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A #	295020	295020
	Importance Rating	3.9	4.0

Proposed Question: **RO 26, SRO 37**

An inadvertent Division 1 Group 8 low level isolation signal causes the Outboard CCP Containment Isolation valves to DRS to isolate, with the following:

- The isolation signal can not be reset.
- The CRS has directed performance of N2-SOP-60, Loss of Drywell Cooling.

Which one of the following is required per the N2-SOP-60?

A. Place DRYWELL UNIT COOLER WTR DIV I LOCA OVERRIDE in the "OVERRIDE" position only.

B. Place both DRYWELL UNIT COOLER WTR DIV I (II) LOCA OVERRIDE in the "OVERRIDE" position only.

C. Place DRYWELL UNIT COOLER WTR DIV I LOCA OVERRIDE and UNIT COOLER FANS GR 1 LOCA OVERRIDE switches in the "OVERRIDE" position only.

D. Place both UNIT COOLER FANS GR 1(2) LOCA OVERRIDE switches in the "OVERRIDE" position only.

Proposed Answer: **B**

Justification:	**B** is correct – required for restoration per SOP. **A/C** incorrect – not required per SOP steps. **D** incorrect – this is action if CCP cannot be restored

Proposed references to be provided to applicants during examination: N2-SOP-60

Technical Reference(s):		N2-SOP 60 Step 4.4.a	
KA:	295020: Inadvertent Containment isolation	2.1.23 Ability to perform specific system and integrated plant procedures during different modes of plant operation.	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	**X Question from NM-2 Bank. # 8110/Group 6/Q61**
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A #	295022	295022
	Importance Rating	3.3	3.4

Proposed Question: **RO 27, SRO 39**

A plant startup is in progress, with the following:

- Reactor Pressure is 500 psig
- The operating Control Rod Drive (RDS) Pump trips
- No RDS Pump can be started
- A Control Rod at position 12 has an accumulator pressure of 900 psig

Which one of the following describes when a manual scram is required to be initiated per N2-SOP-30, Control Rod Failures?

A. Immediately

B. In 20 minutes

C. If one control rod drifts in

D. If any other control rod accumulator becomes inoperable

Proposed Answer: **A**

Justification:	**A** is correct- SOP-30 calls for immediate scram if reactor pressure is <900# and CRD charging water pressure is <940# and any accumulator is inop with its associated rod withdrawn. **B/C/D** incorrect- All conditions not met per SOP-30.

Proposed references to be provided to applicants during examination: N2-SOP-30 Attachments 1 & 2

Technical Reference(s):		N2 SOP-30, O2 OPS-001-201-2-01, EO-1.8	
KA:	295022, Loss of CRD Pumps	AK1.01, 'Reactor pressure versus rod insertion capabilities'.	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	**X**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A #	295026	295026
	Importance Rating	3.0	3.4

Proposed Question: **RO 28, SRO 19**

Which one of the following events would bring a running Residual Heat Removal System (RHS) pump closer to cavitation while injecting during the Low Pressure Coolant Injection (LPCI) mode of operation?

A. A stuck open Suppression Chamber to Drywell vacuum breaker

B. Broken tailpipe on an open SRV in the Suppression Chamber

C. Inadvertently opened Safety Relief Valve

D. CST leaking into the Suppression Pool

Modified Distractor

Proposed Answer: **C**

Justification:	**C** is correct - warmer water will lower pump NPSH. **A** incorrect - no effect on NPSH, **B/D** incorrect - improve NPSH

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		EOP Basis Document, Calculations	
KA:	295026 High Suppression Pool Temperature	EK1.01: Knowledge of the operational implications of the following concepts as they apply to HIGH SUPPRESSION POOL TEMP: Pump NPSH	
10 CFR Part 55 Content:		55.41.5	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	**X Question from NM2 bank #15925, Grp 5**
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A #	295029	295029
	Importance Rating	2.9	3.0

Proposed Question: **RO 29, SRO 41**

The plant has experienced a LOCA, with the following:

- Reactor pressure is 200 psig and slowly lowering
- Reactor level is 102 inches and steady
- Suppression Pool level is 210 feet and rising

Which one of the following injection systems is allowed to be used to maintain reactor level per the Emergency Operating Procedures?

A. RDS

B. RHS in the LPCI mode

C. Condensate

D. RCIC with suction aligned to the CST

Proposed Answer: **B**

Justification:	**B** is correct. With S/P level high (above 209.5 feet @ 200 psig), N2-EOP-PC, SPL-2 calls for injection sources that do not add to containment inventory. **A/C/D** incorrect - all inject from outside sources.

Proposed references to be provided to applicants during examination: N2-EOP-RPV, N2-EOP-PC

Technical Reference(s):		N2-EOP-PC	
KA:	295029: High Suppression Pool Level	EA1.03, Ability to operate and/or monitor the following as they apply to HIGH SUPPRESSION POOL LEVEL: "RHR/LPCI"	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A #	295030	295030
	Importance Rating	3.6	3.7

Proposed Question: **RO 30, SRO 21**

Procedure N2-EOP-PC, Primary Containment Control, contains a caution concerning the operation of RCIC with low suppression pool water level.

Which one of the following describes the potential hazard of **not** complying with this caution?

A. RCIC exhaust line pressure oscillations could potentially cause system damage.

B. Reduced cooling water flow to the RCIC turbine bearings may cause system damage.

C. With RCIC suction aligned from its alternate source, NPSH and vortex limits may be exceeded.

D. RCIC steam will discharge into the Suppression Chamber air space and overpressurize containment.

Proposed Answer: **C**

Justification:	**C** is correct – per EOP basis. **A** is incorrect – concern at low RPM. **B** is incorrect – low cooling water flow is not reason for caution. **D** is incorrect – isolation prevents this if exhaust uncovers

Technical Reference(s):		EOP-PC Basis, O2-OPS-006-344-2, EO-1.4	
KA:	295030, Low Suppression Pool Water Level	EK3.03, Knowledge for the reasons for the following responses as they apply to LOW SUPPRESSION POOL WATER LEVEL: 'RCIC operation'	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Proposed references to be provided to applicants during examination: None

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	1
	K/A #	295030	295030
	Importance Rating	3.9	3.9

Proposed Question: **RO 31, SRO 6**

The plant has experienced a LOCA, with the following:

- Reactor level -10 inches and slowly rising
- Suppression Pool level 196.5 inches and steady
- "A" RHS injecting (LPCI mode) with Service Water aligned to heat exchanger
- "B" RHS running (Suppression Pool Cooling mode) with Service Water aligned to heat exchanger

Which one of the following describes the method per N2-EOP-PC, Primary Containment Control, that should be used for determining a valid reading for Suppression Pool temperature with the above conditions?

A. Heat exchanger inlet temperature on "B" RHS.

B. Heat exchanger outlet temperature on "A" RHS.

C. Suppression Pool temperature indication on SPDS.

D. Post Accident Monitor Suppression Pool temperature indicators.

Proposed Answer: **A**

Justification:	**A** is correct- with S/P level <197 ft, one method given for determining temperature is the HTX inlet temp. for a RHS pump running in S/P cooling. **B** incorrect- LPCI flow not thru HTX. **C/D** incorrect- S/P level < 197'.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-EOP-PC Basis	
K/A:	295030, Low S/P Water Level	EA2.02, Knowledge of the interrelationships between LOW SUPPRESSION POOL WATER LEVEL and the following: 'Suppression pool temperature'	
10 CFR Part 55 Content:		55.41(10)	**X**
		55.43	
		55.45	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	
	Tier #	1	
	Group #	2	
	K/A #	295033	
	Importance Rating	3.8	

Proposed Question: **RO 32**

A primary system is found to be discharging into the Reactor Building and attempts to isolate it have failed, with the following:

- Area temperature on Elevation 215' is 180°F and rising
- Radiation levels on Elevation 353' are 1.2 x E4 mRem/hr and rising
- Radiation levels on Elevations 261' and 240' are 1.5 x E4 mRem/hr and rising
- Reactor Building ventilation exhaust radiation levels are above the alarm setpoint

Which one of the following actions is required?

A. Reactor scram only

B. Reactor scram and RPV blowdown

C. Reactor scram and RPV depressurization not to exceed 100°F/hr

D. Reactor scram and rapid RPV depressurization with turbine bypass valves

Proposed Answer: **B**

Justification:	**B** is correct - reactor scram and RPV blowdown required if 2 or more areas exceed maximum safe operating radiation levels. **A** incorrect - RPV blowdown is also required. **C&D** incorrect - not actions per N2-EOP-SC.

Proposed references to be provided to applicants during examination: N2-EOP-SC

Technical Reference(s):		N2-EOP-SCC	
KA:	295033: High Secondary Containment Area Radiation Levels	EK2.01: Knowledge of interrelationships between HIGH SECONDARY CONTAINMENT RADIATION LEVELS and the following: 'Area radiation monitoring system'	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	**X From NM-2 bank # 8340 162/Grp 6**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	3	
	K/A #	259021	
	Importance Rating	3.3	

Proposed Question: **RO 33**

During a loss of shutdown cooling direction is given in N2-SOP-31, Loss of Shutdown Cooling, to raise level if no RHR pump or Recirculation Pump can be started.

Which one of the following identifies the reason for raising RPV water level to 227 to 243 inches?

To flood the.....

A. dryer assembly to promote natural circulation.

B. steam separators to promote natural circulation.

C. dryer assembly to provide long term decay heat removal.

D. steam separators to provide long term decay heat removal.

Proposed Answer: **B**

Justification:	**B** correct, separators are flooded to connect flow from inside to outside the shroud. **A&C** incorrect, separator not dryer. **D** incorrect, does not remove heat.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-SOP-31	
K/A:	295021, Loss of Shutdown Cooling	AK3.01, Knowledge of the reasons for the following as they apply to Loss of Shutdown Cooling: Raising reactor water level	
10 CFR Part 55 Content:		55.41(5)	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

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

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	3	
	K/A #	295023	
	Importance Rating	3.7	

Proposed Question: **RO 34**

The plant is in a Refueling Outage, with the following:

- Fuel loading is in progress
- RPS shorting links are installed
- Following the insertion of a fuel assembly into the core, the Reactor Operator reports that SRM count rates are steadily rising
- The "SRM SHORT PERIOD" annunciator alarms and does not clear

Which one of the following identifies automatic actions that will occur AND operator actions that must be taken in accordance with N2-SOP-39, Refuel Floor Events?

	AUTOMATIC ACTION	**OPERATOR ACTIONS**
A.	IRM scram	Evacuate Refuel Floor and Drywell
B.	SRM scram	Evacuate Refuel Floor and Drywell
C.	IRM scram	Manually start both Standby Gas Treatment trains
D.	SRM scram	Manually start both Standby Gas Treatment trains

Proposed Answer: **A**

Justification:	**A** is correct - IRM scram will occur and evacuation is required per N2-SOP-39. **B&D** incorrect - SRM scram will not occur with shorting links installed. **C** incorrect - manual GTS start not required per N2-SOP-39.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-SOP-39
KA:	295023: Refueling Accidents	AK1.03: Knowledge of the operational implications of the following concepts as they apply to REFUELING ACCIDENTS: 'Inadvertent criticality'
10 CFR Part 55 Content:		55.41.10
		55.43

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	3	2
	K/A #	295035	295035
	Importance Rating	3.3	3.5

Proposed Question: **RO 35, SRO 44**

While the plant is operating at 100% power, with the following:

- A swap of the operating Reactor Building ventilation (HVR) exhaust fans is performed
- Reactor Building differential pressure changes from –0.6" to –0.4" WG.

Which one of the following identifies the ventilation system response to this transient?

	GTS RESPONSE	**HVR MOD17A/B RESPONSE**
A.	Starts	Open
B.	Remains in standby	Close
C.	Remains in standby	Open
D.	Starts	Close

Proposed Answer: **C**

Justification:	**C** correct – MODs will modulate open to reduce intake air flow to RB and GTS will not start on building dp. **A&D** incorrect – GTS will not start on building dp. **B** incorrect – MODs will modulate open to reduce intake air flow to RB.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-52 and N2-OP-61B	
KA:	295035: Secondary Containment High Differential Pressure	EK3.02 Knowledge of the reasons for the following as they apply to SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: Secondary containment ventilation response	
10 CFR Part 55 Content:		55.41(5)	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	3	
	K/A #	295036	
	Importance Rating	2.8	

Proposed Question: **RO 36**

The plant is at 50% power when the Radwaste Operator calls reporting that he has received the following alarms and conditions:

- RX. BLDG. FL DR. SUMP TK2B LEAK RATE HIGH
- RX. BLDG. FL.DR. SUMP TK2B LEVEL HIGH HIGH
- The associated standby sump pump has auto started

Another call is received from a non-licensed operator reporting a service water leak in the "A" RHR pump room and the floor drain is handling the leak.

Which one of the following describes entry requirements to N2-EOP-SC, Secondary Containment Control AND plant shutdown requirements?

	N2-EOP-SC ENTRY	**PLANT SHUTDOWN**
A.	Yes	Yes
B.	No	Yes
C.	No	No
D.	Yes	No

Proposed Answer: **D**

Justification:	**D** is correct- Rx Bldg. Sump level Hi Hi alarm is entry to EOP-SC only one area is above Max Safe. **A** is incorrect- S/D directed if more than one area. **B/C** is incorrect- Rx Bldg. Sump level Hi Hi alarm is entry to EOP-SCC

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-EOP-SC & R/W ARC 2CES- PNL513	
KA:	295036 High Secondary Containment Sump/Area Water level	EA1.03 Ability to operate/monitor the following as they apply to SECONDARY CONTAINMENT HIGH SUMP /AREA WATER LEVEL: 'Radwaste'	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43.	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	201001	
	Importance Rating	3.5	

Proposed Question: **RO 37**

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

- Annunciator 603441, "ROD DRIVE ACCUMULATOR TROUBLE", alarms.
- Local accumulator pressure for control rod 30-35 is indicating 1015 psig.

Which one of the following identifies the effect this will have on normal movement of control rod 30-35 AND the action that should be directed to clear the annunciator?

	EFFECT ON MOVEMENT	**REQUIRED ACTION**
A.	Slower rod speeds	Blow water out of the instrument block
B.	Slower rod speeds	Charge Nitrogen side of accumulator
C.	No effect on movement	Charge Nitrogen side of accumulator
D.	No effect on movement	Blow water out of the instrument block

Proposed Answer: **C**

Justification	**C** is correct - the rod speed of control rod 30-35 will not be effected. N2-OP-30 indicates that a local accumulator pressure indication of less than 1025 psig is indicative of a nitrogen leak and the required action for this condition is to recharge the Nitrogen side of the accumulator to 1100 psig. **A&B** are incorrect - control rod 30-35 rod speeds are not effected. **D** is incorrect - wrong action per N2-OP-30

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2 OPS-001-201-2-01, N2-OP-30 (F.7.0), N2-ARP-01 Window 603441	
KA:	201001, Control Rod Drive Hydraulic System	A2.10, Ability to (a) predict the impacts of the following on the CONTROL ROD DRIVE HYDRAULIC SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Low HCU accumulator pressure/high level	
10 CFR Part 55 Content:		55.41.6	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	201002	201002
	Importance Rating	3.4	3.1

Proposed Question: **RO 38, SRO 69**

A reactor startup is in progress when power to the Reactor Manual Control (RMC) system is lost.

Which one of the following describes the effect on reactor power and why?

A. Unchanged because control rods cannot be moved.

B. Rises because control rods will drift out.

C. Lowers because all control rods will scram.

D. Lowers because some rods will drift in.

Low LoD
Not discriminating
Replaced question

Proposed Answer: **A**

Justification	**A** is correct - a loss of power results in the inability to move rods because the Directional Control Valves cannot be energized, no rod motion means power does not change **B** is incorrect - because control rods will not drift out and power will not rise. **C** is incorrect - because a scram will not occur if RMC power is lost. **D** is incorrect - because control rods will not drift in and power will not lower.

Proposed references to be provided to applicants during examination: None

Technical Reference		O2-OPS-001-201-2-02 , Section V.B.6.b	
KA:	201002, Reactor Manual Control System	K3.01, Knowledge of the effect that a loss or malfunction of the REACTOR MANUAL CONTROL SYSTEM will have on the following: Ability to move control rods.	
10 CFR Part 55 Content:		55.41.6	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	201002	
	Importance Rating	3.2	

Proposed Question: **RO 39**

A reactor startup is in progress, with the following:

- Reactor power is currently on Range 3 of the Intermediate Range Monitoring system
- Control rod 30-31 is the next control rod to be moved AND it is currently at notch position 12
- Following the selection of control rod 30-31, the "ACTIVITY CONTROLS DISAGREE" light on the Rod Select Module illuminates, and remains illuminated

Based on the above condition, which one of the following describes the ability to move the control rod?

Using Reactor Manual Control System, control rod 30-31 can be.....

A. inserted or withdrawn

B. withdrawn only

C. inserted only

D. neither inserted nor withdrawn

Proposed Answer: **D**

Justification	**D** is correct - the RMC system inserts control rod motion inhibit signals in response to an Activity Controls Disagree condition. **A/B/C** incorrect – due to both insert and withdraw blocks being applied

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2 OPS-001-201-2-02	
KA:	201002, Reactor Manual Control System	A3.01, Ability to monitor automatic operations of the REACTOR MANUAL CONTROL SYSTEM including: Control rod block actuation	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

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

Proposed Question: **RO 40, SRO 45**

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

- The "A" hydraulic power unit (HPU) subloop for Reactor Recirculation (RCS) pump P1A is in-service
- The "B" HPU subloop for RCS pump P1A is in the READY (standby) mode
- The "A" HPU subloop trips on motor overload

Which one of the following identifies the status of the "B" HPU subloop AND Reactor Recirculation flow control valve (FCV) "A" **one minute** after the motor overload condition occurs?

	"B" HPU SUBLOOP STATUS	**FCV "A" STATUS**
A.	Running	Motion inhibited
B.	Running	Motion not inhibited
C.	Not running	Motion inhibited
D.	Not running	Motion not inhibited

Proposed Answer: **B**

Justification	**B** is correct - standby HPU subloop ("B") will start and no motion inhibit signal will be generated. **A** is incorrect - FCV "A" motion will not be inhibited. **B&D** are incorrect - standby HPU subloop ("B") will automatically start.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-202-2-02, EO-1.7e	
KA:	202002, Recirculation Flow Control System	K3.06, Knowledge of the effect that a loss or malfunction of the RECIRCULATION FLOW CONTROL SYSTEM will have on the following: Recirculation flow control valve position: Plant-Specific	
10 CFR Part 55 Content:		55.41.6	
		55.43	

Question Source:	Bank #	**X NMP2 exam bank: Group 7 Question 8**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	202002	202002
	Importance Rating	3.3	3.4

Proposed Question: **RO 41, SRO 46**

The plant is shutdown, with the following:

- Startup preparations are in progress.
- Recirc Pump "A" is about to be started
- Recirc Pump "A" Flow Control Valve is at 25% open position.
- An operator gives 'A' pump a start signal.

Which one of the following describes the response of the Recirc Pump?

A. Does not start.

B. Starts, immediately trips off.

C. Starts then shifts to slow speed.

D. Starts, remains running on high speed.

Proposed Answer: **A**

Justification:	**A** is correct based on the FCV position starting interlock of 17 – 19 %. **B** is incorrect, pump does not start, since FCV is not at the minimum interlock position.**C** incorrect, would be correct at present power level if FCV were in correct position. **D** incorrect, would be correct for high power.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-29	
K/A:	202002, Recirculation Flow Control System	K 4.09 Knowledge of recirculation flow control system design feature(s) and/or interlocks which provide for the following: Minimum and maximum flow control valve position setpoints: BWR-5-6	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	203000	203000
	Importance Rating	4.2	4.3

Proposed Question: **RO 42, SRO 47**

The plant has experienced a LOCA, with the following:

- Division I Switchgear Bus 2ENS*SWG101 is de-energized due to a bus fault
- An automatic ADS blowdown has occurred
- RPV water level is -30 " and steady
- RHS pump "B" is the only running ECCS pump

Which one of the following identifies the effect on the ADS valves if RHS pump "B" were to trip?

A. All ADS valves will remain open.

B. All ADS valves will close immediately.

C. 3 ADS valves will close AND 4 ADS valves will remain open.

D. 4 ADS valves will close AND 3 ADS valves will remain open.

Explained why C & D distractors are plausible.

Proposed Answer: **A**

Justification:	**A** is correct – valves remain open due to seal-in contact. **B** incorrect – reset PB must be depressed. **C&D** incorrect - only a loss of nitrogen and accumulator will cause partial ADS valve closure.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-218-2-01	
K/A:	203000, RHR/LPCI Injection Mode	K3.03: Knowledge of the effect that a loss or malfunction of the RHR/LPCI INJECTION MODE will have on the following: 'Automatic depressurization logic'	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	**X**
	New	
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: modified from INPO bank- LGS 1998

Examination Outline Cross-reference:	Level	RO	
	Tier #	2	
	Group #	1	
	K/A #	203000	
	Importance Rating	3.4	

Proposed Question: **RO 43**

Residual Heat Removal (RHS) loop "A" is being placed in the Shutdown Cooling mode, with the following:

- RHS pump P1A is started.
- 2RHS*MOV40A, SDC A RETURN THROTTLE, is being throttled open when it sticks in the partially open position.
- RHS loop "A" flow is 900 gpm.

Which one of the following is the correct response to this condition?

A. Open the "A" RHS full flow test return valve.

B. Open the "A" Shutdown Cooling Test Check Bypass Valve.

C. Trip RHS pump P1A within 40 seconds

D. Trip RHS pump P1A if heat exchanger outlet temperature >130°F

Proposed Answer: **C**

K/A mismatch
Replaced question
NOT in LPCI
-ing mode

Justification:	**A** is incorrect because N2-OP-31 does NOT direct the opening of the full flow test valve to raise loop flow. **B** is incorrect because N2-OP-31 directs actions to throttle open RHS*MOV40A, SDC B(A) RETURN THROTTLE, to raise loop flow, NOT 2RHS*MOV67A, SDC A TEST CHECK VLV BYPASS. **C** is correct because it indicates that RHS pump P1A should be tripped if a loop flow of ≥ 1,000 gpm is NOT established within 40 seconds. **D** is incorrect because N2-OP-31 does NOT direct the tripping of RHS pump P1A if heat exchanger outlet temperature exceeds 130°F. It directs actions to throttle open RHS*MOV40A, SDC B(A) RETURN THROTTLE, to raise loop flow.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-31, O2-OPS-001-205-2-00	
KA:	203000 RHR/LPCI Injection Mode	2.1.32 Ability to explain and apply system limits and precautions	
10 CFR Part ~~55~~ Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	Group 6 Question 124
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	209001	209001
	Importance Rating	3.7	3.6

Proposed Question: **RO 44, SRO 48**

A small break loss of coolant accident (LOCA) has just occurred, with the following:

- The reactor has been manually scrammed
- RPV pressure is 938 psig AND depressurizing at a rate of 50 psig/minute
- Drywell pressure is 0.69 psig AND rising at a rate of 0.5 psig/minute

Assuming all systems function as designed, which one of the following identifies the approximate earliest elapsed time at which the Low Pressure Core Spray Injection Valve will begin to open? (Assume a CSL shutoff head pressure of 450 psig)

A. 2 minutes

B. 8 minutes

C. 11 minutes

D. 15 minutes

We don't test plant knowledge only ability to perform Math perform. Replaced question

Proposed Answer: **B**

Justification:	For the conditions given (small break LOCA, RPV pressure 930 psig AND depressurizing at 50 psi per minute, Drywell pressure 0.7 psi AND rising at 0.5 psi per minute), the CSL system will receive an automatic initiation signal (high drywell pressure 1.68 psig) in approximately 2 minutes (0.7+0.5 = 1.2; 1.2+0.5 =1.7), but the CSL injection valve will NOT receive an open signal until the differential pressure across the valve is less than 88 psid. Assuming CSL pump shutoff head pressure is 450 psig, it will take approximately 8 minutes for the differential pressure permissive for the CSL injection valve to be met (450+88=538, 938-538= 400; 8x50=40). Therefore: "**A**" is incorrect because the earliest time at which the CSL injection valve will begin to open is approximately 8 minutes. The CSL system will receive an automatic initiation signal in approximately 2 minutes. "**B**" is correct because the earliest time at which the CSL injection valve will begin to open is approximately 8 minutes. "**C**" is incorrect because it indicates that the earliest time at which the CSL injection valve will begin to open is approximately 8 minutes. "**D**" is incorrect because the earliest time at which the CSL injection valve will begin to open is approximately 8 minutes.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-209-2-00	
K/A:	209001, Low Pressure Core Spray	A3.04, Ability to monitor automatic operation of LOW PRESSURE CORE SPRAY SYSTEM including: System flow	
10 CFR Part 55 Content:		55.41.7	X
		55.43	

Question Source:	Bank #	
	Modified Bank #	X
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	X
	LOD:	4

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	209002	209002
	Importance Rating	3.5	3.5

Proposed Question: **RO 45, SRO 49**

N2-EOP-PC, Primary Containment Control, has been entered due to high Suppression Pool level.

Which one of the following describes the current suction source for the RCIC and High Pressure Core Spray (CSH) systems?

	RCIC SUCTION	**CSH SUCTION**
A.	CST	Suppression Pool
B.	CST	CST
C.	Suppression Pool	Suppression Pool
D.	Suppression Pool	CST

Proposed Answer: **A**

Justification:	**A** is correct - SP high level entry to N2-EOP-PC is > HPCS swap setpoint from CST to SP. **C&D** incorrect - RCIC swap occurs only on low CST level. **B** incorrect - CSH swaps to SP

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-206-2-00	
KA:	209002 HPCS	K1.02: Knowledge of the physical connections and/or cause-effect relationship between HPCS and the following: 'Suppression pool"	
10 CFR Part 55 Content:		55.41(7)	**X**
		55.43	

Question Source:	Bank #	**X Question from NM2 bank #15940 Grp 5**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

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

Proposed Question: **RO 46, SRO 50**

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

- The High Pressure Core Spray (CSH) system is in standby
- Condensate Storage Tank (CST) 1B level is 35 feet
- The CSH water leg pump (WTR LEG PMP 2) trips

Which one of the following identifies the operational status AND availability of the CSH system?

	CSH OPERATIONAL STATUS	CSH AVAILABILITY
A.	OPERABLE	Available for injection
B.	OPERABLE	Unavailable for injection
C.	INOPERABLE	Unavailable for injection
D.	INOPERABLE	Available for injection

Proposed Answer: **C**

Justification	**C** is correct - per N2-OP-33 (H10.0), with the CSH water leg pump out of service, CSH is inoperable, but will be unavailable since CST level is less than 47 feet. **A&B** are incorrect - CSH is not operable. **C** is incorrect - CSH is not available for injection, CST 1B level is less than 47 feet.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-33	
KA:	209002, High Pressure Core Spray System (HPCS)	A4.07, Ability to manually operate and/or monitor in the control room: Line fill pump: BWR-5, 6	
10 CFR Part 55 Content:		55.41.7	X
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	X
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	X
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	211000	211000
	Importance Rating	3.4	3.6

Proposed Question: **RO 47, SRO 51**

The plant has experienced a transient, with the following:

- The Reactor Water Cleanup (WCS) system is operating normally
- The switch for Standby Liquid Control (SLS) pump P1B is placed in the "PUMP B RUN" position
- The SLS pump P1B suction valve fails to open
- SLS pump P1B fails to start

Which one of the following identifies the response of the WCS isolation valves to the above event?

	WCS Inboard Isolation Valve (2WCS*MOV102)	**WCS Outboard Isolation Valve (2WCS*MOV112)**
A.	Closes	Remains open
B.	Remains open	Remains open
C.	Remains open	Closes
D.	Closes	Closes

Proposed Answer: **A**

Justification:	**A** is correct - it indicates that inboard WCS isolation valve 2WCS*MOV102 will close AND outboard WCS isolation valve 2WCS*MOV112 will remain open. **B** is incorrect - inboard WCS isolation valve 2WCS*MOV102 will close. **C** is incorrect - inboard WCS isolation valve 2WCS*MOV102 will close AND outboard WCS isolation valve 2WCS*MOV112 will remain open. **D** is incorrect - 2WCS*MOV112 will remain open.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-36A, O2-OPS-001-204-2-01, O2-OPS-001-211-2-00	
K/A:	211000, SLC	K1.05, Knowledge of the physical connections and/or cause-effect relationships between SLC and the following: RWCU	
10 CFR Part 55 Content:		55.41	
		55.43	

Question Source:	Bank #	
	Modified Bank #	**X , NM-2 Group 5 Question 130**
	New	
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	212000	
	Importance Rating	3.9	

Proposed Question: **RO 48**

The plant is at 90% power when an automatic scram occurred as a result of a Main Generator lockout, with the following:

- All control rods fully inserted
- RPV pressure is 960 psig and steady
- RPV water level dropped to 120 inches and is slowly rising

Which one of the following describes the position of the EOC-RPT Breakers AND Reactor Recirculation (RCS) pump status 30 seconds later?

	EOC-RPT BREAKERS	**RCS PUMP STATUS**
A.	Closed	Off
B.	Closed	Slow speed
C.	Open	Off
D.	Open	Slow speed

Proposed Answer: **D**

Justification:	**D** is correct - EOC-RPT bkrs open on Main Turbine trip & pumps shift to slow. **A** incorrect - NP. **B** incorrect - EOC RPT bkrs do not stay closed. **C** incorrect - Pump remains running

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-202-2-01	
KA:	212000: Reactor Protection System	A4.15: Ability to manually operate and/or monitor in the control room: 'Recirculation pump/EOC RPT'	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	2
	K/A #	215003	215003
	Importance Rating	4.0	4.0

Proposed Question: **RO 49, SRO 72**

The plant is in Mode 2 with a reactor startup in progress, with the following:

- All APRMs are reading 2% power
- "B" IRM is reading 122 on Range 6

Which one of the following describes the expected Reactor Protection System (RPS) and Reactor Manual Control System (RMCS) response?

A. Half scram only.

B. Full reactor scram.

C. Rod withdraw block only.

D. Rod withdraw block and half scram.

Proposed Answer: **D**

Justification:	**D** correct - IRM upscale trip and RB would be in with mode switch in STARTUP. **A** - incorrect with units above trip 120/125 it is also above RB 108/125. **B** incorrect – this would occur if shorting links were removed. **C** incorrect – this would be true if units were above 108 and below 120.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-212-2-00 (RPS)	
KA:	215003, Intermediate Range Monitors	K4.02, Knowledge of IRM system design features and/or interlocks which Provide for the following: 'Reactor SCRAM signals'	
10 CFR Part 55 Content:		55.41(7)	**X**
		55.43	

Question Source:	Bank #	**X LGS Bank**
	Modified Bank #	
	New	
	History	from LGS 2001 Audit Exam

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	215004	
	Importance Rating	3.2	

Proposed Question: **RO 50**

The plant is in Mode 2 with a reactor start-up in progress, with the following:

- The IRM's are all on Range 4 reading between 40 and 60.
- The SRM's B and C are being withdrawn with the following readings:

SRM:	A	B	C	D
CPS:	120	80	120	110

Which one of the following describes the status of the SRM withdrawal and the Rod Out Block?

	SRM Withdrawal	**Rod Out Block Applied**
A.	Continues	Yes
B.	Continues	No
C.	Terminates	Yes
D.	Terminates	No

Proposed Answer**: B**

Justification:	**B** correct - SRM retract has no stop interlock & no rod block if IRM's on or above range 3. **A** incorrect – RB is bypassed on B SRM with IRM on R4. **C** incorrect – Retract permit inputs to RB circuit not drive circuit and RB is bypassed >IRM R3. **D** incorrect - Retract permit inputs to RB circuit not drive circuit.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-215-2-03, EO-1.5	
KA:	215004, Source Range Monitors	A4.04, Ability to manually operate and/or monitor in the control room: 'SRM drive control switches'	
10 CFR Part 55 Content:		55.41(7)	**X**
		55.43	

Question Source:	Bank #	**X LGS Bank**
	Modified Bank #	
	New	
	History	**on LGS 2000 NRC Exam**

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	215005	215005
	Importance Rating	2.7	3.1

Proposed Question: **RO 51, SRO 53**

Which one of the following identifies the Local Power Range Monitor (LPRM) input signals to Average Power Range Monitoring channel #2 (includes the LPRM AND APRM Chassis)?

APRM #2 receives a total number of ....

A. 22 inputs from A", "B", "C", AND "D" level LPRM detectors

B. 22 inputs from "B" AND "D" level LPRM detectors only

C. 43 inputs from "A", "B", "C", AND "D" level LPRM detectors

D. 43 inputs from "B" AND "D" level LPRM detectors only

LOD, not discriminating

Proposed Answer: **C**

Justification:	**A** is incorrect because APRM #2 receives a total number of 43 inputs from "A", "B", "C" AND "D" level detectors. **B** is incorrect because APRM #2 receives a total number of 43 inputs from "A", "B", "C" AND "D" level detectors. **C** is correct because APRM #2 receives a total number of 43 inputs from "A", "B", "C" AND "D" level detectors. **D** is incorrect because APRM #2 receives a total number of 43 inputs from "A", "B", "C" AND "D" level detectors

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-215-2-05	
KA:	215005 APRM/LPRM	K4.08, Knowledge of APRM/LPRM design feature(s) and/or interlocks which provide for the following: Sampling of overall core power in each APRM (accomplished through LPRM assignments and symmetrical rod patterns	
10 CFR Part 55 Content:		55.41.7	
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	X
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	X
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	217000	217000
	Importance Rating	2.6	2.6

Proposed Question: **RO 52, SRO 55**

The plant is operating at 100% power, investigating a loss of Normal 125 VDC Distribution, 2BYS-SWG001B, with the following:

- A Loss of Feedwater occurs
- The reactor is scrammed
- RCIC automatic initiation conditions are met

Which one of the following describes the status of the Reactor Core Isolation Cooling System (RCIC)?

A. Failed to initiate, the logic is not actuated.

B. Running with the Injection Valve closed

C. Running and injecting with no minimum flow protection

D. Running and injecting with no turbine seals

Proposed Answer: **D**

Justification:	**D** is correct – Gland Seal Compressor is powered from Normal DC distribution (2BYS-SWG001B) and is not running. **A** is incorrect - Logic power is from Division I Safety Related DC. **B/C** are incorrect - Minimum Flow and Injection Valves are not powered from Normal 125VDC.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-217-2-00, EO-1.5 N2-SOP-04	
KA:	217000, Reactor Core Isolation Cooling	K2.04, Knowledge of electrical power supply to the Gland Seal Compressor	
10 CFR Part 55 Content:		55.41.8	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	218000	218000
	Importance Rating	3.8	3.8

Proposed Question: **RO 53, SRO 56**

A plant transient has occurred requiring entry into the EOPs, with the following:

- "B" and "C" RHR pumps are the **only** ECCS pumps running
- RPV Blowdown is required

Just prior to the blowdown, the following events/actions occur:

- A loss of Division II 125 VDC
- **Then,** all four ADS Logic Manual Initiation pushbuttons are armed and depressed

Which one of the following applies to the ADS valves?

A. Open only after the ADS timer has timed out.

B. Open immediately without further operator action.

C. Still closed and should be opened using their "B" solenoids.

D. Still closed and should be opened using their "A" solenoids.

Proposed Answer: **D**

Justification:	**D** is correct – Remain closed because ADS logic Div I does not have ECCS pump run permissive since RHR A nor CSL Pumps are running AND "A" solenoid is Div I DC (2BYS*PNL201A). **A** is incorrect – this would be auto initiation with Div I ECCS Pumps running. **B** is incorrect – this would be if Div I ECCS Pumps were running. **C** is incorrect – "B" ADS solenoids are powered from Div II DC (2BYS*PNL201B).

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-218-2-01, EO-1.5	
K/A:	218000, Automatic Depressurization System	K4.01, Knowledge of the operational implications of the following concepts as they apply to THE AUTOMATIC DEPRESSURIZATION SYSTEM: 'ADS logic operation'	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	**X** NM-2 Q157
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	218000	218000
	Importance Rating	3.7	3.8

Proposed Question: **RO 54, SRO 57**

A Loss of High Pressure injection occurs, with the following:

- Automatic initiation of ADS
- RPV Pressure lowers to 80 psig
- RPV level is 180 inches

Which one of the following identifies the expected status of the Control Room P601 and P628/P631 red indicating lights for SRV 137 at this time?

	P601	**P628/P631**
A.	On	On
B.	On	Off
C.	Off	On
D.	Off	Off

Proposed Answer: **C**

Justification:	**C** correct - the solenoid red lights on P628/631 light and Acoustic Monitoring actuates the red P601 light but will be off because pressure is too low (330 psig) to drive acoustic mon. **A** incorrect – this is expected with pressure >330 psig. **B** incorrect this would be if valve opened above 330 psig by relief or safety modes. **D** incorrect – this would be normal indication without open or ADS initiation.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-218-02-01, EO-1.5	
KA:	218000, Automatic Depressurization System	A3.03, Ability to monitor automatic operations of the **ADS** including: ADS valve acoustical monitor noise	
10 CFR Part 55 Content:		55.41(7)	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	223001	223001
	Importance Rating	2.7	2.9

Proposed Question: **RO 55, SRO 58**

The plant is operating at 100% power when electrical power is lost to 2NNS-SWG014.

Which one of the following identifies the Drywell Unit Cooler Fans that will lose power?

A. None

B. Only a quarter

C. Only a half

D. All

Proposed Answer: **C**

Justification:	**C** is correct. NNS-SWG014 supplies power to MCC011 through NJS-US5. MCC011 supplies 5 of the 10 Drywell Unit Cooler Fan Motors. **A/B/D** are incorrect.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-60, Attachment 2	
KA:	223001, Primary Containment System and Auxiliaries	K2.09, Knowledge of electrical power supplies to Drywell Cooling Fans	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	**X**
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	223001	223001
	Importance Rating	3.1	3.3

Proposed Question: **RO 56, SRO 59**

A LOCA is in progress, with the following:

- All Drywell Vacuum Breakers fail to open, when required.

Which one of the following identifies the containment failure mechanism that can result from the vacuum breaker failure?

A. Excessive inward pressure on Drywell wall.

B. Excessive inward pressure on Suppression Pool wall.

C. Excessive upward pressure on Drywell floor.

D. Excessive downward pressure on Drywell floor.

Proposed Answer: **C**

Justification:	**C** is correct - Vac breakers relieve from SC to DW to limit upward stress on DW floor. **A&B** incorrect - These would result from excessive negative (to outside) pressure in the Drywell. **D** incorrect - Under LOCA conditions, a downward force exist on the floor.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-221-2-01	
KA:	223001 Primary Containment and Auxiliaries	K5.01 Knowledge of the operational implications of the following concepts as they apply to the PRIMARY CONTAINMENT AND AUXILIARIES: ' Vacuum breaker/relief operation'	
10 CFR Part 55 Content:		55.41(5)	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	223002	223002
	Importance Rating	3.7	3.7

Proposed Question: **RO 57, SRO 60**

The plant is in an outage, with the following:

- System testing is in progress
- Division 1 HYDROGEN RECOMBINER Manual isolation switch on P602 is taken to PUSH TO ISOLATE and depressed

Which one of the following describes the status of the HYDROGEN RECOMBINER Train "A" Isolation Valves?

	Inboard Valves	**Outboard Valves**
A.	Open	Open
B.	Closed	Open
C.	Open	Closed
D.	Closed	Closed

Proposed Answer: **D**

Justification:	**D** is correct – For the HCS system "A" Train (all valves) are isolated by Division 1 **A/B/C** are incorrect – Both Inboard and Outboard valves will close

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-223-2-02, N2-SOP-83	
KA:	223002, Primary Containment Isolation System/Nuclear Steam Supply Shutoff System (PCIS/NSSSS)	A1.02, Ability to predict and/or monitor changes in parameters associated with operating the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM (PCIS/NSSSS) controls including: Valve closures	
10 CFR Part 55 Content:		55.41.5	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	**X**
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	239002	239002
	Importance Rating	4.1	4.2

Proposed Question: **RO 58, SRO 61**

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

- Safety Relief Valve (SRV) 2MSS*PSV120 inadvertently opens AND remains open
- All fuses for the SRV have been removed in accordance with N2-SOP-34, Stuck Open Safety Relief Valve

Which one of the following identifies an acceptable method for confirming, by observation, that the SRV is closed following the removal of its associated fuses in accordance with N2-SOP-34?

A. Immediate clearing of the ADS/SRV Leaking alarm

B. Closed indication on Control Room panel P601

C. Closed indication on the ERF computer

D. Reduction in Main Generator megawatts

Proposed Answer: **C**

Justification:	**A** is incorrect because N2-SOP-34 does NOT specify that the clearing of this annunciator is an indication of valve closure following the removal of the fuses for the associated SRV. **B** is incorrect because N2-SOP-34 does NOT specify that observing a closed position indication on Main Control Room panel P601 is an indication of valve closure following the removal of the fuses for the associated SRV. **C** is correct because N2-SOP-34 specifies that SRV indications on the ERF computer can be used to confirm SRV closure following the removal of the fuses for the associated SRV. **D** is incorrect because Turbine Generator output would rise (more steam would be available to the Turbine Generator).

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-ARP-01 Window 601537, N2-SOP-34.	
KA:	239002 SRVs	A2.03, Ability to (a) predict the impacts of the following on the SRVs and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Stuck open SRV	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	Group 1 Question 45
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	241000	241000
	Importance Rating	2.7	2.7

Proposed Question: **RO 59, SRO 63**

Main Turbine speed rises from 100% to 107% of rated.

Which one of the following describes the response of the Main Turbine Control Valves (CVs) AND Intercept Valves (IVs)?

A. The CVs AND IVs start to throttle closed together

B. CVs throttle closed first followed by the IVs

C. IVs throttle closed first followed by the CVs

D. IVs throttle closed AND the CVs remain open

Proposed Answer: **B**

Justification:	**A** is incorrect because the CVs AND IVs will NOT throttle together. The CVs will throttle closed first AND will be fully closed at 105% of rated speed. Then the master IVs will throttle closed AND all IVs will be fully closed at 107% of rated speed. **B** is correct because it indicates that the CVs will throttle closed first followed by the IVs. **C** is incorrect because the IVs will NOT throttle closed first. The CVs will throttle closed first AND will be fully closed at 105% of rated speed. Then the master IVs will throttle closed AND all IVs will be fully closed at 107% of rated speed. **D** is incorrect because the CVs will NOT remain open. The CVs will throttle closed first AND will be fully closed at 105% of rated speed. Then the master IVs will throttle closed AND all IVs will be fully closed at 107% of rated speed

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-248-2-00	
KA:	241000 Reactor/Turbine Pressure Regulating System	A1.13 Ability to predict and/or monitor changes in parameters associated with operating the Reactor/Turbine Pressure Regulating System controls including: Main turbine speed	
10 CFR Part 55 Content:		55.41.4	
		55.43	

Question Source:	Bank #	**X** Group 1 Question 56
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	2
	K/A #	259001	259001
	Importance Rating	3.3	3.3

Proposed Question: **RO 60, SRO 75**

A plant startup is in progress with RPV pressure at 500 psig, with the following:

- The first Reactor Feedwater Pump (FWS-P1A) has just been placed in-service on minimum flow
- RPV water level is being controlled by the Startup Level Control Valve (LV137) in automatic
- An electrical malfunction fails open the Feedwater Pump Bypass Valve (MOV122)

Which one of the following will terminate the RPV water level transient?

A. Reactor Feedwater Pump (FWS-P1A) trip on Level 8.

B. Startup Level Control Valve (LV137) automatic closure.

C. RO closes the Feedwater Blocking Valves (MOV21s).

D. RO closes the 6th Point Heater A Inlet Valve (MOV17A).

Proposed Answer: **C**

Justification:	**C** is correct - because the MOV122 bypasses the FWS pumps and LV137 allowing uncontrolled injection by Condensate Booster Pumps. The RPV water level rise can be terminated only by closing the Feedwater Blocking Valves (MOV21s). **A/B/D** are incorrect - none will stop RPV water level rise.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-08, N2-SOP-101C (Steps 4.2.5, 4.2.6, 4.2.7, 4.2.8, 4.2.9)	
K/A:	259001, Reactor Feedwater System	A1.01: Ability to predict and/or monitor changes to parameters associated with operating the REACTOR FEEDWATER SYSTEM controls including: Feedwater flow/pressure	
10 CFR Part 55 Content:		55.41.5	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	2
	K/A #	259001	259001
	Importance Rating	2.7	2.7

Proposed Question: **RO 61, SRO 74**

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

- A loss of Turbine Building Closed Loop Cooling Water (CCS) has occurred
- The reactor has scrammed
- The main turbine has tripped

LOD, not discriminating wrote new question

Which one of the following identifies the effect this loss will have on plant shutdown AND cooldown?

A. Failure of Condensate pump seals

B. Loss of Turbine Building area cooling

C. Trip of operating Instrument Air compressors

D. Overheating of operating Reactor Feedwater pumps

Proposed Answer: **D**

Justification	**D** is correct - RFP pump bearing and lube oil coolers receive cooling water from the CCS system. **A/B/C** are incorrect - receive cooling water from other cooling water systems.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-208-2-00, O2-OPS-001-274-2-00, N2-SOP-14	
KA:	259001, Reactor Feedwater System	K6.05, Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR FEEDWATER SYSTEM: Component cooling water systems	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	259002	259002
	Importance Rating	3.1	3.1

Proposed Question: **RO 62, SRO 64**

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

- Feedwater Level Control (FWLC) is in Automatic - 3 element control
- Level setpoint is 183 inches
- Then the total steam flow signal to FWLC fails downscale to zero flow

Which one of the following identifies the effect of this signal failure on reactor water level?

A. Lowers resulting in a reactor scram at Level 3.

B. Lowers and automatically maintains 170 to 175 inches.

C. Rises and automatically maintains 190 to 195 inches.

D. Rises resulting in main turbine and reactor feed pump trips at Level 8.

Proposed Answer: **A**

Justification:	**A** is correct – Based on 12 inch drop for one steam flow transmitter downscale failure, a total loss of steam flow input from all four, will result in a level 3 (159.8 inches) scram. **B** is incorrect – this is single steam flow downscale failure. **C** is incorrect – single steam flow upscale failure. **D** is incorrect –single feed flow downscale failure

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-259-2-02	
KA:	259002, Reactor Water Level Control	K6.03, Knowledge of the effect that a loss or malfunction of the following will have on the Reactor Water Level Control: Main steam flow input.	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	**X**
	Modified Bank #	
	New	
	History	Question taken from SSES, 2001 LOT Exam, RO 59, SRO 61

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	259002	295002
	Importance Rating	3.3	3.4

Proposed Question: **RO 63, SRO 65**

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

- Only Reactor Feedwater (FWS) Pump "A" is in-service
- Both Reactor Recirc (RCS) Pumps are in Fast Speed
- Power is lost to 2FWS-PNL10A, the panel for 2FWS-LV10A
- Reactor Recirc (RCS) Pump "A" inadvertently trips

Which one of the following identifies the response of RPV water level AND the operator response necessary to stabilize RPV water level in accordance with N2-SOP-6, Feedwater Failures?

	LEVEL RESPONSE	OPERATOR ACTION
A.	Rises	Throttle Feedwater Blocking Valves (MOV21s)
B.	Rises	Take manual control of Master Level Controller
C.	Lowers	Throttle Feedwater Blocking Valves (MOV21s)
D.	Lowers	Take manual control of Master Level Controller

Proposed Answer: **A**

Justification:	**A** is correct - per 4.4.1.a of N2-SOP-06, loss of power to 2FWS-PNL10A will cause LV-10A lockout circuits to trip. RPV water level rise following RCS pump trip due to swell and reactor power reduction. Operator response per N2-SOP-6 is to throttle Feedwater Blocking Valves (MOV-21s). **B** incorrect - with valve locked up, Master Level Controller will not move valve. **C/D** incorrect - RPV water level rises, not lowers.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-SOP-06	
KA:	259002: Reactor Water Level Control	A2.06: Ability to predict the impacts of the following on the REACTOR WATER LEVEL CONTROL and based on those predictions, use procedures to correct, control or mitigate the consequences of these abnormal conditions or operations: 'Loss of controller signal output'	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**4**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	1	1
	K/A #	264000	264000
	Importance Rating	3.3	3.5

Proposed Question: **RO 64, SRO 67**

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

- Emergency Diesel Generator, 2EGS*EG2 is running and loaded.
- Both Battery AND Battery Charger power to Division III 125 VDC are lost.

Which one of the following describes the effect on Emergency Diesel Generator, 2EGS*EG2?

A. Continues to operate but engine and output breaker protection are lost.

B. Continues to operate but output breaker controls are lost.

C. Trips and output breaker remains closed.

D. Trips and output breaker opens.

Proposed Answer: **C**

Justification:	**C** is correct - Emergency Diesel Generator trip without DC power and output breaker will remain as is. **A/B** incorrect - Emergency Diesel Generator will not continue to run. **D** incorrect - Output breaker cannot open without control power

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-SOP-04	
K/A:	264000: Emergency Generators (Diesel)	K6.09, Knowledge of the effect that a loss or malfunction of the following will have on the EMERGENCY GENERATORS; DC Power	
10 CFR Part 55 Content:		55.41(7)	**x**
		55.43	

Question Source:	Bank #	**X NM2 bank # 15974 GRP 5**
	Modified Bank #	
	New	
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD	**3**

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	2
	Group #	2	3
	K/A #	201003	201003
	Importance Rating	3.3	3.4

Proposed Question: **RO 65, SRO 81**

The plant is operating at 100% power, the scram inlet valve for a control rod at position 24 opens.

Which one of the following identifies the response of reactor power AND scram discharge volume (SDV) level to this event?

	REACTOR POWER	**SDV LEVEL**
A.	Rises	Stays the same
B.	Rises	Rises
C.	Lowers	Stays the same
D.	Lowers	Rises

Proposed Answer: **C**

Justification	**C** is correct - opening of the scram inlet valve will cause the control rod to drift in, resulting in a drop in reactor power. Because the scram outlet valve did not open, SDV level remains the same. **A&B** are incorrect - reactor power lowers, not rises. **D** is incorrect - SDV level remains the same, it does not rise.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-201-2-01	
KA:	201003, Control Rod And Drive Mechanism	K5.03, Knowledge of the operational implications of the following concepts as they apply to CONTROL ROD AND DRIVE MECHANISM: Reactor power control	
10 CFR Part 55 Content:		55.41.6	
		55.43	

Question Source:	Bank #	**X** NMP2 exam bank: Group 5 Question 148
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	
	Tier #	2	
	Group #	2	
	K/A #	201003	
	Importance Rating	3.7	

Proposed Question: **RO 66**

The plant is operating at power, with the following:

- Control rod 22-19 is fully withdrawn
- A coupling integrity check is performed on control rod 22-19
- Annunciator 603444, "CONTROL ROD OVERTRAVEL", alarms

Which one of the following identifies the position indication displayed on the Four Rod Display window for control rod 22-19 after movement has been completed for the coupling check?

A. Blank

B. XX

C. 48

D. 50

Proposed Answer: A

Justification:	A. correct because it indicates the position indication for control rod 22-19 on the Four Rod Display will be blank. B. incorrect this is failed RPIS. C. incorrect this is full out indication coupled. D. incorrect this is not indicated on display.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-ARP-01 603444	
KA:	201003 Control Rod and Drive Mechanism	A3.01 Ability to monitor automatic operations of the CONTROL ROD AND DRIVE MECHANISM including: Control rod position	
10 CFR Part 55 Content:		55.41.6	
		55.43	

Question Source:	Bank #	Group 3 Question 185
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	X
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	202001	
	Importance Rating	2.6	

Proposed Question: **RO 67**

A reactor startup is in progress with power at 15%, with the following indications for Recirculation Pump (RCS) P1B:

- Seal Purge Flow 0 gpm
- No. 1 Seal Cavity Temperature 150°F and steady
- No. 2 Seal Cavity Temperature 153°F and steady

Which one of the following describes the impact on continued operation of RCS P1B per N2-OP-29, Reactor Recirculation System?

A. Is allowed without any restrictions.

B. Is allowed provided CCP is available.

C. Is not allowed and the pump must be tripped within 90 seconds.

D. Is not allowed and the pump should be shutdown using the normal shutdown procedure.

Proposed Answer: **B**

Justification:	**B** is correct - With no CRD seal purge, continued pump operation allowed per N2-OP-29 as long as CCP is available. **A/C/D** incorrect - not correct per N2-OP-29.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-29	
KA:	202001 Recirculation system	A1.10 Ability to predict and/or monitor changes in parameters associated with operating the RECIRCULATION SYSTEM controls including: 'Seal purge flow'	
10 CFR Part 55 Content:		55.41(10)	**X**
		55.43	

Question Source:	Bank #	**X Question from NM2 bank #17778 Grp 7**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	204000	
	Importance Rating	3.0	

Proposed Question: **RO 68**

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

- A catastrophic tube rupture occurs in the Reactor Water Cleanup (WCS) System Non-Regenerative Heat Exchanger tube bundle.
- The resultant leak rate is 300 gpm.

Which one of the following identifies the WCS system AND the CCP Surge Tank level responses to the tube rupture?

A. WCS continues to operate and the CCP Surge Tank empties.

B. WCS continues to operate and the CCP Surge Tank overflows.

C. WCS isolates and the CCP Surge Tank empties.

D. WCS isolates and the CCP Surge Tank overflows.

Proposed Answer: **D**

Justification:	**D** is correct. For the conditions given (WCS NRHX tube leak), WCS flow will enter the CCP system because WCS system pressure is higher than CCP system pressure. As a result, the WCS system will isolate on high differential flow (after a 45 second time delay) AND CCP Surge Tank level will rise until it reaches the atmospheric vent, at which time it will overflow into the Reactor Building. **A** is incorrect because the WCS system will isolate AND the CCP Surge Tank level rises. **B** is incorrect because the WCS system will isolate. **C** is incorrect because the CCP Surge Tank level rises.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-204-2-00	
KA:	204000, Reactor Water Cleanup System	A4.06, Ability to manually operate and/or monitor in the control room: System flow	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	**X**
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	205000	
	Importance Rating	3.6	

Proposed Question: **RO 69**

The plant is in Mode 3 at 272°F with 'A' RHS Pump operating in Shutdown Cooling, with the following:

- 'A' RHS Pump trips on a motor electrical fault
- The reactor coolant begins to heat up at a constant 4°F per minute

At a constant heat up rate, which one of the following identifies the maximum time before Shutdown Cooling isolates?

A. 15 minutes

B. 17 minutes

C. 20 minutes

D. 24 minutes

Proposed Answer: **C**

Justification:	**C** correct - From steam tables: The isolation setpoint of 128 psig/142.7 psia is equal to 354.5 degrees F. A maximum time of 20 minutes (correct ans.) would take you to 352 degrees. **A** incorrect – (60 degree rise) this is subtracting 14.7 instead of adding it to 128 for psia. **B** incorrect – (68 degree rise) this is using 128 without converting to psia. **D** incorrect – (96 degree rise) NP

Proposed references to be provided to applicants during examination: Steam Tables

Technical Reference(s):		O2 OPS-001-205-2-00, EO-1.7	
KA:	205000, Shutdown Cooling System	K1.01, Knowledge of the physical connections and/or cause effect relationships between SHUTDOWN COOLING SYSTEM and the following: 'reactor pressure'	
10 CFR Part 55 Content:		55.41.5	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	214000	
	Importance Rating	3.0	

Proposed Question: **RO 70**

A reactor scram has occurred, with the following:

- All rods fully insert
- RPS has NOT been reset

Which one of the following identifies the position indicated in the Four Rod Display and the status of the "Green Full In" light on the Full Core Display, for the control rods?

	Indicated Rod Position	**"Green Full In" light Status**
A.	00	OFF
B.	00	ON
C.	Blank	OFF
D.	Blank	ON

Proposed Answer: **D**

Justification:	**D** is correct - With RPS tripped, the rod is driven past the 00 position switch. The full in overtravel position will light the Green Full In light, but the Four Rod display will be blank. **A/C** are incorrect - The full in overtravel position will light the Green Full In light **B** is incorrect - With RPS tripped, the rod is driven past the 00 position switch.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-201-2-03	
KA:	214000, Rod Position Information System	K4.01, Knowledge of ROD POSITION INFORMATION SYSTEM design feature(s) and/or interlocks which provide for the following: Reed switch locations	
10 CFR Part 55 Content:	55.41.7		
	55.43		

Question Source:	Bank #	
	Modified Bank #	**X** NMP2 exam bank: Group 7 Question 73
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A #	214000	214000
	Importance Rating	2.8	2.7

Proposed Question: **RO 71, SRO 70**

The plant is operating at 100% power when the Instrument Air supply line to the in-service Control Rod Drive (RDS) system flow control valve (2RDS*FV6B) actuator breaks.

Which one of the following identifies the response of the Control Rods/Drive Mechanisms (CRDMs) to this Instrument Air line break?

A. CRDM temperatures will rise

B. CRDM temperatures will lower

C. Control rods will drift in

D. Control rods will drift out

Proposed Answer: **A**

Justification:	**A** is correct because it indicates that CRDM temperatures will rise as a result of the Instrument Air line break. **B** is incorrect because CRDM temperatures will NOT lower as a result of the Instrument Air line break. CRDM temperatures will rise due to closure of the in-service RDS flow control valve. **C** is incorrect because control rods will NOT drift in as a result of the Instrument Air line break. CRDM temperatures will rise due to closure of the in-service RDS flow control valve. **D** is incorrect because control rods will NOT drift out as a result of the Instrument Air line break. CRDM temperatures will rise due to closure of the in-service RDS flow control valve.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-201-2-01	
KA:	214000 RPIS	A4.03 Ability to manually operate and/or monitor in the control room: Control rod drive temperature	
10 CFR Part 55 Content:		55.41.10	
		55.43	

Question Source:	Bank #	Group 6 Question 152
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	2

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A #	215002	215002
	Importance Rating	3.3	3.5

Proposed Question: **RO 72, SRO 71**

A reactor startup is in progress, with the following:

- Reactor power is 40%
- Control rod 22-31 is selected and being withdrawn from position 24 to position 48
- Annunciator 603204, "RBM UPSCALE/INOPERABLE", alarms then clears
- Control rod 22-31 settles at position 32
- Both Rod Block Monitor (RBM) channel "A" AND "B" "ALARM SET INTM" lights are now illuminated

Which one of the following identifies the procedural action required to continue control rod withdrawal?

A. Bypass one RBM channel to continue rod withdrawal and notify the System Engineer

B. Depress the PUSH TO SET UP pushbuttons then continue control rod withdrawal

C. Stop all control rod movement and contact the Reactor Engineer for assistance

D. Place one RBM channel keylock switch to INOP

Proposed Answer: **B**

Justification	**B** is correct - Step 2.0 of 603204, "RBM UPSCALE/ INOPERABLE", states "IF the ALM SET LO OR ALARM SET INTM light is lit, THEN depress the PUSH TO SET UP pushbutton". Annunciator clears because alarm setpoint changes. **A/C/D** are incorrect - wrong action per procedure.

Technical Reference(s):		O2-OPS-001-215-2-06, EO-1.7e, N2-ARP-01 Window 603204	
KA:	215002, Rod Block Monitor System	A2.01, Ability to predict and/or monitor the impacts of the following on the ROD BLOCK MONITOR SYSTEM and based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Withdrawal of control rod in a high power region of the core.	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Proposed references to be provided to applicants during examination: None

Question Source:	Bank #	**X** NMP2 exam bank: Group 7 Question 92
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD	**2**

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	215002	
	Importance Rating	3.3	

Proposed Question: **RO 73**

A reactor startup is in progress, with the following:

- Reactor power is 25%.
- Total Recirculation Flow signals received by the Rod Block Monitors (RBMs) are as follows:
- 32% 30% 41% 38%

Which one of the following describes the capability to drive individual control rods?

A. Can INSERT or WITHDRAW

B. Can INSERT Only

C. Can WITHDRAW Only

D. Can neither INSERT nor WITHDRAW

Proposed Answer: **B**

Justification:	**B** is correct – Alarm setpoint is 10%, initiates a withdraw block only and is active at any power level. **A/C/D** are incorrect – a WITHDRAW block is initiated.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-215-2-06, EO-1.7e, N2-ARP-01 Window 603217	
KA:	215002, Rod Block Monitor System	2.4.50, Ability to verify system alarm setpoints and operate controls identified in the alarm response manual	
10 CFR Part 55 Content:		55.41.7	
		55.43	

Question Source:	Bank #	**X NMP2 exam bank: Group 7 Question 92**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	256000	
	Importance Rating	2.8	

Proposed Question: **RO 74**

The plant is operating at 85% power, with the following:

- 7 Condensate Demins are in service and 2 in standby
- Fourth Point Heater drain pump 'A' trips on electrical fault.

Which one of the following describes the effect on the Condensate Demineralizer differential pressure (D/P) and the required actions?

A. D/P lowers, remove Demineralizers as necessary.

B. D/P rises, open Condensate Demineralizer Bypass Valve.

C. D/P lowers, verify closed Condensate Demineralizer Bypass Valve.

D. D/P rises, place in service standby Demineralizers as necessary.

Proposed Answer: **D**

Justification:	**D** is correct based on the loss of the pumping forward by one heater drain pump. Condensate System Flow rises and causes a higher demineralizer D/P and a drop in Booster Pump Suction pressure. Placing additional demineralizers in service will restore system dp. **A** is the inverse of the correct answer, **C** adds the normal power to be lowered to in N2-SOP-8 for unplanned power changes. **B** Condensate Demineralizer Bypass Valve is not opened under theses conditions.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-ARP-01 (page 1327 – 851403), N2-SOP-8	
K/A:	256000, Reactor Condensate System	A2.16, Ability to (a) predict the impacts of the following on the reactor condensate system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: High demineralizer differential pressure.	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	2	1
	K/A #	262001	262001
	Importance Rating	3.5	3.7

Proposed Question: **RO 75, SRO 66**

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

- A loss of Line 6 occurs
- 15 seconds later, a loss of Line 5 occurs

Which one of the following identifies the Control Building Special Filter Train(s), if any, that will be running after power is restored by the Emergency Diesel Generators?

A. Neither Special Filter Train

B. Only Special Filter Train "A"

C. Only Special Filter Train "B"

D. Both Special Filter Trains "A and "B"

Proposed Answer: **C**

Justification:	**C** is correct - If loss of second Division occurs > 8 seconds after the first Division then the start of the second fan will be blocked. **A** is incorrect – this would occur if EDGs did not re-energize buses. **B** is incorrect – this would be if line 5 were lost followed by line 6 > 8 seconds later. **D** is incorrect – this is if loss occurred < 8 seconds apart

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2 OPS-001-288-2-02, EO-1.5, N2-SOP-03	
KA:	262001, Electrical Distribution	K3.01, Knowledge of the effect that a loss or malfunction of the A.C. ELECTRICAL DISTRIBUTION will have on: 'major system loads'	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	**X** NM-2 system final Q-57
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	262002	
	Importance Rating	2.8	

Proposed Question: **RO 76**

Due to an overcurrent condition, plant AC Bus NJS-US3 is lost, de-energizing the Normal AC input to 2VBB-UPS1A.

Which one of the following describes the 2VBB-UPS1A load response?

A. Transfers to the maintenance AC source.

B. Lost due to a loss of "synch" with the maintenance AC supply.

C. Continuously supplied by the DC input until Bus NJS-US3 is restored.

D. Momentarily supplied by DC and then supplied by the alternate Normal AC source.

Proposed Answer: **D**

Justification:	**D** correct - on a loss of normal AC input, UPS will be supplied from DC input for about 30 seconds while VBB-TRS1 transfers the normal AC input to US-4. **A/B/C** incorrect - do not function as above.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-262-2-03	
KA:	262002: Uninterruptable Power Supply	A3.01: Ability to monitor automatic operations of the UNINTERRUPTABLE POWER SUPPLY SYTEM including: 'Transfer from preferred to alternate source'	
10 CFR Part 55 Content:		55.41 (7)	**X**
		55.43	

Question Source:	Bank #	**X** Question from NM2 bank #8100 Grp 6, ques 58
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A #	263000	263000
	Importance Rating	3.1	3.4

Proposed Question: **RO 77, SRO 76**

The plant is operating at 100% power, when a loss of 125VDC Bus 2BYS-SWG001C occurs.

Which one of the following identifies the Uninterruptible Power Supplies (UPS's) that will lose DC power?

A. 2A and 2B

B. 1D and 3B

C. 1A, 1C and 1G

D. 1B, 1G and 3A

Proposed Answer: **D**

Justification:	**D** is correct. UPS 1B, 1G AND 3A receive backup dc power from 2BYS-SWG001C **A** incorrect- dc power from *SWG002B. **B** incorrect- dc power from SWG001B **C** incorrect- dc power from SWG001A, except 1G

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-262-2-03	
KA:	263000, D.C Electrical Distribution	K2.01: Knowledge of the electrical power supplies to the following: Major D.C. loads	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43.	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A #	263000	263000
	Importance Rating	2.5	2.8

Proposed Question: **RO 78, SRO 77**

During a period of heavy loading on the Division 1 125 VDC Bus, bus current rises to 375 amps.

Which one of the following describes the resultant condition of the Division 1 battery charger AND battery?

A. The battery charger will supply the entire current load

B. The battery will supply the entire current load

C. The battery charger will supply 345 amps AND the battery will supply the remaining current load

D. The battery will supply 345 amps AND the battery charger will supply the remaining current load

Proposed Answer: **C**

Justification:	**A** is incorrect because the battery charger will NOT supply the entire current load. The battery charger will supply 345 amps AND the battery will supply the remaining current. **B** is incorrect because the battery will NOT supply the entire current load. The battery charger will supply 345 amps AND the battery will supply the remaining current. **C** is correct because it indicates that the battery charger will supply 345 amps AND the battery will supply the remaining current load. **D** is incorrect because the battery will NOT supply 345 amps. The battery charger will supply 345 amps AND the battery will supply the remaining current load

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-74A, O2-OPS-001-263-2-01	
KA:	263000 DC Electrical Distribution	A1.01 Ability to predict and/or monitor changes in parameters associated with operating the DC Electrical Distribution controls including: Battery charging/discharging rate	
10 CFR Part 55 Content:		55.41.10	
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	271000	
	Importance Rating	3.4	

Proposed Question: **RO 79**

The plant is operating at 100% power when a control rod drop accident and fuel element failure occurs.

Offgas radiation levels go into alarm as follows:

- At 0618, 2OFG-RE13A goes to ALERT (Yellow)
- At 0621, 2OFG-RE13B goes to ALERT (Yellow)
- At 0630, 2OFG-RE13B goes to HIGH (Red)
- At 0635, 2OFG-RE13A goes to HIGH (Red)

Which one of the following describes the **earliest** time when the Offgas System Discharge Valve (2OFG-AOV103) will automatically close?

A. 0618

B. 0621

C. 0630

D. 0635

Proposed Answer: **D**

Justification:	**D** is correct – Both RE13's have to be Red. **A/B/C** are incorrect - Both RE13's are not yet Red

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-ARP-01, 851253	
KA:	271000, Offgas System	K6.09, Knowledge of the effect that a loss or malfunction of the following will have on the OFFGAS SYSTEM: Fuel cladding integrity	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A #	286000	286000
	Importance Rating	3.2	3.4

Proposed Question: **RO 80, SRO 78**

One zone of Computer Room Underfloor Area fire detection is inoperable and has been placed in Alarm Only. This area is protected by cross zone detection.

Which one of the following identifies the impact of this failure if an actual fire occurs in the room?

The remaining zone will .....

A. actuate local/control room alarms, but fire suppression must be manually actuated.

B. actuate local/control room alarms and fire suppression will be automatically actuated.

C. not actuate local/control room alarms, but fire suppression will be automatically actuated.

D. not actuate local/control room alarms and fire suppression must be manually actuated.

Proposed Answer: **A**

Justification:	**A** correct – alarms occur off either zone, suppression requires both. **B** incorrect – requires one detector in both zones. **C** incorrect – alarms are from either zone, suppression requires both. **D** incorrect – alarms will still occur from the remaining zone.

Proposed references to be provided to applicants during examination: N2-OP-47 (without attachments)

Technical Reference(s):		N2-OP-47, 02-OPS-001-286-02-01	
KA:	286000, Fire Protection System	K3.01, Knowledge of the effect that a loss or malfunction of the FIRE PROTECTION SYSTEM will have on the following: 'Ability to detect fires.	
10 CFR Part 55 Content:		55.41(4)	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	2

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	290003	
	Importance Rating	3.2	

Proposed Question: **RO 81**

The plant has experienced a large break LOCA inside the Drywell, with the following:

- Drywell pressure is 5 psig
- **Both** Control Building Special Filter Train Booster Fans start at 1200

Which one of the following identifies the **latest time** that both Control Building Special Filter Train Booster Fans can remain running and why, per N2-OP-53A, Control Building Ventilation System?

A. 1220 to prevent excessive positive Control Room pressure.

B. 1220 to prevent excessive radiation exposure to personnel.

C. 2000 to prevent excessive positive Control Room pressure.

D. 2000 to prevent excessive radiation exposure to personnel.

Proposed Answer: **B**

Justification	**B** is correct - CAUTION in Step H 1.0 of N2-OP-53A states "BOTH Special Filter Trains start simultaneously on a valid LOCA/Hi Rad signal. Failure to shutdown one of the operating fans 2HVC*FN2A(B) within 20 minutes of Actuation CAN result in the Control Room personnel receiving Excessive Radiation Exposure". **A/C/D** are incorrect - not an action directed in either N2-EOP-6 Attachment 1 or N2-OP-53A. There is an 8 hour requirement to close one of the Building intake dampers under LOCA conditions.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-EOP-6 Attachment 1 (Step 3.2.2.1), N2-OP-53A (CAUTION H 1.0)	
		K/A 290003, K5.01 Knowledge of the operational implications of the following concepts as they apply to CONTROL ROOM HVAC: Airborne contamination (example: radiological, toxic gas, smoke) control	
KA:	290003, Control Room HVAC	K5.01, Knowledge of the operational implications of the following concepts as they apply to CONTROL ROOM HVAC: Airborne contamination (example: radiological, toxic gas, smoke) control	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	300000	
	Importance Rating	2.8	

Proposed Question: **RO 82**

Excessive Instrument Air System loading occurs, with the following:

- Instrument Air pressure as read at P851 is 80 psig.
- The Lead and Lag compressors are running

Which one of the following identifies the expected status of the Back-Up Compressor and Service Air Header isolation (2IAS-AOV171) at this pressure?

	BACK-UP COMPRESSOR	**2IAS-AOV171**
A.	On	Closed
B.	On	Open
C.	Off	Closed
D.	Off	Open

Proposed Answer: **A**

Justification:	**A** correct - Backup compressor starts and 2IAS-AOV171 closes at 85 psig. **B** incorrect – SA isolates at same setpoint. **C** incorrect – B/U Comp starts at same pressure as SA iso. **D** incorrect – normal conditions prior to low air pressure

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-279-2, EO-1.4, SOP-19	
KA:	300000, Instrument Air System	K4.01, Knowledge of design features and/or interlocks which provide for the following: 'Manual/automatic transfers of controllers'	
10 CFR Part 55 Content:		55.41.4	**X**
		55.43	

Question Source:	Bank #	**X** NM-2 Q8403
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A #	400000	400000
	Importance Rating	3.2	3.4

Proposed Question: **RO 83, SRO 80**

Piping failures resulted in a loss of Reactor Building Closed Loop Cooling (CCP) flow. Which one of the following components can still be cooled following a loss? the of RCP flow ?

A. Drywell Unit Coolers

B. RHS Pump Seal Coolers

C. RDS Pump Seal Coolers

D. Drywell Equipment Drain Coolers

Proposed Answer: **B**

Justification:	**B** correct - RHS Pump seal coolers can also be supplied with Service Water. **A/C/D** incorrect – loads cooled by CCP only.

Technical Reference(s):		N2-SOP-13	
K/A:	400000, Component cooling water system	K1.02, Knowledge of the physical connections and/or cause-effect relationships between COMPONENT COOLING WATER SYSTEM and the following: Loads cooled by CCWS	
10 CFR Part 55 Content:		55.41.4	**X**
		55.43	

Proposed references to be provided to applicants during examination: None

Question Source:	Bank #	
	Modified Bank #	**X**
	New	
	History	Last NRC Exam. Question # 12338 modified from INPO bank (LGS - 1998 Exam).

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	3	
	K/A #	233000	
	Importance Rating	2.9	

Proposed Question: **RO 84**

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

- Spent Fuel Cooling Pump (SFC) "A" is in service
- Fuel pool gates installed.
- Then, SFC Pump "A" trips

Which one of the following describes fuel pool and SFC Surge Tank "A" level response?

	Fuel Pool Level	**SFC Surge Tank "A" Level**
A.	Remains the same	Remains the same
B.	Remains the same	Rises
C.	Lowers to bottom of weir	Remains the same
D.	Lowers to bottom of weir	Rises

Proposed Answer: **D**

Justification:	**D** is correct – Overflow from weirs to SFC Surge Tank lowers pool level and raises Surge Tank level. **A/B/C** incorrect - Surge tank Level rises as Pool drains to Surge Tank

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-233-2-00 Spent Fuel Pool Cooling & Cleanup	
K/A:	233000, Fuel Pool Cooling and Clean-up	K4.06, Knowledge of Fuel Pool Cooling and Cleanup design feature(s) and or interlocks which provide for the following: 'Maintenance of adequate pool level'.	
10 CFR Part 55 Content:		55.41(7)	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	3	2
	K/A #	234000	234000
	Importance Rating	3.0	3.7

Proposed Question: **RO 85, SRO 73**

Which one of the following describes an indication of a fuel assembly that has been **improperly** oriented in the core?

A. The channel fastener is adjacent to the center of the fuel cell.

B. The identification boss on the bail handle points toward the top guide.

C. The channel spacing buttons are adjacent to the control rod passage area.

D. The fuel assembly identification number on the bail handle is readable from the direction of the center of the fuel cell.

Proposed Answer: **B**

Justification:	**B** correct - I.D boss should point toward the center of the cell to be correctly oriented. **A** incorrect - number (1) per OPTECH. **C** incorrect - number (3) per OPTECH. **D** incorrect - number (4) per OPTECH.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		O2-OPS-001-101-2-02, EO-1.5	
KA:	234000, Fuel Handling Equipment	K5.05, Knowledge of the operational implications of the following as they apply to FUEL HANDLING EQUIPMENT: 'Fuel orientation'	
10 CFR Part 55 Content:		55.41(2)	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	3	3
	K/A #	288000	288000
	Importance Rating	2.8	2.9

Proposed Question: **RO 86, SRO 83**

The plant is in Mode 4 and startup preparations in progress, with the following:

- A Reactor Building Ventilation system startup is in progress per N2-OP-52, Reactor Building Ventilation
- Division 1 and 2 Low Flow Isolation switches are in "OVERRIDE".
- All running Reactor Building Exhaust fans trip.

Which one of the following Reactor Building Ventilation System actions will occur?

A. Supply fans auto trip immediately.

B. Supply fans auto trip after a time delay.

C. "B" Emergency Recirc fan auto starts immediately.

D. "B" Emergency Recirc fan auto starts after a time delay.

Proposed Answer: **B**

Justification:	**B** correct - 10 second TD on high dp. **A** incorrect - this would occur on isolation damper closure. **C/D** incorrect - occur only if flow isolation is not bypassed.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		02-OPS-001-288-2-03	
K/A:	288000, Plant Ventilation systems	K4.03, Knowledge of PLANT VENTILATION SYSTEMS design feature(s) and/or interlocks which provide for the following: Automatic starting and stopping of fans	
10 CFR Part 55 Content:		55.41(7)	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	3	3
	K/A #	290002	290002
	Importance Rating	3.6	3.9

Proposed Question: **RO 87, SRO 84**

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

- A Drywell Instrument Nitrogen line break occurs inside the Drywell resulting in a rapid loss of Nitrogen pressure AND rapid closure of the inboard MSIVs
- 14 Safety Relief Valves opened AND then immediately re-closed

Which one of the following identifies the effect of this transient on the RPV Pressure Safety Limit AND RPV pressure control actions specified in N2-EOP-RPV, RPV Control?

	SAFETY LIMIT	**RPV PRESSURE CONTROL METHOD**
A.	Will not be exceeded	Use sustained SRV opening using the 'C' solenoid only
B.	Will not be exceeded	Use ADS SRVs using the 'A/B' solenoids only
C.	Will be exceeded	Use sustained SRV opening using the 'C' solenoid only
D.	Will be exceeded	Use ADS SRVs using the 'A/B' solenoids only

Proposed Answer: **A**

Justification:	**A** correct - per USAR, Safety Limit will not be exceeded following MSIV closure at rated power. Sustained SRV opening is directed. **B** incorrect – operation of ADS solenoids is prohibited. **C&D** incorrect - per USAR, Safety Limit will not be exceeded following MSIV closure at rated power.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-EOP-RPV	
K/A:	290002, Reactor Vessel Internals	A2.02, ability to (a) predict the impacts of the following on the REACTOR VESSEL INTERNALS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: overpressurization transient.	
10 CFR Part 55 Content:		55.41.5	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #		
	K/A #	2.1.10	
	Importance Rating	2.7	

Proposed Question: **RO 88**

While performing a tour on the Refuel Floor, you note that the New Fuel Storage Vault is partially open AND 15 new fuel bundles are uncovered.

Which one of the following identifies the station document that contains the requirement that is being violated?

A. Core Operating Limits Report

B. Core Reactivity Control Book

C. Facility ALARA Program

D. Facility Operating License

Proposed Answer: **D**

Justification:	**D** is correct- Tech Spec Operating License Condition C.3.d **A/B/C** are incorrect. No such requirement exists in these documents

Proposed references to be provided to applicants during examination: None

Technical Reference(s):			
KA:	Generic 2.1: Conduct of Operations	2.1.10: Knowledge of conditions and limitations in the facility license.	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43.	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	3
	Group #		
	K/A #	2.1.14	2.1.14
	Importance Rating	2.5	3.3

Proposed Question: **RO 89, SRO 87**

The plant is in an outage, with the following:

- RHS pump P1A was started for Shutdown Cooling (Event 1)
- RHS pump P1A is being removed from Shutdown Cooling (Event 2)

Which one of the following identifies the event(s), if any, that require a Plant Page announcement?

	EVENT 1	**EVENT 2**
A.	Yes	Yes
B.	Yes.	No
C.	No	No
D.	No	Yes

Proposed Answer: **A**

Justification:	**A** is correct - starting or securing a large pump or fan requires station announcement. **B/C/D** incorrect - not denoted as evolutions that require Gai-Tronics announcement.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		Operations Manual 3.4	
KA	Generic 2.1: Conduct of Operations	2.1.14: Knowledge of system status criteria which require the notification of plant personnel.	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43.	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	3
	Group #		
	K/A #	2.1.31	2.1.31
	Importance Rating	4.2	3.9

Proposed Question: **RO 90, SRO 88**

A loss of coolant has occurred, with the following:

- A High Drywell Pressure LOCA signal is present and cannot be reset.
- RCIC is injecting into the RPV.
- A spurious RCIC Turbine trip occurs.

Which one of the following identifies the status of the ICS*MOV150 "red" position indicating light on the horizontal section of P601 AND the ability to operate ICS*MOV150 from P601?

	P601 RED POSITION INDICATING LIGHT (HORIZONTAL SECTION)	**P601 OPERATION CAPABILITY**
A.	On	Yes
B.	On	No
C.	Off	No
D.	Off	Yes

Proposed Answer: **B**

Justification:	**B** is correct - horizontal indication is for motor operator, not the Trip And Throttle Valve itself. The red light is normally on when the turbine is reset and remains on following a turbine trip. A LOCA signal removes power from the ICS*MOV150 valve operator preventing operation from P601. Power remains available to the indicating lights. **A&D** incorrect - P601 operation not available with LOCA signal present. **C** incorrect - red light remains on because control power remains available.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-35	
KA:	Generic 2.1: Conduct of Operations	2.1.31: Ability to locate control room switches, controls and indications and determine they are correctly reflecting the desired plant lineup.	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43.	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**4**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	3
	Group #		
	K/A #	2.2.12	2.2.12
	Importance Rating	3.0	3.4

Proposed Question: **RO 91, SRO 89**

While performing a step in an Operation's Surveillance Procedure, it has been determined that a normally open, motor operated Primary Containment Isolation Valve will not stroke in the closed direction, as required by the procedure.

Which one of the following identifies when the Technical Specification LCO action time is started per GAP-SAT-01, Surveillance Test Program?

The LCO time would start .....

A. when the surveillance was logged as started.

B. as soon as the valve failure is recognized.

C. when the surveillance is logged as complete.

D. at the time the surveillance was last satisfactorily completed.

Proposed Answer: **B**

Justification:	**B** correct - per step 3.6.3. **A/C/D** incorrect - not allowed by GAP-SAT.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		GAP-SAT-01	
K/A:	Equipment Control	2.2.12, Knowledge of Surveillance Procedures	
10 CFR Part 55 Content:		55.41(10)	**X**
		55.43	

Question Source:	Bank #	**X** NM-2 Exam Bank – ID # 13086
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #		
	K/A #	2.2.28	
	Importance Rating	2.6	

Proposed Question: **RO 92**

The plant is in MODE 5 with the following conditions:

- A Core Reload is in progress
- All SRM's are OPERABLE
- All control rods are in the core

Which one of the following conditions **requires** the Reactor Operator to notify the Fuel Handling SRO to stop fuel movement in accordance with N2-FHP-13.2, Complete Core Reload?

A. Only radio communication between control room and refuel floor is available.

B. High radiation level alarm on either 2HVR*CAB32A or 2HVR*CAB32B.

C. Control rod 22-31 full-in position indication is lost in the control room.

D. SRM Channel 'A' high voltage power supply fails.

Proposed Answer: **C**

Justification:	**C** is correct - FHP-13.2 requires fuel movement be stopped if any control rod (not removed from the core) full-in position indication is lost. **A** is incorrect - TRM 3.9.3 Bases allows any mode of direct communication between the control room and refuel floor, including radio. **B** is incorrect - ARP for 851254 (Process Airborne Radiation Monitor Activated) requires entry into N2-SOP-39, Refuel Floor Events, if either HVR Above Refuel Floor monitor (2HVR*CAB14A/B) alarms. The CAB32's are the Below Refuel Floor monitors. **D** is incorrect - Stem conditions specify that all 4 SRM's are OPERABLE; an INOP condition (i.e, the HV power supply failure) on the 'A' SRM channel still leaves 3 SRM's operable. Tech Spec 3.3.1.2 (Table 3.3.1.2-1) requires only 2 operable SRMs for the stem conditions.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-FHP-13.2 (Att.4); TS 3.3.1.2, TRM 3.9.3, N2-ARP-01 (Att. 21 for window 851254)	
KA:	GENERIC 2.2	2.2.28, Knowledge of new and spent fuel movement procedures	
10 CFR Part 55 Content:		55.41	
		55.43.7	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	3
	Group #	-	-
	K/A #	2.2.11	2.2.11
	Importance Rating	2.5	3.4

Proposed Question: **RO 93, SRO 92**

Assuming any necessary approval or direction is obtained, which one of the following types of procedure changes may be prepared AND processed as a Type 1 (14 day) Procedure Change Evaluation (PCE) in accordance with NIP-PRO-04, Procedure Change Evaluations And Future Procedure Enhancements?

A change that .....

A. adds a new operator action to a Special Operating Procedure.

B. revises the acceptance criteria of a Surveillance Test procedure.

C. adds a new motor-operated valve to the scope of an In-Service Test Procedure.

D. affects the References And Commitments section of an Administrative Procedure.

too general maybe a result in change of Intent Revised distractor

Proposed Answer: **A**

Justification:	**A** is correct - such a change is not a 'Change of Intent' as defined by NIP-PRO-04, Attachment 3; therefore, a Type 1 PCE would be allowed, provided that the EOP/SOP Coordinator has directed that the SOP be changed using the PCE process (Section 3.1.1). **B/C** are incorrect - specifically violate NIP-PRO-04, 'Change of Intent' criteria. **D** is incorrect - Type 1 PCE process is not allowed for changing Administrative Procedures (NIP-PRO-04, Section 3.1.2).

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		NIP-PRO-04	
KA:	2.2, Equipment Control	2.2.11, Knowledge of the process for controlling temporary changes.	
10 CFR Part 55 Content:		55.41.10	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	**X (PBAPS, NRC 2000)**
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #		
	K/A #	2.3.2	
	Importance Rating	2.5	

Proposed Question: **RO 94**

A plant transient is in progress, with the following:

- An emergency at the ALERT level has been declared
- You are a radiation worker who has been authorized to receive an emergency radiation exposure for the purpose of protecting valuable plant equipment

Which one of the following identifies the **highest** (TEDE dose) emergency exposure that you may receive without exceeding the limits specified in EPIP-EPP-15, Emergency Health Physics Procedure?

A. 5 rem

B. 10 rem

C. 25 rem

D. 50 rem

Proposed Answer: **B**

Justification:	**B** is correct - For protecting valuable plant equipment/property, emergency exposure limit is 10 rem (TEDE). **A** is incorrect - 5 rem emergency exposure is within the 10 rem limit, but is not the highest dose before exceeding the 10 rem limit. **C** is incorrect - 25 rem far exceeds the limit for protecting valuable plant property. 25 rem is the limit for saving lives or protecting large populations. **D** is incorrect - 50 rem far exceeds the limit for protecting valuable plant property. 50 rem could be authorized only for individuals who volunteer to save lives or protect large populations.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		EPIP-EPP-15, Attachment1, Section 1.0	
KA:	Generic 2.3:Radiation Control	2.3.2: Knowledge of facility ALARA program	
10 CFR Part 55 Content:		55.41.12	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	3
	Group #		
	K/A #	2.3.9	2.3.9
	Importance Rating	2.5	3.4

Proposed Question: **RO 95, SRO 94**

Which one of the following identifies the reason for maintaining the following pressure limits during suppression chamber purge operation?

- Less than 0.41 psig suppression chamber pressure
- Not be more negative than -1.0" Water Reactor Building differential pressure

Stem cues
Conclusion
Stem question

To prevent cross flow from the...

A. suppression chamber to the drywell.

B. drywell to the suppression chamber.

C. suppression chamber to the reactor building.

D. reactor building to the suppression chamber.

Proposed Answer: **C**

Justification:	**C** is correct-Supp. Chamber reverse flow could occur if limits are exceeded. **A&B** incorrect- limits on SC to DW DP. **D** incorrect- wrong direction

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-61A, pg.24	
KA:	Generic 2.3: Radiation Control	2.3.9: Knowledge of the process for performing a containment purge.	
10 CFR Part 55 Content:		55.41.13	**X**
		55.43.	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	3
	Group #		
	K/A #	2.3.11	2.3.11
	Importance Rating	2.7	3.2

Proposed Question: **RO 96, SRO 96**

Which one of the following describes the reason that N2-EOP-RR, Radiation Release Control, directs the operation of the Turbine Building Ventilation System?

To ensure that .....

A. any release is elevated and monitored.

B. any release is treated prior to discharge.

C. ground level releases are maximized.

D. the Turbine Building is at negative pressure.

Proposed Answer: **A**

Justification:	**A** is correct. Turbine Building Ventilation System provides for an elevated and monitored release via the Stack. B is incorrect. TB Ventilation System does not treat the process flow. **C** is incorrect. Non-plausible. **D** is incorrect. Not stated by bases.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-EOP-RR Bases	
KA:	2.3.11	2.3.11 Ability to control radiation releases.	
10 CFR Part 55 Content:		55.41(10)	**X**
		55.43	

Question Source:	Bank #	**X**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	3
	Group #	-	-
	K/A #	2.4.18	2.4.18
	Importance Rating	2.7	3.6

Proposed Question: **RO 97, SRO 97**

A Failure To Scram (ATWS) has occurred, with the following:

- Suppression Pool temperature is 112°F and steady
- Reactor water level is being intentionally lowered to reduce power

Which one of the following is prevented by specifying a minimum level limit per N2-EOP-C5, Failure to Scram, while lowering RPV level?

A. Thermal hydraulic instabilities

B. Inadvertent ECCS pump starts

C. Peak cladding temperatures above 1500°F

D. Uncovering Fuel Zone instrument variable leg taps

Proposed Answer: **C**

Justification:	**C** is correct – this is the reason for the Minimum Steam Cooling Water Level (MSCWL) limit. **A** is incorrect – a maximum level of 100 inches is specified in EOP-C5 step L-7 for this concern. **B** is incorrect – ECCS Pumps will start as level is lowered to the MSCWL, since their initiation setpoint is above MSCWL. **D** is incorrect – Fuel Zone Instruments are used when level is at MSCWL.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		EOP-C5 Bases	
KA:	Emergency Procedures/Plan	2.4.18, Knowledge of the specific basis for EOP's	
10 CFR Part 55 Content:		55.41(10)	**X**
		55.43	

Question Source:	Bank #	**X** INPO Bank # 12276
	Modified Bank #	
	New	
	History	LGS 1998 NRC exam

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	3
	Group #		
	K/A #	2.4.27	2.4.27
	Importance Rating	3.0	3.5

Proposed Question: **RO 98, SRO 99**

The plant is operating at 100%, when a Main Turbine Lube Oil fire starts, with the following:

- Automatic fire suppression is in service
- Multiple fire alarms are illuminated on P849

Which one of the following describes the Chief Shift Operator's actions in accordance with EPIP-EPP-28, Fire Fighting?

A. Sound the Fire Alarm and direct the Fire Brigade to the scene

B. Sound the Station Alarm and direct the Fire Brigade to the scene

C. Call the Fire Brigade leader and direct them to the alarming fire panels

D. Call the OSC and direct the Fire Brigade leader to the alarming fire panels

Proposed Answer: **A**

Justification:	**A** is correct – automatic fire suppression has initiated so Fire Alarm/Announcement is appropriate. **B** is incorrect – the Fire Alarm is the appropriate alarm. **C** is incorrect – automatic fire suppression initiation requires use of Alarm/Announce verses phone call and investigation. **D** is incorrect – the OSC would not be manned and Alarm/Announce would be required verses phone call and investigate..

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		EPIP-EPP-28, Sec 3.1, Attachment 1	
KA:	2.4, Emergency Procedures/Plan	2.4.27, Knowledge of fire in plant procedure	
10 CFR Part 55 Content:		55.41.10	X
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	X
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	X
	LOD:	3

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	3
	Group #		
	K/A #	2.4.32	2.4.32
	Importance Rating	3.3	3.5

Proposed Question: **RO 99, SRO 100**

The plant is operating at 100%, when electrical faults on various Foxboro cabinets result in a loss of all annunciator capability.

Which one of the following identifies the required actions per N2-SOP-91, Loss of Control Room Annunciators?

Assign.....

A. a licensed operator to monitor all control room panels

B. any operator to monitor all control room panels

C. a licensed operator to perform rounds twice per shift in all buildings

D. any operator to perform rounds twice per shift in all buildings

Proposed Answer: **A**

Justification:	**A** is correct - N2-SOP-91 requires a licensed operator to monitor all affected panels **B** is incorrect – requires a licensed operator **C/D** are incorrect - building rounds must be performed continuously

Proposed references to be provided to applicants during examination: None

Technical Reference(s):	N2-SOP-91	
KA: GENERIC	2.4.32, Knowledge of operator response to loss of all annunciators	
10 CFR Part 55 Content:	55.41.7	**X**
	55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**2**

Comments: None

Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	3
	Group #		
	K/A #	2.4.35	2.4.35
	Importance Rating	3.3	3.5

Proposed Question: **RO 100, SRO 99**

The plant is at 100% power when a SCRAM occurs, with the following:

- An RPS is tripped
- All of the blue lights are illuminated on the full-core display
- Rods are **not** all in
- SLS fails to initiate
- Radiation levels make Reactor Building elevation 328' inaccessible

Which one of the following methods should be used to shut down the reactor?

A. Vent the scram air header

B. Individually scram the control rods

C. Inject boron using WCS

D. Inject boron using the SLS hydro pump

Proposed Answer: **D**

Justification	**D** is correct – RB elevation 289' is accessible, and hydro pump boron injection would be effective. **A/B** are incorrect – with scram valves already open, neither would be effective. **C** is incorrect — RB elevation 328' is inaccessible

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-EOP-6	
KA:	GENERIC	2.4.35, Knowledge of local auxiliary operator tasks during emergency operations including system geography and system implications.	
10 CFR Part 55 Content:		55.41.7	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

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

Applicant Information	
Name:	Region: (I) / II / III / IV
Date: July 29, 2002	Facility/Unit: Nine Mile Point Unit 2
License Level: RO / (SRO)	Reactor Type: W / CE / BW / (GE)
Start Time:	Finish Time:

Instructions

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

Applicant Certification

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

_____
Applicant's Signature

Results	
Examination Value	100 Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #		295006
	Importance Rating		4.1

Proposed Question: **SRO 3**

The plant is at 100% power when surveillance testing finds that RPS Reactor Pressure trip unit (B22-N078B) trip setpoint is 1075 psig and cannot be adjusted.

Which one of the following describes the minimum required Technical Specification action?

A. Place the Unit in Mode 2 within 6 hours

B. Place the Unit in mode 3 within 12 hours.

C. Initiate a 'B' channel half scram within 6 hours.

D. Initiate a 'B' channel half scram within 12 hours

Proposed Answer: **D**

Justification:	**D** is correct. Tech Spec 3.3.1.1 Condition A Required Action A.2. **A** is incorrect This is Required Action G.1, which is not entered. **B** is incorrect but plausible if Condition H is entered directly from Table 3.3.1.1-1 Function 3. **C** is incorrect. This is Required Action B.2

Proposed references to be provided to applicants during examination: Technical Specification Section 3.3.1.1

Technical Reference(s):		Tech Spec. 3.3.1.1	
KA:	295006, SCRAM	AA2.04, Ability to determine and/or interpret the following as they apply to SCRAM: " Reactor pressure"	
10 CFR Part 55 Content:		55.41	
		55.43(2)	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #		295007
	Importance Rating		3.7

Proposed Question: **SRO 4**

A transient has occurred resulting in entry into N2-EOP-C3, Steam Cooling, with no RPV injection sources available and the following conditions:

- RPV pressure is 600 psig
- Fuel Zone RPV water level indicates -60 inches

At which one of the following identifies the **highest** indicated RPV water level that requires RPV Blowdown with RPV pressure now stabilized at 800 psig?

A. -70 inches

B. -73 inches

C. -80 inches

D. -83 inches

Proposed Answer **D**

Justification:	**D** is correct - -55 at 800 psig. **B** incorrect - -55 at 600 psig **A** incorrect - -42 at 600 psig **C** incorrect - -42 at 800 psig.

Proposed references to be provided to applicants during examination: N2-EOP-C3.

Technical Reference(s):		N2-EOP-C3 - Ref graph Z	
KA:	295007, High Reactor Pressure	AA2.03: Ability to determine and interpret the following as they apply to HIGH REACTOR PRESSURE: 'Reactor water level'	
10 CFR Part 55 Content:		55.41.	
		55.43.5	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #		295013
	Importance Rating		4.0

Proposed Question: **SRO 7**

The plant is in MODE 1 when the following events occur:

- A Safety Relief Valve (SRV) inadvertently opens.
- Five minutes later the valve re-closes and stays closed.
- Suppression Pool Cooling is placed in service as required by plant procedures.

Suppression Pool temperature values AND times are as follows:

Time	Suppression Pool Temperature
08:00	85°F (initial opening of SRV)
08:03	90°F
08:05	92°F (SRV closes)
08:10	94°F
09:00	91°F

Which one of the following identifies the **latest** time that the next Technical Specification requirement will need to be completed? (assume one hour readings are being taken for Suppression Pool temperature AND normal channel check readings are being taken)

A. Same day by 20:03

B. Same day by 20:05

C. Next day by 08:03

D. Next day by 08:05

Proposed Answer: **B**

Justification:	B is correct - TS.3.6.1.7 requires vacuum breakers to be tested within 12 hours of an SRV opening. **A** incorrect - 12 hours applied when above 90°F. **D** incorrect - 24 hours applied to vacuum breaker test. **C** incorrect - correct, but not **next** action.

Proposed references to be provided to applicants during examination: Technical Specification 3.6.1.7.

Technical Reference(s):		Technical Specifications 3.6.1.7 (SR 3.6.1.7.2)	
KA:	295013, High Suppression Pool Temperature	2.1.12: Ability to apply technical specifications for a system	
10 CFR Part 55 Content:		55.41	
		55.43.2	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD	**3**

Comments: From INPO bank - Duane Arnold # 7174

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #		295023
	Importance Rating		4.6

Proposed Question: **SRO 14**

The plant is in a Refueling Outage when the following events occur:

- An irradiated spent fuel bundle is dropped in the Spent Fuel Pool
- 2HVR*RE14A-1 AND 2HVR*RE14B-1 gaseous radiation monitors indicate "red" on DRMS
- Reactor building ventilation systems respond as designed
- Refuel Floor ARMs 43-RMS111 AND 43-RMS112 indicate 5.3 R/hr

Which one of the following Emergency Classifications should be declared given these conditions?

A. Unusual Event

B. Alert

C. Site Area Emergency

D. General Emergency

Proposed Answer: **B**

Justification:	**B** is correct - EAL Category 1.4 (Alert classification). **A/C/D** incorrect - not per EAL Category 1.4.

Proposed references to be provided to applicants during examination: EAL flowchart

Technical Reference(s):		EAL Action Level Matrix	
KA:	295023, Refueling Accidents	AA2.05, Ability to determine and/or interpret the following as they apply to REFUELING ACCIDENTS: "Entry conditions of emergency plan	
10 CFR Part 55 Content:		55.41	
		55.43.5	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #		295023
	Importance Rating		3.6

Proposed Question: **SRO 15**

The plant is in a Refueling Outage with fuel movements in progress when the following events occur:

Time **Event**

0830 An Unusual Event is declared due to lowering Spent Fuel Pool level
0900 Refuel Floor SRO reports irradiated spent fuel bundles in the Spent Fuel Pool have uncovered

Which one of the following meets the declaration AND reporting time requirements specified in the Emergency Plan for the 'Alert' condition?

A. Declare an Alert at 0902 AND commence State/County notifications by 0920

B. Declare an Alert at 0900 AND commence State/County notifications by 0918

C. Declare an Alert at 0918 AND commence State/County notifications by 0925

D. Declare an Alert at 0914 AND commence State/County notifications by 0929

Proposed Answer: **D**

Justification:	**D** is correct - Per EAL flowchart, declare within 15 minutes of discovery (EPIP-EPP-02). AND notify within 15 minutes of declaration (EPIP-EPP-20). **A&B** incorrect - exceed 15 minute notification. **C** incorrect - exceeds 15 minute declaration time.

Technical Reference(s):		EPIP-EPP-02, EPIP-EPP-20	
KA:	295023 Refueling Accidents	2.4.30 Knowledge of which events related to system operations/status should be reported to outside agencies.	
10 CFR Part 55 Content:		55.41	
		55.43.5	**X**

Proposed references to be provided to applicants during examination: None

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #		295026
	Importance Rating		4.1

Proposed Question: **SRO 20**

The plant is in Mode 2 at 6% power with extended RCIC testing in progress, and the following conditions:

- Suppression Pool temperature 92°F
- Suppression Pool level 200.7 ft.

Which one of the following describes the required actions per plant procedures?

A. Enter N2-EOP-PC only.

B. Suspend RCIC testing only.

C. Enter N2-EOP-PC AND 12 hour Required Action

D. Enter 12 hour Required Action AND suspend RCIC testing.

Proposed Answer: **A**

Justification:	**A** is correct. ≥90°F is entry into EOP-PC. **B&D** incorrect. RCIC testing can continue until 105°F. **C** incorrect. LCO not entered with testing in progress.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-EOP-PC and T.S. 3.6.2.1	
KA:	295026, High Suppression Pool Temperature	2.2.22, Knowledge of limiting conditions for operations and safety limits.	
10 CFR Part 55 Content:		55.41.	
		55.43.5	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #		295031
	Importance Rating		4.0

Proposed Question: **SRO 24**

The plant is at 100% power when Fuel Zone level indicator (2ISC*LT13A) fails downscale.

Which one of the following actions is required by plant Technical Specifications?

A. Initiate action within I hour to place the unit in Mode 2 within 7 hours.

B. Restore to operable within 7 days or be in Mode 3 within the following 12 hours.

C. Restore to operable within 30 days or be in Mode 3 within the following 12 hours.

D. Restore to operable within 30 days or file a written report within the following 14 days.

Proposed Answer: **D**

Justification:	**D** is correct, A &B actions required per TS 3.3.3.1. **A** incorrect, This would be for TS 3.0.3. **B** incorrect, This would be for 2 channels INOP. **C** incorrect, S/D only called for if 2 channels INOP.

Proposed references to be provided to applicants during examination: Tech Spec 3.3.3.1 and 5.6.6

Technical Reference(s):		Tech Spec 3.3.3.1 actions A1 & B1 (PAM) and 5.6.6	
KA:	295031, Reactor Low water level	G2.1.33 Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.	
10 CFR Part 55 Content:		55.41	
		55.43.2	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #		500000
	Importance Rating		3.3

Proposed Question: **SRO 26**

A LOCA is in progress AND Hydrogen (H_2) has been released into the Primary Containment. The following conditions exist:

- Drywell H_2 6.5%
- Drywell O_2 5%
- Suppression Chamber H_2 2.0%
- Suppression Chamber O_2 5%
- Suppression pool level is 205 feet
- The Drywell Spray Initiation Limit is satisfied

Which one of the following identifies the requirement for Drywell AND Suppression Chamber Spray operation for the given Containment H_2 AND O_2 concentrations?

	DRYWELL SPRAY OPERATION	**SUPPRESSION CHAMBER SPRAY OPERATION**
A.	Not required	Required
B.	Not required	Not required
C.	Required	Required
D.	Required	Not required

Proposed Answer: **C**

Justification:	**C** is correct – DW is at deflagration and SC is deinerted and deflagration Hydrogen exists in DW. **A/B** incorrect - meet conditions to spray DW per N2-EOP-PCH. **D** incorrect – meet conditions to spray SC

Proposed references to be provided to applicants during examination: N2-EOP-PCH

Technical Reference(s): N2-EOP-PCH

KA:	500000 High Containment Hydrogen Concentration	EA1.05, Ability to operate and/or monitor the following as they apply to HIGH CONTAINMENT HYDROGEN CONC.: 'Wetwell sprays'	
10 CFR Part 55 Content:		55.41	
		55.43.5	**X**

Question Source:	Bank #	
	Modified Bank #	**X INPO bank # 905 Grand Gulf 1998**
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #		295004
	Importance Rating		3.6

Proposed Question: **SRO 31**

The plant is in MODE 1, with the following conditions:

- The in-service Division I Battery Charger trips off due to an electrical protective device actuation
- The standby charger is unavailable
- Neither charger will be available for at least 24 hours

Which one of the following identifies the cause of the trip and the time required to be in MODE 3?

	Cause of TRIP	**TIME TO BE IN MODE 3**
A.	Low DC output voltage	12 hours
B.	Low DC output voltage	14 hours
C.	High DC output voltage	12 hours
D.	High DC output voltage	14 hours

Proposed Answer: **D**

Justification:	High DC output voltage is the only device that will auto trip the charger. Tech Specs allows 2 hours to restore Div 1 and then 12 hours to be in Mode 3.

Proposed references to be provided to applicants during examination: Technical Specification 3.8.4

Technical Reference(s):		O2-OPS-001-263-2-1, EO-1.4	
KA:	295004, Complete or partial loss of DC Power	A2.01, Ability to operate/and or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF DC POWER: 'cause of partial loss of DC power'	
10 CFR Part 55 Content:		55.41	
		55.43.2	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	3

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #		295012
	Importance Rating		3.7

Proposed Question: **SRO 35**

The plant is in MODE 1 when all Drywell Cooling is lost due to an inadvertent Division I containment isolation signal, with the following:

- Drywell pressure is 0.77 psig and rising slowly
- Drywell absolute pressure is 15.4 psia
- Drywell temperature is 151°F and rising slowly

Which one of the following is the maximum time allowed by Technical Specifications before the plant is required to be in MODE 3?

A. 4 hours

B. 13 hours

C. 16 hours

D. 20 hours

Proposed Answer: **D**

Justification:	**D** correct, Required Action A.1 8 hours to restore, then 12 hour to be in Mode 3. **B** is incorrect, 15.4 psia is within the allowable range of 14.2 to 15.45 psia of TS 3.6.1.4 **A&C** incorrect, actions associated with bypassing PCIV, which has not been done.

Proposed references to be provided to applicants during examination: Tech Spec 3.6.1.4 & 3.6.1.5

Technical Reference(s):		Tech Spec 3.6.1.5	
KA:	295012, High D/W Temperature	AK2.02, Knowledge of the interrelations between high Drywell temperature and the following: Drywell cooling	
10 CFR Part 55 Content:		55.41.	
		55.43.2	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #		295021
	Importance Rating		3.4

Proposed Question: **SRO 38**

The plant is in MODE 5 with fuel movements in progress, when an inadvertent Shutdown Cooling isolation occurs.

Which one of the following initial actions is required by plant Technical Specifications?

A. Suspend Core Alterations immediately.

B. Restore Secondary Containment Integrity immediately.

C. Start the Standby Gas Treatment system within one hour.

D. Verify an alternate method of decay heat removal available within one hour.

distractors credible

Proposed Answer: **D**

Justification:	**D** is correct - TS 3.9.8 action A (high level.). **A** incorrect - this is follow up action if an alternate method of decay heat removal is determined to be not available within 1 hour. **B&C** incorrect - actions would be for TS 3.9.9 (low level).

Proposed references to be provided to applicants during examination:Tech Specs 3.9.8 & 3.9.9

Technical Reference(s):		N2-SOP-31 and Tech Spec 3.9.8 (high level)	
KA:	295021 Loss of S/D Cooling.	AA2.02, Ability to determine and/or interpret the following as they apply to LOSS OF SHUTDOWN COOLING: "S/D cooling flow"	
10 CFR Part 55 Content:		55.41.	
		55.43.2	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #		295029
	Importance Rating		3.7

Proposed Question: **SRO 40**

The plant is in MODE 1 when the following events occur:

- A transient results in a rising suppression pool level.
- The crew is executing N2-EOP-PC, Primary Containment Control.
- All efforts to reduce pool level below the SRV Tail Pipe Level Limit have been unsuccessful.

Which one of the following describes the implication of delaying RPV Blowdown?

A. SRV tailpipe submergence could result in exceeding the Primary Containment design pressure.

B. Containment downcomer submergence could result in exceeding the Primary Containment design pressure.

C. SRV tailpipe vacuum breaker submergence could result in exceeding the Primary Containment design pressure.

D. Suppression chamber to drywell vacuum breaker submergence could result in exceeding the Primary Containment design pressure.

Proposed Answer: **A**

Justification:	**A** correct - per EOP-PC SPL-2 bases. **B** incorrect - downcomer submergence is not a concern in EOP-PC high level this is low level concern. **C** incorrect - vac. bkrs are in the drywell not a concern on high pool level. **D** incorrect - this is concern for spraying the chamber.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		EOP-PC Bases	
KA:	295029, High Suppression Pool Water Level	EK 1.01, Knowledge of the operational implications of the following concepts as they apply to the HIGH SUPPRESSION POOL WATER LEVEL: Containment integrity	
10 CFR Part 55 Content:		55.41	**X**
		55.43.5	

Question Source:	Bank #	**X Q6684 from INPO bank**
	Modified Bank #	
	New	
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	2

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #		295032
	Importance Rating		4.0

Proposed Question: **SRO 42**

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

- RCIC Pump Room temperature is 236°F and rising
- Reactor Building General Area Elevation 206 temperature is 215°F and rising.
- Several fire alarms are actuated in the Reactor Building
- DRMS indicates radiation levels in all areas of the Reactor Building are NOT rising
- There are no indications of system piping breaches anywhere

Which one of the following action(s) are required by the EOPs?

	Reactor Shutdown	**Blowdown**
A.	Yes	Yes
B.	Yes	No
C.	No	Yes
D.	No	No

Proposed Answer: **B**

Justification:	**B** is correct. 2 or more areas exceeding max safe temp. requires scram. Blowdown is not required since leak is not from a primary system (based on steady radiation levels and the presence of fire alarms). The indications provided are that the cause of the high temperature is the fire. **A&C** incorrect. Blowdown is not required. **D** incorrect. Scram is required

Proposed references to be provided to applicants during examination: N2-EOP-SC, EOP 6-att.28

Technical Reference(s):		N2-EOP-SC and Bases	
KA:	295032, High Secondary Containment Area temperature	EA2.03: Ability to determine and/or interpret the following as they apply to HIGH SECONDARYCONTAINMENT AREA TEMPERATURE: 'cause of high area temperature'	
10 CFR Part 55 Content:		55.41	
		55.43.5	**X**

Question Source:	Bank #	
	Modified Bank #	**X**
	New	
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: Question modified from INPO bank – Oyster Creek 13076

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #		295032
	Importance Rating		3.7

Proposed Question: **SRO 43**

The Plant is at 100% power when surveillance testing finds that one of the two Reactor Building Pipe Chase Area temperature detectors for elevation 292 feet has a trip setpoint of 149°F.

Which one of the following describes the Technical Specification basis for the temperature setpoint and any Technical Specification action associated with the above instrument?

	TS Basis	**TS Action**
A.	Will detect leak of ≥25 GPM	None required
B.	Will detect leak of ≥25 GPM	24 hr. Action is required
C.	Set to isolate to prevent equipment damage	None required
D.	Set to isolate to prevent equipment damage	24 hr. Action is required

Proposed Answer: **A**

Justification:	**A** is correct- Basis for setpoint is to detect leaks ≥25 gpm. No action req'd since only one detector required for this area. **B** incorrect- right basis wrong to enter LCO **C&D** incorrect- wrong basis

Proposed references to be provided to applicants during examination: Tech Specs

Technical Reference(s):		Tech Spec 3.3.6.1 and Basis	
KA:	295032: High Secondary Containment Area Temperature	2.2.25: knowledge of basis in technical specifications for limiting conditions for operation and safety limits.	
10 CFR Part 55 Content:		55.41.	
		55.43.2	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**4**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #		211000
	Importance Rating		3.8

Proposed Question: **SRO 52**

With the plant in Mode 2, which one of the following sets of parameters are needed to satisfy Standby Liquid Control System Technical Specification requirements?

	Tank Volume(Gallons)	**Sodium Pentaborate Concentration**
A.	4400	14%
B.	4500	14%
C.	4600	13.5%
D.	4700	13.5%

Proposed Answer: **B**

Justification:	**B** is correct, parameters fall within Tech Spec 3.1.7 Figure 3.1.7-1. **A/C/D** incorrect, parameters fall outside of the figure.

Proposed references to be provided to applicants during examination: Technical Specification 3.1.7

Technical Reference(s):		Tech Specs 3.1.7	
KA:	211000, Standby liquid Control System	2.1.32, Ability to explain and apply system limits and precautions.	
10 CFR Part 55 Content:		55.41.	
		55.43.2	**X**

Question Source:	Bank #	**X INPO bank; Quad Cities #16648**
	Modified Bank #	
	New	
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #		215005
	Importance Rating		3.8

Proposed Question: **SRO 54**

The plant is operating at 60% power with the OPRMs enabled. The following alarms are received:

- "OPRM INOP/TRIP" received from APRM 1
- "APRM TRIP SYSTEM UPSCALE/INOP" received from APRM 4

Which one of the following describes the automatic plant response?

A. Reactor Scram

B. Rod Out Block only

C. Reactor Half Scram only

D. Reactor Half Scram and Rod Out Block

Proposed Answer: **B**

Justification	**B** is correct - per N2-OP-92, need two OPRM and APRM trips. **A/C/D** are incorrect - wrong response. **D** would be correct if two trips from same function.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-OP-92	
KA:	215005: APRM/LPRMs	2.1.32: Ability to explain and apply system limits and precautions.	
10 CFR Part 55 Content:		55.41.6	**X**
		55.43	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	3

Comments: This question is on the SRO exam only, but is NOT one of the required 25 SRO ONLY questions.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #		239002
	Importance Rating		4.0

Proposed Question: **SRO 62**

A major plant transient has occurred and an RPV Blowdown is required, due to exceeding the limit for Pressure Suppression Pressure. The following conditions exists:

- Reactor Pressure is 650 psig
- Drywell Pressure is 14 psig
- Suppression Chamber pressure is 11 psig
- Suppression Pool level is 192 feet
- Primary Containment Sprays are unavailable

Which one of the following describes the required method of depressurizing the RPV and the maximum allowable reactor pressure following the depressurization?

	DEPRESSURIZATION METHOD	**MAXIMUM ALLOWABLE REACTOR PRESSURE**
A.	SRVs	below 38 psig
B.	SRVs	below 49 psig
C.	Turbine BPVs	below 38 psig
D.	Turbine BPVs	below 49 psig

Proposed Answer: **D**

Justification:	**D** is correct. Proc calls for turbine BPVs since SP level is too low to use SRVs. Rx. Pressure needs to remain within 38# of SP pressure. **A&B** incorrect. SP level too low for SRV use. **C** incorrect. This would be if SP pressure were 0.

Proposed references to be provided to applicants during examination: N2-EOP-C2

Technical Reference(s):		N2-EOP-PC, N2-EOP-C2	
KA:	239002: Relief/Safety valves	Topic: G 2.4.6: Knowledge of symptom bases EOP mitigation strategies.	
10 CFR Part 55 Content:		55.41	
		55.43.5	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		2
	K/A #		201001
	Importance Rating		4.3

Proposed Question: **SRO 68**

During a plant refueling outage and with core alterations in progress, ANN 603441, ROD DRIVE ACCUMULATOR TROUBLE alarms. The following conditions exist:

- Accumulator Alarm is for rod 30-35
- Rod 30-35 is fully withdrawn
- Accumulator pressure for rod 30-35, is 900 psig
- All fuel bundles around rod 30-35 are present

Which one of the following identifies the actions required?

A. Suspend Core Alterations.

B. Insert rod 30-35 immediately.

C. Declare rod 30-35 inoperable and disarm hydraulically.

D. Verify Technical Specification control rod separation criteria are met.

Proposed Answer: **B**

Justification:	**B** is correct, action directed from SOP-30. **A&D** incorrect, not correct per procedure. **C** incorrect, This is an action for Mode 1 or 2 only.

Proposed references to be provided to applicants during examination: N2-SOP-30 Attachment 1 and 2

Technical Reference(s):		N2-SOP-30, Tech. Spec. 3.9.5	
KA:	201001, Control Rod Drive Hydraulic System	2.4.4, Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.	
10 CFR Part 55 Content:		55.41.	
		55.43.6	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		2
	K/A #		286000
	Importance Rating		3.6

Proposed Question: **SRO 79**

A fire has started in the Control Building HVAC room. Thick smoke pours into the Control Room requiring a Control Room Evacuation.

Event timeline is as follows:

- 09:03 Fire is reported to the Control Room.
- 09:06 Main Control Room evacuation ordered.
- 09:08 Reactor is manually scrammed.
- 09:23 Control at Remote Shutdown Panel is established.
- 09:30 Fire is reported extinguished.

Which one of the following Emergency Event Classifications is required per the EALs?

A. Unusual Event

B. Alert

C. Site Area Emergency

D. General Emergency

Proposed Answer: **C**

Justification:	**C** is correct- fire w/ control not established at RSP within 15 min is Site Area Emergency 7.2.4. **A** incorrect- this would be for fire not extinguished within 10 min. **B** incorrect- would be for fire in vital area. **D** incorrect-NP

Proposed references to be provided to applicants during examination: EAL Matrix

Technical Reference(s):		EAL Site Area Emergency 7.2.4	
KA:	286000, Fire Protection System	2.4.30: Knowledge of which events related to system operation/status should be reported to outside agencies.	
10 CFR Part 55 Content:		55.41.	
		55.43.5	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		3
	K/A #		233000
	Importance Rating		4.3

Proposed Question: **SRO 82**

The plant is in MODE 5 with the Spent Fuel Pool/Cavity Gates installed. Preparations are underway to flood the reactor cavity. The following annunciators alarm in the Main Control Room:

- 875111, "SPENT FUEL POOL LEVEL HIGH/LOW"
- 873317, "DIVISION I SPENT FUEL POOL LEVEL LOW"
- 875117, "DIVISION II SPENT FUEL POOL LEVEL LOW"

Which one of the following should be utilized to keep the fuel bundles covered?

A. High Pressure Core Spray (CSH) and Low Pressure Coolant Injection (LPCI)

B. Low Pressure Core Spray (CSL) and Low Pressure Coolant Injection (LPCI)

C. Feedwater (FWS) and Condensate (CNM)

D. Makeup Water (MWS) and Condensate Transfer (CNS)

Proposed Answer: **D**

Justification	**D** is correct- cavity level is not threatened and injecting to the cavity will not add water to the pool. **A/B/C** are incorrect- injection to the cavity will not add water to the pool.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-SOP-39, Section 4.2	
KA:	233000: Fuel Pool Cooling and Clean Up	2.4.4: Ability to recognize abnormal indications for system operating parameters which are entry level conditions for emergency and abnormal operating procedures.	
10 CFR Part 55 Content:		55.41.	
		55.43.4	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		
	K/A #		2.1.6
	Importance Rating		4.3

Proposed Question: **SRO 85**

During plant transient conditions, which one of the following describes a situation where the Reactor Operator must obtain SSS or CRS approval before taking action?

A. Initiate a manual scram when the reactor is in jeopardy.

B. Take an immediate operator action as specified in a Special Operating Procedure.

C. Executing an approved procedure step that directs overriding an automatic safety feature.

D. Overriding an automatic safety feature when continued operation will produce an unsafe condition.

Proposed Answer: **D**

Justification:	**D** is correct- per OM section 3.8.8(operation of control room equipment) **A/B/C** incorrect- these actions specified as not requiring prior SRO approval

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		Ops Manual Section 3.3.8	
KA:	Generic 2.1, Conduct of Operations	2.1.6, Ability to supervise and assume a management role during plant transients and upset conditions.	
10 CFR Part 55 Content:		55.41.	
		55.43.5	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**3**

Comments: This question is on the SRO exam only, but is NOT one of the required 25 SRO ONLY questions.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		N/A
	K/A #		2.1.13
	Importance Rating		2.9

Proposed Question: **SRO 86**

At 0200 a Station Blackout occurs concurrently with a failure of the Division I AND Division II Emergency Diesel Generators (EDGs). On-shift personnel are unable to start the EDGs and request the troubleshooting support of an EDG vendor who is NOT badged at the site.

Which one of the following identifies the position that through meeting minimum position requirements may authorize the On-site Security Supervisor to grant this individual temporary unescorted access to the facility in accordance with NIP-SEC-01, Protected/Vital Area Access?

A. Shift Supervisor

B. Chief Shift Operator

C. Operations Manager

D. Technical Support Center Manager

Current NRC security guidance would not allow this. Replaced question

Proposed Answer: **A**

Justification:	**A** is correct. 10CFR50.54(x), (y) required Senior Licensed Operators to implement changes to plant licensing basis in an emergency. **B/C/D** incorrect, Not licensed SRO positions per position requirements.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		NIP-SEC-01, Step 3.4.5, Page 8, 10CFR50.54(x), (y)	
KA:	G2.1.13, Conduct of Operations	2.1.13, Knowledge of facility requirements for controlling vital/controlled access.	
10 CFR Part 55 Content:		55.41.10	
		55.43.5	

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		
	K/A #		G2.2.17
	Importance Rating		3.5

Proposed Question: **SRO 90**

With the plant at power, which one of the following maintenance activities can the CRS approve to be performed under GAP-PSH-09, Minor Maintenance?

A. Meggar of a Chemistry Lab HVAC fan motor.

B. Welding on an RHR system piping support bracket.

C. A scheduled recurring preventive maintenance activity.

D. Work on a plant lighting fixture located in an 'airborne' radiation area.

Proposed Answer: **A**

Justification:	**A** is correct- activity allowed under GAP-PSH-09. **B/C/D** incorrect- examples cited in GAP-PSH as not covered under Minor Maintenance.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		GAP-PSH -09	
KA:	Generic: 2.2 Equipment Control	2.2.17, Knowledge of the process for managing maintenance activities during power operations.	
10 CFR Part 55 Content:		55.41.	
		55.43.5	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**4**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		
	K/A #		G 2.2.23
	Importance Rating		3.8

Proposed Question: **SRO 91**

The plant is operating at 100% power when the following events occur:

- February 1 at 2400 "A" RHS pump is declared inoperable
- February 3 at 1200 "C" RHS pump is declared inoperable
- February 6 at 0600 "A" RHS pump is restored to operable status
- February 6 at 0800 CSH system is declared inoperable.

Which one of the following describes the time and date when the plant shall be in Mode 3 as required by plant Technical Specifications?

A. February 8 at 2400.

B. February 9 at 1200

C. February 9 at 2000

D. February 9 at 2400

Proposed Answer: **B**

Justification:	**B** is correct. T.Spec 3.5.1, Required Action A - 7 day for one L.P ECCS sys. Inop plus 12 hrs to reach Mode 3. **A** incorrect- this would be if 12 hrs to be in Mode 3 was not added. **C** incorrect- this would be for 72 hr action plus 12 with C RHS and CHS INOP **D**-incorrect NP

Proposed references to be provided to applicants during examination: Tech Spec 3.5.1

Technical Reference(s):		Tech Specs	
KA:	Generic 2.2, Equipment control	2.2.23, Ability to track Limiting conditions for operations.	
10 CFR Part 55 Content:		55.41.	
		55.43.2	**X**

Question Source:	Bank #	**X**
	Modified Bank #	
	New	
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		
	K/A #		2.3.8
	Importance Rating		3.2

Proposed Question: **SRO 93**

The plant is at 100% Power, when a loss of Drywell Cooling occurs. The following conditions exist:

- Drywell Pressure is at 0.8 psig and slowly rising.
- Drywell Temperature is at 140 ° and slowly rising.
- The decision has been made to vent the Primary Containment.

Which one of the following identifies chemistry sampling requirement AND vent location requirement to perform this evolution?

	SAMPLE REQUIRED	**VENT LOCATION**
A.	YES	Drywell
B.	YES	Suppression Chamber
C.	NO	Drywell
D.	NO	Suppression Chamber

Proposed Answer: **A**

Justification:	**A** is correct, sample required (not directed by EOPs) & DW should be vented since only DW pressure should rise on loss of cooling. **B** incorrect, venting SC would not correct problem. **C&D** incorrect, sampling is not required only if in EOPs.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-SOP-60, N2-OP-61A, H.1.0	
KA:	Generic 2.3, Radiation Control	2.3.8, Knowledge of the process for performing a planned gaseous radioactive release.	
10 CFR Part 55 Content:		55.41.	
		55.43.4	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	**X**
	LOD:	**3**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		
	K/A #		G2.3.10
	Importance Rating		3.3

Proposed Question: **SRO 95**

A stuck TIP cable requires Maintenance personnel to enter the TIP room, which is posted as a Very High Radiation area.

Which one of the following identifies the plant personnel responsible for approving entry into the TIP room per GAP-RPP-08, Control Of Locked High, And Very High Radiation Areas?

A. RP Supervisor and SSS

B. RP Supervisor and Plant Manager

C. Maintenance Supervisor and SSS

D. Maintenance Supervisor and Plant Manager

Proposed Answer: **A**

"C & D" do not appear plausible. Revised stem & distractors

Justification:	**A** is correct. RP Supervisor & SSS approval needed per GAP-RRP-08. **B/C/D** incorrect - not per GAP-RRP-08.

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		GAP-RPP-08, Section 3.4	
KA:	Generic 2.3. Radiation Control	2.3.10, Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.	
10 CFR Part 55 Content:		55.41.	
		55.43.4	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History:	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD	**2**

Comments: None

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		-
	K/A #		2.4.22
	Importance Rating		4.0

Proposed Question: **SRO 98**

A LOCA is in progress with the following conditions:

- RPV water level is being maintained at 30 inches with Feedwater
- Suppression Chamber Spray is in service
- Drywell Sprays are available AND **not** in service
- Pressure Suppression Pressure is being exceeded by 0.5 psig

Which one of the following describes the actions that are to be taken to control Primary Containment Pressure, per the EOPs?

A. Immediately Spray the Drywell. Immediately Blowdown regardless of containment pressure response.

B. Immediately Spray the Drywell. Blowdown only if sprays do not reduce containment pressure.

C. Don't Spray the Drywell. Immediately Blowdown regardless of containment pressure response.

D. Don't Spray the Drywell. Blowdown only if containment pressure cannot be maintained below design pressure limit.

Proposed Answer: **B**

Justification:	**B** is correct. N2-EOP-PC directs spraying the drywell with the current conditions. Blowdown is not warranted, since all applicable actions have not yet been taken to reduce pressure. **A** is incorrect. An immediate blowdown is not required since DW Sprays have not yet been placed in service and are required to be in service. **C/D** is incorrect. DW Sprays have not yet been placed in service and are required to be in service. EOP Bases for PCP-10 requires actions to be taken to lower pressure. PCP-11 to perform a blowdown assumes containment sprays have been ineffective in controlling DW pressure. Blowdown is not warranted unless DW Spray is in service AND pressure cannot be maintained below Pressure Suppression Limit

Proposed references to be provided to applicants during examination: None

Technical Reference(s):		N2-EOP-PC	
KA:	Equipment Control 2.4.22	Knowledge of the basis for prioritizing safety functions during abnormal/emergency operations.	
10 CFR Part 55 Content:		55.41	
		55.43.5	**X**

Question Source:	Bank #	
	Modified Bank #	
	New	**X**
	History	

Question Cognitive Level:	Memory or Fundamental Knowledge	**X**
	Comprehension or Analysis	
	LOD:	**3**

Comments: None