Question 1 1 Point

The plant was at rated power when the following annunciator alarmed:

CIP-3 PWR LOST

Which of the following states the impact on the plant?

- A. ½ scram AND partial Primary Containment isolation
- B. Turbine Ventilation isolation AND partial RPV isolation
- C. ½ scram AND Standby Gas Treatment System initiation
- **D.** Standby Gas Treatment System initiation **AND** partial Primary Containment isolation

Question # Question Developer Initials/Date: NTP 1/21/09
1 D account Developer initial strate. 1417 1/21/03
Answer

	UPS (	(AC/DC)			Reference Information					
262002 UPS (AC/DC) K1.08 - Knowledge of the and/or cause- effect relative UNINTERRUPTABLE Pland the following: Contar Plant-Specific		tionships between  OWER SUPPLY (A.C./D.C.)			Importance Rating		2.9	3.1		
Level	RO		Tier#	ier # 2 Group # 1						
References			ABN-58			-				
Explana	tion:	this bus Contain The loss busses loss of t	is lost, S ment isoles of this b can resul	GT Syst ation oc us will n t in a ful nd the lo	es a loss of in em initiates, curs. Answer ot result in a I scram. No R oss of the TB	and a pa D is corr ½ scram RPV isola	rtial Prima ect. , but loss o tions occu	ry of othe r from	er UPS	
Referenc provided		be ng exam:	None							
Learning Objective	9	2621.828 Given a s to determ	et of syst	em indi	10445 cations or dat and system s	a, evalua	ate and inte	erpret	them	
Question Source		rce	Bank	Bank Modifie		d	New		Х	
Question Cognitive Level:		Memory or Fundamental Knowledge		X 1:I		orehensio alysis	n			
10 CFR Part 55 Content:		55.41		55.43				The second secon		

Question 2 1 Point

The plant was at 3% power during a startup with the REACTOR MODE SELECTOR switch in STARTUP. An electrical spike caused the following to occur **SIMULTANEOUSLY**:

- A momentary upscale on ARPM 3 (for about 3 seconds)
- A momentary upscale spike in IRM 15 (for about 3 seconds)

Which of the following states the impact on RPS Group Solenoids from this event?

<u>RPS 1</u>	<u>RPS 2</u>	
A. Energized	d Energized	1
B. De-energiz	zed Energized	1
C. Energized	d De-energize	∍d
<b>D.</b> De-energiz	zed De-energize	∍d

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ı	Question #	Question Developer	Initials/Date: NTP 1/21/09
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ı	Answer		
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								RO	SRO
212000 RPS K1.01 - Knowledge of cause- effect relations PROTECTION SYSTE instrumentation			ps between	en REA	ACTOR	Importance 3.7 Rating			3.9
Level	RO		Tier#	2	Group #	1			
References TS			S Table 3	Table 3.1.1 237E566					
Explana	tion:	mode, a solenoid RUN). To solenoid Thereforenergize The other confuse	In IRM 15 Is (this wo The APRIN Is, in both The, both F The Answei	ould had build had a ups on RUN RPS 1 a ser D is RPS sid	with the mode le would de-er ive been bypas scale would de- and STARTUP and RPS 2 grou correct. ncorrect and pland the IRM and p solenoids is a	nergize the ssed with the energize of position of up solenoing lausible if APRM ar	e RPS : the mode the RP of the n ds will the car e locat	2 group de switc S 1 grou node sw be de- ndidate	h on up vitch.
Referen provide		be ig exam:	None						
2621.828.0.0029 LO 215-10445  Objective  Given a set of system indications or data, evaluate and interpret the to determine limits, trends and system status.						them			

Question Source	Bank		Modified Bank		New	Х
Question Cognitive Level:	Memory Fundan Knowle	nental		Compi or Ana	rehension llysis	X 2:DR
10 CFR Part 55 Content:	55.41	6	55.43			
Time to Complete: 1-2	2 minutes					

Question 3 1 Point

The plant was at rated power when the following annunciator alarmed:

BUS A/B UV

The Operator reports 0 volts on DC Bus A.

Which of the following components has lost power?

- A. MCC DC-1
- B. 125 VDC Power Panel E
- C. Emergency Seal Oil Pump
- D. Turbine Auxiliary Oil Pump

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1			해결됐다고 하는 사람들이 없다.				
	Answer						
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Knowledge and Ability		Referen	eference Information					SRO	
263000 DC Electrical D K2.01 Knowledge of ele following: Major DC Loa		ctrical po		olies to the	Importa Rating	nce	3.1	3.4	
Level	RO		Tier#						
Referen	ces	ВІ	R 3028 sh	1. 1	RAP-9XF1d		ABN-8	53	
seal of is correctly in the seal of is correctly seal of its correctly seal of is correctly seal of its correctl		seal oil is correct All othe DC power incorrect 125 VD when the remains The turk not imparts be	pump is pct. r answers ver to MCot. C Bus A se normal energize pine auxiliacted. Answers	are cre C DC-1 a supplies voltage d. Answ ary oil p	s a loss of 125 from this bus dible but income and DC-1 reme the normal point is lost, it autoper B is incorrect.	and has rrect. Bus nains ener ower to De matically ect.	A supprgized. A	ver. And blies back Answer or Pane ors to DC	ckup A is E, but
Learnin Objectiv	g	2621.828 Given a s	3.0.0012 L set of syst	em indic	0445 cations or data and system s	a, evaluat tatus.	e and ir	nterpret	them
Question Source		rce	Bank		Modified Bank	k l	Ne	w	
Question Cognitiv Level:		nitive	Memory or Fundamental Knowledge		X 1:F	Compr or Ana	ehensi Iysis	on	
10 CFR Part 55 Content:		5	55.41	7	55.43	ritoria de la companya del companya della companya			
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Question 4 1 Point

The plant was at rated power when the following annunciator alarmed:

DC-1 PWR LOST

Which of the following states the Isolation Condenser A valves that are affected by this event?

- A. BOTH shell vent valves
- B. BOTH steam admission valves
- C. BOTH condensate return valves
- D. ONE steam admission valve AND ONE condensate return valve

Question # 4 D Question Developer Initials/Date: NTP 1/22/09	0 4 4	And the state of t		
Answer	Question #   4 D	Question Deve	loper Initials/Date	e: NTP 1/22/09
	Answer			

Knowle	dge aı	nd Abili	ty Referen	ce Inf	ormation			RO	SRO
K2.01 -	Knowle	edge of	ergency) Co electrical p ted valves	ondens ower s	ser supplies to the	Importa Rating	nce	3.6	3.8
Level									
Referen	ices		307		148F262		ABN-	35	
Explanation		Of the 2 steam admission valves and the 2 condensate return valves in Isolation Condenser A, 1 of each type is operated by a DC motor, supplied from Panel DC-1. Therefore, when DC-1 is lost, as given in the stem, one steam admission valve and one condensate return valve in IC-A is impacted. Answer D is correct, and answers B and C are incorrect.  There are no shell vent valves, but there are 2 tube-side vent valves in series, which fail closed on loss of electrical power or loss of air. Answer A is incorrect.							
Referen provide		the second secon	None						
Learnin Objectiv		2621.828.0.0023 LO 02029  Describe the relationship between the Isolation Condenser System and the following: a) Recirculation System; b) Nuclear Steam Supply System; c) Condensate transfer System; d) Demineralized Water System; e) Instrument & Service Air System; f) 480 VAC System; g) 120 VAC System; h) 125 VDC System							vlaai

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5	5.43	5.43	5.43

Question 5 1 Point

The plant was shutdown. Present plant conditions are as follows:

- Shutdown Cooling Loops A, B and C are in-service
- RPV water level is in the normal band
- RECIRC PUMP SUCTION TEMPS indicates 183 °F and lowering
- RBCCW and TBCCW are in the normal lineup

The following annunciators then alarmed:

- TBCCW PUMP 1 TRIP
- TBCCW PUMP 2 TRIP
- TBCCW DISCH PRESS LO

The Operator reports that TBCCW Pump 3 indicates running.

Which of the following shall be monitored for high temperatures?

- A. Panel 1F/2F recorder for Fuel Pool temperature.
- B. Panel 8R recorder for Recirc System MG lube oil temperatures.
- C. Panel 3F recorder for Reactor Recirc Pumps Seal Cavity temperatures.
- D. A local indicator for Cleanup System Non-Regenerative Heat Exchanger temperature.

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					그는 사람이 얼마를 하는 것이 그렇게 되는 사람들이 얼마를 하는 것이 없다면 모양이다.
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Knowle		RO	SRO									
K3.01 -	Knowle	edge of the CC		hat a lo	oss or he following:	Importa Rating	nce	2.9	3.3			
Level	RO		Tier#	2	Group #	1						
Referer	nces	ABN-20 BR 2006 sh. 1, 5										
Explana		alarms be res monito oil coo Syster higher The S provid that TI augme TBCC provid seal/be RBCC	s show a to tarted. IAW ored. Of the olers are co ms that are temperatu FP is norm e augment BCCW is in ented fuel p W provides es cooling earing cool	otal loss If the A e syste colled by cooled ally co ed cool a norr cool co s coolir to the i ers) ins	tdown with SD is of TBCCW, a BN-20, system ms listed, only y TBCCW. And by RBCCW a m a loss of TB oled by RBCC ling to the SFF mal lineup, which oling. Answer and to the recirculation puside the DW. And to the RWC may to the RWC may to the RWC may to the RWC may to the RWC	and that no his cooled to the recircuswer B is care not expected.  W. TBCCV  Or, but the coich does not also incorrectly that the country that the country that the country that is incorrectly that the country t	TBCC' oy TBC ulation correct. ected t V has tl question ot inclu- ect. s sets, to p coole s incorr	W pump CW sho MG sets o exper he abilit n stem s de the out RBC ers and ect.	o can build be s lube rience by to states			
Referen provide			None									
Learnin Objectiv	/е				-10453 this system is i	interrelated	d with o	ther pla	int			

		X	
	Comprehension or Analysis		
43	43	43	

Question 6 1 Point

Which of the following states the impact if the applied DC voltage to an IRM detector failed to 0 VDC? Assume the IRM was indicating mid-scale during a startup prior to the event.

The IRM will indicate ...

- A. upscale.
- B. downscale.
- C. slightly less.
- D. slightly more.

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1	m many	tion Develope	i illiliais/Parc	. NIF HZJIUJ I
		얼마 얼마가 되었다면서 하다 하나 모든 사람이 되었다.	얼마나 살아 얼마나 나가 하다 하나 하나는 아니라?	유용하면 되지만 나가 가게 되었다. 그 사이를 하나 가는 사고 먹는데 다니다.
김 원교 경우의 사람들은 아이들이 모르는 그리고 있다면 없었다.			생님 보이 하면 하다 하나 사람들은 사람이 하나 하다.	
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Level	RO		Tier#	2	Group #	1					
Referen	ces	F	undament	ndamentals RAP-9XF8d RAP-9XF7d							
Explana	ition:	detectorionization fails to colle proportion downs correction.	or is used to ion by the zero, there ect at the etional to the cale since the answel	o attraincom e is no lectrode dete the co	gas filled ion cact the ion pairsing charged pairsing charged pairsing charged pairsing charged pairsing charged pairsing correct but pairsing detector work	s which are article. If the olied force for number of e detector are fails to zero lausible if the organization of the context of the olientest olientest of the olientest of the olientest of the olientest of th	e productis applied to cause ion pair output version An	ced from ed voltage the iours collect will failuswer B	n ge n pairs cted is is		
References to be provided during exam:			None								
Learnin Objectiv	e l	Describe compon	8.0.0029 Le the interlents and emponents	ock sig	5-10444 gnals and setp ed system resp	oints for th	e affect	ed syst wer los	em s or		

Question Source	Bank		Modified Bank		New	Х
Question Cognitive Level:	Memory Fundan Knowle	nental		Comp or An	X 2:DR	
10 CFR Part 55 Content:	55.41	7	55.43			

Question 7 1 Point

The plant is starting up from an outage. Present plant conditions are as follows:

- SRM 21 indicates 1x10<sup>4</sup> CPS
- SRM 22 indicates 2x10<sup>4</sup> CPS
- SRM 23 BYPASSED
- SRM 24 indicates 3x10<sup>4</sup> CPS
- MASTER DRIVE SELECT switch is in position SRM
- SRM DRIVE SELECT switch is in position 24
- ALL IRMs are on Range 2

The Operator places the IRM-SRM DRIVE CONTROL switch in the OUT position.

The SRM will automatically stop when ....

- A. SRM 24 is fully withdrawn.
- B. SRM 24 indicates 0.5 CPS.
- C. SRM 24 indicates < 500 CPS.
- **D.** The ALL OUT light illuminates.

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	를 마르면 가입니다는 때문에 보는 다양한 말라 있는 것이다.	
Answer		

Knowle		RO	SRO								
K4.04 - (SRM) S	Knowle SYSTE	e Range I edge of So M design for the foll	ince	2.8	2.9						
Level	RO		Tier#	2	Group #	1					
Referen	ces	401.2									
References  Explanation:		operator which programmer of SRM will correct.  The SRI stop the A rodblo below 50 Answer  The ALL condition was being then who	begins frevent it for the continual of t	to withour from me to dread and the cour in but against the court in t	with the SRM draw SRM 24. oving (except ive all the way arm comes in the present reain, this will not the all SRMs in the other 3 out, the all out I wer D is incorr	The SRM a loss of d out and the at 0.5 CPS orrect. actor mode timpede the dunder are fully wis SRMs alreight would	has no rive power stop stop stop stop stop stop stop stop	interloc wer) so . Answe is does SRM go e motion sent n. If SR y withd	the er A is not es n. M 24 rawn.		
Referen provide		be None ng exam:									
Learning Objective		2621.828 Describe componei failed com	the interl nts and e	ock sig	i-10444 gnals and setpo ed system resp	oints for the	e affect iding po	ed syste wer los	em s or		

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory Fundan Knowle	nental	X 1:F	Compi or Ana	rehension lysis	
10 CFR Part 55 Content:	55.41	7	55.43			

Question 8 1 Point

The plant was at rated power when a small LOCA occurred. Present plant conditions are as follows:

- RPV water level lowered to 122" and now indicates 146" and rising slowly
- RPV pressure indicates 925 psig and lowering slowly
- The following annunciators have alarmed:
  - CORE SPRAY SYSTEM 1 AUTOSTART
  - CORE SPRAY SYSTEM 2 AUTOSTART

One minute later, the Operator notes the following valves indicate RED light ON:

- RBCCW Isolation Valves, V-5-147, V-5-167, and V-5-166
- Reactor Recirc Sample Valves, V-24-29 and V-24-30
- Drywell N<sub>2</sub> Makeup Isolation Valves, V-23-17 and V-23-18
- Drywell Instrument Air/N<sub>2</sub> Isolation Valve, V-6-395

Which of the following valve manipulations is required to maintain Primary Containment integrity?

	ua																		
																	va		

- A. RBCCW Isolation
- B. Reactor Recirc Sample
- C. Drywell N<sub>2</sub> Makeup Isolation
- D. Drywell Instrument Air/N<sub>2</sub> Isolation

Question #		Question De	eveloper Initia	als/Date: NTP	1/23/09
Answer	8 6				

Knowle	dge ar	nd Ability	Referen	ce Inf	ormation			RO	SRO
K4.03 - ISOLAT SHUT-C	Knowle ION S' OFF de for the	Nuclear Sedge of P YSTEM/N sign featu following	RIMARY IUCLEAR Ire(s) and	nce	3.5	3.6			
Level	RO		Tier#	2	Group #	1			
Referen									
References  Explanation:		psig). E in from Since R have sta contains Makeup and did correct. The RB an RPV (64.6"). Thus, R The Rea which is B is inco	ven DW   either a h PV water arted fron ment isola b Isolation not. This CCW iso water lev But, the s BCCW s actor Rec anot a higorrect.	oressurigh DV level of high pation value lation value unent sar	lition and a corre is not provided by pressure OR conly went down DW pressure. The violation of the violatio	led, the control lo-lo RPV in to 122", to All the valves listed on a high Enually close on an India and shounds also close in also close in also close in also close in the local land shounds also close in also cl	re spray water I hen con res liste I, only to DW pre red. Ansi water only low A is in MSIV is all de con a	y alarmicevel (86 re sprayed are phe Drywssure swer C is ressure level lowered to correct. olation open. Ar	s come 5"). / must rimary vell N <sub>2</sub> ignal ignal o 122". signal,
Referen provide		be ng exam:	None						
Learnin Objectiv	/e	2624.828 Verbally Containm	describe	(with o	r without suppons and isolation	ort material n valves.	ls), the	Primar	

	Bank		Bank		New	X
Question Cognitive Level:	Memory Fundan Knowle	nental		Comp or An	X 3:SPK	
10 CFR Part 55 Content:	55.41	7	55.43			

Question 9 1 Point

The plant was at rated power when a LOCA occurred at <u>Time = 0 seconds</u>. A timeline of events is shown below:

## At Time = 50 seconds, the following conditions exist:

- RPV pressure indicates 600 psig and lowering
- Annunciator ADS TIMER A START I AND ADS TIMER A START II are in alarm
- Annunciator ADS TIMER B START I AND ADS TIMER B START II are in alarm
- All EMRVS indicate GREEN light ON
- Core Spray Booster Pumps C AND D indicate GREEN light ON

#### At Time = 70 seconds:

- The Operator performed an action which alarmed the following annunciators:
  - ADS BYPASSED I
  - ADS BYPASSED II

Which of the following is correct when  $\underline{\text{Time}} = 120 \text{ seconds}$ ?

- A. All EMRVS indicate GREEN light ON because Core Spray Booster Pumps C and D are NOT running.
- **B.** All EMRVS indicate **GREEN** light **ON** because the Operator actions have deenergized the ADS timers.
- C. All EMRVs indicate **RED** light **ON** because all criteria and time delays for the EMRVs to open have been met.
- **D.** All EMRVS indicate **GREEN** light **ON** because the Operator actions have reset the ADS timers for an **ADDITIONAL** time delay.

Question #	Question Develope	er Initials/Date	: NTP 1/24/09
J B			
Answer			

Knowle	edge ar	nd Ability	/ Referen	ce Info	ormation			RO	SRO
218000 ADS K5.01 - Knowledge of the operational implications of the following concepts as they apply to AUTOMATIC DEPRESSURIZATION SYSTEM : ADS logic operation							nce	3.8	3.8
Level	RO		Tier#	2	Group #	1			
Refere	nces	7:	29E182	-	RAP-B1h		RAP-I	B5h	
Explana		When the EMRV of 3.25 set annunce directed ADS cate are first the continued the contin	he times rewill open a cond later operator iators (plate in the EC innot ever taken. Are the ADS to ditions give spray be conformal impact of all EMR ande it down C is incord before, reset then rect.	nakes at 1.5 s at 1.5 s action action property was automoster property the all ions have to 0 prect.	ied and a 105 it to 0, then 2 I seconds later, at that resulted in the ADS TIMER ill act to de-entatically initiate is correct. It is correct it in the ADS to the ADS to ad taken place all the ADS to act	EMRVs op and 2 EMF on the ADS switches ergize the enumber of and filled by the pumps shot initiate. At then afte opened. EMRVs have e-energize	en immed immed immediately implementation in the second immediately implementation in the second implem	ediately a per a seconds a seconds a the time a conds a the time a conds a co	y, 1 It the Ich tha ons Unde and Is Started orrect. hes closed
		ho	None						
Referer provide		ng exam:							

te	Describe the operation of the ADS controls including: 1) Resetting ADS timers; 2) Bypassing ADS timers; 3) Disabling ADS; 4) Clearing and resetting ADS auto initiation signals; 5) Removal of ADS control logig fuses to close EMRVs; 6) Obtaining readings from EMRV temperature indicators						
Question Source	e:	Bank		Modified Bank		New	×
Question Cogni Level:	itive	Memory Fundan Knowle	nental		Compi or Ana	rehension llysis	X 3:SPK
10 CFR Part 55 Content:		55.41	5	55.43			

Question 10 1 Point

Which statement below describes the action required to **ENSURE** station air compressor 1-3 cycles at the correct pressure when being configured as the backup (Lag) compressor?

- A. Local control switch must be placed in STANDBY.
- B. Local control switch must be placed in SELECTED.
- C. Control Room switch must be placed in NORMAL AFTER STOP.
- D. Control Room switch must be placed in NORMAL AFTER START.

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		IU A	[4일] 하나요요 못하는 사람들이 얼마라면 하다면 하다면 하셨다면 하나 나는 사람들이 하는 사람들이 되었다면 하다면 하다면 하다면 하다면 하다면 하다면 하다면 하다면 하다면 하	A SECTION AND A SECTION AND A SECTION AND ASSESSMENT OF A SECTION AND A SECTION ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT AS A SECTION ASSESSMENT AS A SECTION ASSESSMENT AS A SECTION AS
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	A marera		[ 2도 대한 10일 전 시간 12일 원인하는 15일 원인 경험 경험 시간 사람들이 하면 모든 사람들은 경험 경험 전치를 하였다. 회장 전 경험 경험 기업	
- 1	l Answer		[[마다 : 44] 1 [[마다 : 14] 1	
- 1			[10] 마이트 시대 등록 - 마트워크, 등 마트트로 시대 등록 등록 하는 그리는 그리는 사람이 없는 그리는 하는 것은 사람이 되었다. 얼마 없는 사람들은 사람들이 되었다.	
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Knowle	dge ar	nd Ability	/ Referen	ce Infor	mation		RO	SRO
K5.01 - the follo	Knowle wing c	oncepts a	ne operations they aposted in STEM: Air	ications of	Importance Rating	2.5	2.5	
Level	RO		Tier#	2	Group #	1		
Referen	ices	33	34					
Explana	ntion:	the loca correct. Placing compre Answer	al loading the local ssor as th s C and D	switch m loading s le lead co do are inco	switch in the ompressor. A	essor as the lagestandby positions selected position and answer B is incontented bese switches a	n. Answe n will pla rrect. re indep	er A is ce the endent
Referen provide		as the la	ag compre	า positior	ns and do no	t ensure the cor	npressor	works
	d durir g re	be ng exam: 2621.828 Describe compone	None None 3.0.0043 L	o positionessor.  O 279-1  ock signal	0444 als and setpo	oints for the affe	npressor	works
provide Learnin Objectiv	d durir g re	be ng exam: 2621.828 Describe compone failed cor	None None 3.0.0043 L the interleants and e	o positionessor.  O 279-1  ock signal	0444 als and setpo	pints for the affeonse including p	npressor	works
provide Learnin	d durir g re n Sour	be ng exam: 2621.828 Describe compone failed corre	None None None None None None None None	O 279-1 ock signation or or eental	0444 als and setpo	pints for the affeonse including p	cted syst	works

Question 11 1 Point

The plant is in cold shutdown and is cooling down with the Shutdown Cooling System. Present plant conditions are as follows:

- RPV water level is in the normal band
- Shutdown Cooling Pumps B and C are in-service
- RBCCW Pumps 1-1 and 1-2 are in-service
- All Recirculation Pumps are in-service
- The Auxiliary Reactor Water Cleanup System Pump is in-service

The following annunciator then alarms:

LKOUT RELAY 86/S1A TRIP

Which of the following actions is required in relation to the Shutdown Cooling System?

- A. Start Shutdown Cooling Pump A.
- B. Manually re-start RBCCW Pump 1-1.
- C. Close Recirculation Pump E discharge valve.
- D. Shutdown the Reactor Water Cleanup System.

The state of the s						
Question #	Ques	stion Devel	oper Initi	als/Date:	NTP 1/24/	ng l
111	C		~ P ~			
Answer						

Knowle	dge aı	nd Abi	lity Referen	ce Inf	ormation			RO	SRO
205000 Shutdown Cooling K6.01 - Knowledge of the effect that a los malfunction of the following will have on t SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE): A.C. el power				the R	Importal Rating	nce	3.3	3.4	
Level	RO		Tier#	2	Group #	1			
Referer	nces		305 TS Table 3	.1.1	ABN-3	237E798			
Explana	ition:	lockor power Bus 7 The Stand of recircular r	out and loss ering 4160 B 1C, and ED0 SDC system discharges to culation pumped the recircle is closed. The discharge is closed. The discharge in SDC. An Bus 1C powhich powers, then RBC ands. Thus, the conditions of the RBC and the	of star us 1A) G1 will takes or ecirc ip is in p E is culation this action war is rs RBC CW Purple is income as B and B2, whill the saining a	AC Bus 1A (the tup transformed). This will also auto start and a suction on reculation pump service, there tripped, then so a loop, unless tion is prescribed as lost, power must be manually to the contract.  In the contract of the contrac	er 1A, which premove por load onto le circulation. E discharge are no prosect are recirculated in the Shave power to recircularly closed also lost to 1. But when to start after anually restricted from the SDC pumpinds. Thus, the control of the start after anually restricted from the start and the start anually restricted from the	n was of ower from Bus 10 pumple line. In the short-lation less to closer to closer to closer to closer about art the power he initials and the amount of the short power he initials and the amount of the short power he initials and the amount of the short power he initials and the amount of the short power he initials and the amount of the short power he amount of the short power he amount of the short power he amount of the short power short pow	currently om 4160.  E sucti When the But where cycled coop disconnect with the cycled coop of the cycled coop of the cycled coop of the cycled cycled cycled cycled cycled cycled from all Bus 1 RBCCV cycled cycled from all Bus 1 RBCCV cycled cycled from all Bus 1 RBCCV cycled cycled from the cycled from all Bus 1 RBCCV cycled cycled from the cycled	on line on line he en charge er the is lost ort- S Bus and  W  460 A2 V

another SDC pump. Answer A is incorrect. In the loss of SDC ABN, if SDC flow is inadequate, the procedure states to reduce the load on RBCCW such as RWCU. Also, the RWCU pump that was initially running has tripped due to the initial loss of power. Even if there was a need to reduce the load on RBCCW, the RWCU pump has already tripped. Answer D is incorrect. References to be None provided during exam: Learning 2624.828.0.0045 LO 205-10447 Objective Given normal operating procedures and documents for the system, describe or interpret the procedural steps. Modified **Question Source** Bank X New Bank **Question Cognitive** Memory or Comprehension X Level: **Fundamental** or Analysis 3:SPK Knowledge 10 CFR Part 55 55.41 7 55.43 Content: Time to Complete: 1-2 minutes

Question 12 1 Point

The plant was at rated power when a total loss of offsite power occurred.

Which of the following represents the **MINIMUM** re-energized Busses required to allow ADS to automatically initiate (**neglect** instrumentation busses)?

- A. Bus 1D and USS 1B2.
- B. Bus 1C and USS 1A1.
- C. Bus 1B, 1D, and USS 1B2.
- D. Bus 1C, USS 1A1 and USS 1A2.

Question #		Question	Developer	Initials/Date	: NTP 1/26/09
Answer	12 A				

Knowle	dge ar	nd Ability	Referen	ice Info	ormation			RO	SRO
K6.03 - malfunc	239002 SRVs 6.03 - Knowledge of the effect that a loss or lalfunction of the following will have on the ELIEF/SAFETY VALVES: A.C. power							2.7	2.7 2.9
Level	RO		Tier#	2	Group #	1			
Referen	ices	RA	P-B1g		RAP-B2g				-09/44-14-1 <sub>4</sub> -14-14-14-14-14-14-14-14-14-14-14-14-14-
Explana	ation:	to open to booster penergize A core so a suction Bus 1D a allow the pump ΔF. The other electrica	ic is sup the EMR pump Δp of and re pray pur n to its co and USS core sp of to allow or answe I distribu	NVs. Bu D. This eady for one spra 5 1B2 (or oray pur v ADS rs are partion sys	y DC power, a it, part of the lopump Δp acts rinjection whe uld be running ay booster puror 1C and USS mp and the as initiations. plausible if the stem or the AE t busses.	to show the RPV presented to show the RPV presented to the RPV presented	es a co at core ssure o r 1D) a r 1A2 o d to be ore spr	re spray e spray i drops. and supp or 1B2). e energiz ay boos	olying Thus, zed to ter
References to be provided during exam:			None						
Cobjective 2621.828.0.0005 I State how the followard Primary Containm Vital AC Power; 5)			owing s ent Ins	ystems interre trumentation;	elate with A 2) Core Sp	DS: 1) ray; 3)	Vessel NSSS;	and 4)	

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory Fundan Knowle	nental	X 1:F	Compr or Ana	ehension lysis	
10 CFR Part 55 Content:	55.41	7	55.43			

Question 13 1 Point

The plant was at rated power when a manual scram was inserted. No control rods inserted and the Operator has initiated Standby Liquid Control System 2.

If the Discharge Header Isolation valve, V-19-25, were locked **CLOSED** instead of open, how would this effect the Control Room indications? (See drawing GE 148F723, location E-7)

	Reactor Water Cleanup System	SLC System 2 SQUIBS light	SLC DISCH PRESS
Α.	NOT isolated	OFF	< RPV Pressure
В.	NOT isolated	ON	> RPV Pressure
C.	Isolated	OFF	< RPV Pressure
D.	Isolated	ON	> RPV Pressure

I		
Ì	Question # Question D	eveloper Initials/Date: NTP 1/26/09
1	13 R QUESTION D	eveloper initials/Date: NTP 1/26/09
1		
1	Answer	

Knowle	dge ar	nd Abilit	y Referen	ice Info	rmation			RO	SRO	
parame	Ability ters as CONT	sociated ROL SY	t and/or m with opera STEM cor	ating the	STANDBY		nce	3.6	3.7	
Level	RO		Tier#	2	Group #	1				
References No.		48F723 ote: Delete Note ) on the drawing		304		RAP-G1b				
Explanation:		The plant is at power when an ATWS occurred and the operator has initiated SLC system 12.  The closed valve in the question stem is between the SLC pump discharge and the flow switch which isolates RWCU. Thus this switch shows no flow, and RWCU is not isolated. Other indications include the SLC pump discharge pressure, which is still a valid reading, shows greater than RPV pressure, the squibs light (which shows that the explosive valve has discharged) and the pumps on light are ON. Answer b is correct.  All other answers are incorrect but plausible if the candidate does not know the expected indications, or does not know why/what isolated the RWCU system.								
References to be provided during exam:			: Note: I	148F723 Note: Delete Note 10 on the drawing						
Learning Objectiv	'e	2621.828.0.0046 LO 211-10438  Using the system P&ID, locate each of the system components and explain its operation and limitations within the system.							and	

Question Source	Bank X  Memory or Fundamental Knowledge		Modified Bank		New	
Question Cognitive Level:				Comprehension or Analysis		X 3:SPR
10 CFR Part 55 Content:	55.41	5	55.43			

Question 14 1 Point

The plant was at rated power. Present plant conditions include the following:

- STANDBY GAS SELECT is in position SYS 1
- Surveillance test 651.4.001, Standby Gas Treatment System Test, is inprogress
- The refuel floor area radiation monitor Trip and Indicator Unit has just been adjusted above its high setpoint IAW the surveillance

30 seconds AFTER the SGT System initiated, the following annunciator alarmed:

H&V RX BLDG SGTS - TRAIN A FLOW LO

Which of the following shows the expected position of the SGTS valves listed **ONE MINUTE** later?

SGTS 1 Inlet/Outlet Valves	SGTS 2 Inlet/Outlet Valves	SGTS Orifice Valve
A. Open	Closed	SGTS 1: Open
B. Open	Open	SGTS 1: Closed
C. Closed	Closed	SGTS 2: Open
D. Closed	Open	SGTS 2: Closed

Question #		Ques	stion Dev	eloner Ini	itials/Date	· NTD 4/2	e/na
	14 D		,v., bv.	ciobei iii	iudis/Date	. 1811 1/4	COID
Answer							
VIIZMEI							

Knowle	edge aı	nd Ability	Referen	ice Info	ormation			RO	SRO	
A1.01 - parame GAS TF	61000 SGTS 1.01 - Ability to predict and/or monitor changes in arameters associated with operating the STANDBY iAS TREATMENT SYSTEM controls including: ystem flow							3.1		
Level	RO		Tier#	2	Group #	1				
Referer	ices	33	0	RAP-L2b 651				4.001		
Explana		There is SGTS c can be u After the then after would be low flow 2.5 minuclosed, the valves for fan runn correct.  The other of the then the then after would be low flow 2.5 minuclosed, the valves for fan runn correct.  The other not under system reconstructions and the system reconstructions are the there are the the there are the the there are the t	ed as the B9 is tak after a 2 in no flow in ontrols are used to in the Early E	e lead seen to it minute indication for system test and the indication of the indica	th the SGTS saystem. When is high setpointime delay. On on the contract But, valve tem flow. It is a sater, the non-sater, the non-sater, the non-sater but down and the cted in the sater orifice valve ted train remain-selected orification of the annual correct but planing of the correct but plani	the refuel t, it signals trol room p positions start. If all g elected SC the inlet/out elected tra- es to the s is opened in open wi ce valve c ausible if t	floor are boanels ware progress as GTS fanutlet valued the inlustent of the inlustent of the inlustent of the cancer of the canc	ea radia cops of where the vided, we design (in this ves close g the in- fan are et/outle con-sele Answer	e which ed, case se. If a itial t cted D is	
Referen provide		be ig exam:	None							
Charning 2621.828.0.0042 LO 261-10446  Identify and explain system operating contiplant operating conditions.						ontrols/ind	ications	s under	all	

Question Source	Bank		Modified Bank	Modified Bank		New	
uestion Cognitive Memory or Fundamental Knowledge				Comprehension or Analysis		X 3:SPK	
10 CFR Part 55 Content:	55.41	5	55.43				
Time to Complete: 1-2	2 minutes						

Question 15 1 Point

The plant was at rated power when the following indications were noted:

- Annunciator FCS/RFCS TROUBLE alarmed
- TOTAL STEAM FLOW on Recorder ID75 (Panel 5F/6F) indicated 3.6 Mlb/hr
- APRMs still indicate rated power

Which of the following states the impact on the Feedwater Control System (FWCS), and what actions are required?

	FWCS Impact	Required Action
Α.	DCC-X transfers to DCC-Y, with 2 viable steam flow inputs	Verify DCC transferred
В.	The Digital Feedwater Control System transfers to single-element control	Confirm RPV water level is stable
C.	DCC-X remains in control in 3-element control	Check DCC lights and PPC for status
D.	The Digital Feedwater Control System will rapidly start to lower feedwater flow	Take manual control of the Feedwater System

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1	Ougotion #		
1	Question # 15 C	Question Developer Initials/Date: NTP 1/26/09	
	16	account borotopor minuator batter 1/20/03	
1		4 [ - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
		# [ 전문 항문 하는 바람이 사용하다 하는 사람들은 사람들이 되는 사람이 하다 하는 사람이 사람들이 되었다. 하는 사람들이 가득하는 사람들이 하는 사람들	
1	Anguar	#[[마이크로 사고 문사] 그는 사고 있는데 하고 그림이다다. 그는 사고 있는 요즘 사고 있는데 하는 등 사고 있는데, 문사를 모고하는데, 원리를 하는데 있는데, 사고 있다. 하고	
	Answer	서는 사람들은 마다 보다는 그는 나를 가장 하는 것이 하는 사람들이 되었다. 그는 사람들이 되었다는 것이 되었다.	- 1
L	PARTY CONTRACTOR OF THE PARTY O	선생님은 모든 사람들은 사람들은 사람들이 되었다면 보고 있다. 그는	

	dge aı	nd Abil	ity Referen	ce Info	rmation			RO	SRO
A2.01 - following CONTR prediction mitigate condition	Reactor Water Level Control Ability to (a) predict the impacts of the gon the REACTOR WATER LEVEL OL SYSTEM; and (b) based on those ons, use procedures to correct, control, or the consequences of those abnormal ns or operations: Loss of any number of main ow inputs  3.3    Importance Rating   Rating							3.4	
Level	RO		Tier#	2	Group #	1			
Referen	MDD-OC-625-B DIV I (p.20 of 71)								
Explana	tion:	The plant is at rated power (7.2 Mlb/hr steam flow) when an annunciator alarms and indicated steam flow goes to ½ the original value. Digital Control Computer (DCC)-X is in control with DCC-Y a backup.  IAW the reference, the system will ignore the now 'bad' steam flow signal, and will double to still good signal. There is no transfer to DCC-Y, RPV water level will remain stable in 3-element control, an no immediate operator actions are required. IAW the RAP, check from the alarm is the expected response. Thus, DCC-X remain in 3-element control, and the operator should check the DCC and PPC for status. Answer C is correct.  Answer A is plausible, since DCC-Y is there if DCC-X fails, but the loss of a single steam transmitter will not fail DCC-X. Answer A is incorrect.  Under certain conditions, the control system could shift to single element control but not under the given conditions. Answer B is incorrect.  If the control system did see actual steam flow as ½ the original val (and not as a failed transmitter), then it would have acted to reduce feedwater flow to prevent a high RPV water level condition. Answer is incorrect.							

Learning Objective	Describ compor	2621.828.0.0018 LO 259-10444  Describe the interlock signals and setpoints for the affected system components and expected system response including power loss of failed components.								
Question Source  Question Cognitive Level:		Bank		Modified X No			New			
		Memory or Fundamental Knowledge			Comprehension or Analysis			X 3:SPK		
10 CFR Part 55 Content:		55.41	5	55.43						

Question 16 1 Point

The plant was at rated power when a LOCA occurred. Present plant conditions are as follows:

- RPV pressure indicates 360 psig
- RPV water level indicates 80" and lowering
- Bus 1B was de-energized 5 minutes ago
- EDG 2 has tripped on overspeed

Which of the following lists RPV injections systems that have been **LOST** and injection systems which can inject **NOW**? (Note: Each list may **NOT** list **ALL** systems)

#### Injection Systems Lost

- A. Feedwater Pump B & C
  - SLC Pump B
  - Core Spray B & C
- B. CRD Pump B
  - SLC Pump B
  - Core Spray A & D
- C. Feedwater Pump B & C
  - SLC Pump B
  - Core Spray B & C
- D. Feedwater A & C
  - CRD Pump A
  - SLC Pump A

#### **Systems Can Inject Now**

- Feedwater Pump A
- SLC Pump A
- Core Spray A & D
- CRD Pump A
- SLC Pump A
- Core Spray B & C
- Feedwater Pump A
- SLC Pump A
- CRD Pump A
- Feedwater Pump B
- CRD Pump B
- SLC Pump B

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		16 C	waco.	OII Dead	siober ii	IIIIais/De	ate. INIT	1/20/03	
Ansv	A/OF								
LVIIO	Mei								

Knowle	Knowledge and Ability Reference Information									
followin SYSTE procedu consequ	Ability g on th M; and ires to uences	ity to (a) predict the impacts of the the LOW PRESSURE CORE SPRAY and (b) based on those predictions, use to correct, control, or mitigate the ses of those abnormal conditions or A.C. failures							3.4	3.6
Level	RO		Ti	er#	1	Group #	1			
Referer	eferences EMG-SP9 341						BR 30			
	The plant was at rated power when a LOCA occurred. Bus 1B in been de-energized due to a fire. When this occurred, EDG 2 au started and loaded onto Bus 1D. A lockout has occurred on EDG and its output breaker opens, de-energizing Bus 1D and its load. When Bus 1B was lost 5 minutes ago, feedwater pumps B & C lost. Feedwater pump A (supplied from Bus 1A) is still available When EDG 2 was lost, this resulted in the loss of Core spray B CRD Pump B (USS 1B2) and SLC Pump B (MCC 1B21).  Core Spray Pumps A & D are still available, as are Feedwater FA, CRD Pump A and SLC Pump A. But because RPV pressure above the core spray parallel isolation valve open-setpoint of 30 psig, core spray cannot be used now to inject. FW Pump A, CRI Pump A and SLC Pump A can all inject now. Answer C is correct Answer A is incorrect since core spray cannot be used to inject. Answer B is incorrect since core spray Pumps B & C are lost — core spray pumps A & D, and because core spray pumps B & C cannot inject.  Answer D is incorrect since most pumps listed as lost are actual available from the opposite power supply as EDG 2.							uto G 2 ds. were C. & C, Pump is D5 D ct. now.		
Referen provided				lone						
_earning		2621.8						0000		

Objective	Given a to deter	Given a set of system indications or data, evaluate and interpret them to determine limits, trends and system status.							
Question Source  Question Cognitive Level:		Bank		Modified Bank New		New	X		
		Memory or Fundamental Knowledge			Comprehension or Analysis		X 3:SPK		
10 CFR Part Content:	55	55.41	5	55.43					
Time to Con	nplete: 1-2	minutes							

Question 17 1 Point

The plant was at 96% power and stable. Provided below are the LPRM readings which input into APRM 7:

1. 04-25D	97%
2. 04-25B	94%
3. 20-25D	93%
4. 20-25B	98%
5. 12-17D	96%
6. 12-17B	Failed upscale and is BYPASSED
7. 20-09D	97%
8. 20-09B	Oscillating between 85-95% and is BYPASSED
	현대 교통이 지난 이 하라고 얼마는 동안에 가지 않는데 이 경험이 하나면 이 하라는데 하는데 모든데 모든데 되었다.

The Operator is performing the drawer Count IAW procedure 202.1 and 403.

Which of the following states the **APRM DRAWER** indication when (1) the INPUT switch is taken to COUNT; and (2) the INPUT switch is taken to the LPRM 12-17B position?

	Count Position	LPRM 12-17B Position
Α.	100	0
В.	80	150
C.	60	0
D.		

				****	
Question #			_#		1 NIPP Herica
Question #	47 C	Que	stion Develo	oper initials/L	ate: NTP 1/27/09
	17 V				
l Answer					
1,0000					

Knowle	dge ar	nd Ability	Referen	ce Info	ormation			RO	SRO
A3.03 - AVERA	Ability GE PO	WER RAN SE MONIT	IGE MO	<b>NITOR</b>		Importa Rating	nce	3.3	3.3
Level	RO		Tier#	2	Group #	1			
Referen	References 403 202.1  The APRM drawer count is being								
Explanation: the LP that LP Who by:		LPRMs a that whe LPRMs a When th bypasse The othe	are not b n all 8 LI are bypa e input s d and dis er answel	ypasse PRMs a ssed, the witch is splays a rs are i	to the count ped into the APF are valid, the c he count drops s taken to LPR a 0 output. Ans ncorrect but pl	RM. Each count readi to 60. M 12-17B swer C is d ausible if t	LPRM e ng is 80 , it sees correct. the cand	equals 1 ). Since the LP	I0 so 2 RM as loes
References to be provided during exam:									
Learnin <sub>(</sub> Objectiv	e	2621.828. Identify ar plant oper	nd explai	n syste	m operating c	ontrols/ind	lications	under	all

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory Fundan Knowle	nental	X 1:1	Compro or Anal	rehension	
10 CFR Part 55 Content:	55.41	7	55.43			

Question 18 1 Point

The plant was at rated power when an event occurred which resulted in a fast start of EDG 1 **ONLY**.

10 minutes later, the following annunciator alarmed:

• EDG 1 ENG TEMP HI (@ 200 °F cooling water temperature)

Which of the following states the cause for this alarm?

- A. The Turbocharger Oil Pump AC-driven motor is de-energized.
- **B.** The louver control system has adjusted the louvers to the close position.
- C. The immersion heater is energized and is **DIRECTLY** heating the engine oil.
- **D.** The right bank and left bank water pumps have failed to auto start at 175 °F.

Question # 18 B	Question Developer Init	ials/Date: NTP 1/27/09
Answer		
Milamei		

Knowle	dge ar	nd Abil	lity Referer	ice Info	ormation			RO	SRO	
<b>EMERG</b>	Ability ENCY	GENE	itor automa RATORS (l ter system o	DIESEL	rations of the _/JET) on	Importa Rating	nce	3.1	3.2	
Level	RO		Tier#	2	Group #	1				
Referer	ices		RAP-T6b LP 2621.828.0.0013 3E-861-21-1001							
Explana	tion:	annu EDG The E which turns on termove opening the lot turboo pump is incompleted.	nciator show cooling was are driven, the cooling water sto 2 air-to s/closes loued through the couvers show ourpose of the charger bear provide thouse the charger bear provide the charger bear shown are the charger bear provide the charger bear shown are the charger bear provide the charger bear provided the charger bear pro	ws that ter.  2 cool indirectly pumps Answer of the radia uvers. Answer of the turbulating when eneceding the turbulating who eater coonly the turbulating who eater coonly the turbulating who exists the turbula	when EDG1 f there is a high ing water pum tly from the m s also turn and D is incorrect as provide coo radiators. The modulate the ators. A higher At the alarm p the 100% ope ocharger oil punchen the unit is essary oil during ould be energing e cooling water orrect.	temperates (right beain shaft. And these pure) the cooling water e cooling water e cooling wamount of temperate oint providen position ump is to perate of the cooling to perate oint providen position and perate oint providen position of the cooling engine of the c	ank and ank and as the recalls ed in the courside operation would	dition of left banain shand not aut engine, stem e air where so for fur e quester B is coil to the driven on. Answadd hea	f the ink), aft to start which ich is ther tion, correct. e oil ver A	
Referen provide		24.5	m: None							
Learning Objectiv	e	State t	328.0.0013 I he function nation, as a	and int	-10449 erpretation of e in accordan	system ala	ırms, al	one and	d in	

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory Fundan Knowle	nental	X 1:I		orehension alysis	
10 CFR Part 55 Content:	55.41	7	55.43	- Action and a second		

Question 19 1 Point

The plant was at power when the following alarms and indications were noted:

- Annunciator DC PWR LOST BUS C UV
- BOTH CHARGER C1 AND CHARGER C2 indicate 0 AMPS
- BATT C indicates 0 AMPS

Which of the following components can be operated from the Control Room?

- A. CRD Pump A
- B. Feedwater Pump B
- C. Core Spray Main Pump NZ01D
- D. Containment Spray Pump 51B

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- 1						
- 1						
- 1	( linoction #		A		*4*   1   1870   4	
- 1	Question #		CHESTION	jeveinner in	"OTE!!/DIE!TI	NTP 1/27/09
- 1		40 D	MANAGERASI P		ingial mark	
- 1						
	A					
	Answer					
	7					
	TO THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, WHEN THE PERSON NAMED IN THE OWNER, WHEN THE PERSON NAMED IN THE OWNER, WHEN THE OWNER, WH		THE RESIDENCE OF THE PARTY OF T	TOTAL CONTRACTOR OF THE PARTY O		

Knowle	edge ar	nd Abil	lity Referen	ice Info	ormation			RO	SRO	
263000 DC Ele A4.01 - Ability t the control roor fuses		to man	ually operat	e and/		Importance Rating		3.3	3.5	
Level	RO		Tier#	2	Group #	1				
Refere	nces		3033 3001B 3002							
Explana	ation:	It also the C on 12 disco DC B opera 1A1, longe contro CRD powe Feeds Answ Core no DC Conta	shows that Battery als Battery als Downward From Service Control of the Part o	t both of show C and m Bus es the O VAC A3. With ntrol of Dowere is incompleted by the control of the control o	DC control por Bus 1A, 4160 In breaker conf the breakers of from USS B brrect. Dwered from E	is C show These con chargers wer for re VAC Bus trol power on the AC us 1A2, and ered from	no currenditions and the emote bress 1C, 46 regone, the conditions and thus are also and thus and thus are also are also and thus are also and thus are also	ent and depict a battery eaker 0 VAC I here is in the has no has DC and the has no has DC	that fault are  Busses no ne  DC  power. us has	
Referen provide	200	TO THE RESERVE OF THE PERSON O	Mone m:							
Learnin Objectiv	/e				-10453 his system is i	interrelate	ed with o	ther pla	nt	

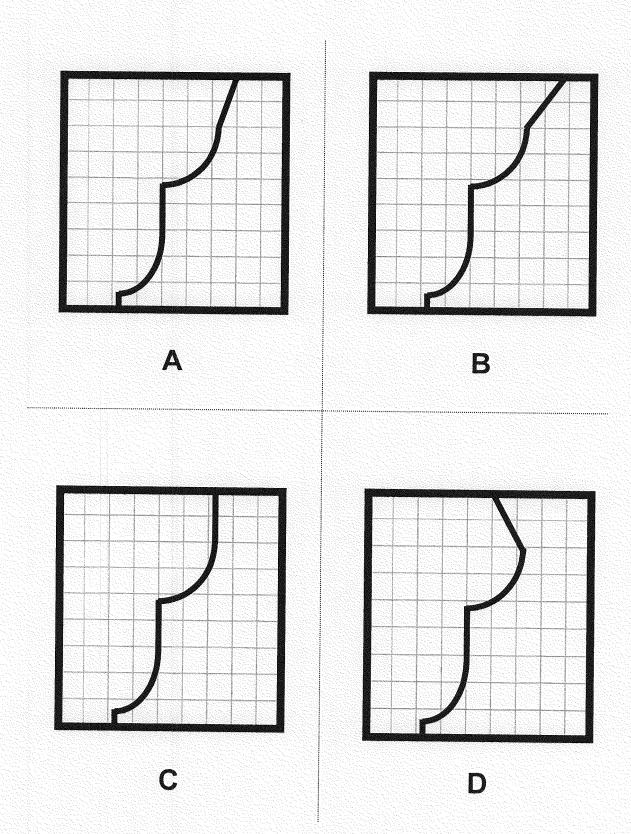
Question Source	Bank		Modified Bank	Х	New	
Question Cognitive Level:	Memory Fundan Knowle	nental		ompreh Analys	ension sis	X 3:SPK
10 CFR Part 55 Content:	55.41	7	55.43			
Time to Complete: 1-2	2 minutes	l				

Question 20 1 Point

The plant is starting up after an outage and the reactor has just been declared critical IAW Procedure 201, Plant Startup.

Which of the following SRM charts shows that the reactor is critical with the **LONGEST** period? (**See attached**)

- **A**. A
- **B**. B
- C. C
- D. D



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	Question #		Ouge	tion Develop	or Initials/Da	to NITO 4/0	7/00
1		20 A	wuca	non peveloh	ei iiiiliais/Da	te. NIP 1/2	7709
1	Amairian						
L	Answer						

Knowle	dge ar	ıd Abi	lity Re	feren	ice Inf	ormation			RO	SRO
215004 Source Range M A4.02 - Ability to manual the control room: SRM re				perat	e and/	or monitor in	Importa Rating	ance	3.0	3.1
Level	RO		Tie	er#	2	Group #	1			
Referer	ices	- S. Vacanium ( - section as	201							
Explana		coun critics without SRM represincre smal corre Trace show recognized	ats rising all where out additional counts esents to a sing. The counts esents to a sing. The counts esents	g at a neu itiona s goes he cu Trace e tha	tron flu tron flu I contro s from urrent t e A sho n that onstan counts a	actor state is a ant rate. Proce ix is increasing of rod movemed left to right increasing was a constant in trace B, while the top of the ate when declarizontal axis ar	edure 201 g with a stant. 4 SRN creasing. Togoes from increase ch is also top of the e trace. Togoed	defines able pos A charts The top top to b in coun critical. e trace a he cand	the rea sitive pe are pro of each oottom ts, with Answer and trace lidate m	ctor is riod, vided. trace a · A is e D ust o know
Referen provide			Service Servic	alcul	ator					
Learnin Objectiv	/e	Given	a set o	f syst	em inc	-10445 lications or da s and system	ta, evalua	te and i	nterpret	them

Question Source	Memory or Fundamental Knowledge		Modified Bank		New	Х
Question Cognitive Level:				Comprehension or Analysis		X 3:SPK
10 CFR Part 55 Content:	55.41	7	55.43			
Time to Complete: 1-2	2 minutes					

Question 21 1 Point

The plant was at rated power when a control rod drop accident occurred. The following annunciators then alarmed:

- RADIATION MONITOR PROCESS OFFGAS HI
- RADIATION MONITOR PROCESS OFFGAS HI HI
- MAIN STEAM RAD HI

The operator reports that all MAIN STEAM LINE RAD MONITORS indicate > 1000 mr/hr and offgas radiation is rising. The SRO directed a manual reactor scram and **ALL** control rods inserted.

Which of the following states how reactor pressure shall be controlled?

- A. Close the MSIVs and control RPV pressure with the Isolation Condensers.
- B. Close the MSIVs and control RPV pressure with the Isolation Condenser vents.
- C. Leave the MSIVs open and control RPV pressure 800 1000 psig with the Turbine Bypass valves.
- **D.** Leave the MSIVs open and control RPV pressure 500 600 psig with the Turbine Bypass valves.

The state of the s	THE RESERVE THE PROPERTY OF TH		
I O		B 04 0 B FR00	A1325 A166166
Question #	Uuestion Deve	oper Initials/Dat	e NIP 2/20/09 I
		obai iiiiaaiaiaaa	O: 1111 FIF-0100
			한다. 사용하는 항상하다 하나 사용하는 하다 하나 사용하다. [8]
I A			
I Answer		함께 없다면서 모양하다 살려가 하네다니다.	

Knowle	dge ar	nd Abilit	y Referen	ice Inf	ormation		RO	SRO			
2.4.8 - E how abr	Emerge normal				nowledge of used in	Importance Rating	3.8	3.8 4.5			
Level	RO		Tier#	2	Group #	1					
Referer	ices	А	BN-26		RPV Contro ATWS EOF	, 짜리는 하는 하나 하는 때문에 보는 그 때문에 모든 그 때문에 모든 그 없다.					
occurred, main stea manual se IAW ABN radiation manually leg), it say turbine by other syst Since the Since the cannot be		ed, which leeam show I scram ar BN-26, with on rising, to ally closed. Says to state bypass vary stems us the MSIVs the isolation be used a	has resty a larged all controls have the MSI labelize alves. I will be an controls a ve	sulted in gross ge rise in radiation level lVs and the iso ne RPV Contro RPV pressure But the MSIVs control RPV pre closed, then a lenser vents w nt path and an	ls > 800 mrem/h plation condense pl – No ATWS E below 1040 psig will be manually	th offgas SRO dire r and offer r vents s OP (pres g using the closed a d are inco	ects a gas hall be sure ne and orrect.				
Referen provide		be ng exam	None.								
Learnin Objectiv			8.0.0030 L function		34 erpretation of	NSSS alarms.					

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory Fundan Knowle	nental		Comprehension or Analysis		X 3:SPK
10 CFR Part 55 Content:	55.41	10	55.43			
Time to Complete: 1-2	2 minutes					

Question 22 1 Point

The plant was shutdown and was cooling down with the Shutdown Cooling System. Present plant conditions are as follows:

- RPV water level indicates 160"
- E RECIRC PUMP SUCTION TEMP indicates 300 °F
- Shutdown Cooling Loops A and B are in service

The Operator then reported that Drywell pressure was rising slowly and that UNIDENTIFIED DRYWELL LEAKAGE rose and steadied out at 8 GPM.

10 minutes later, and with UNIDENTIFIED DRYWELL LEAKAGE **UNCHANGED**, the following annunciators alarmed:

- DW PRESS HI-HI I
- DW PRESS HI-HI II

Which of the following actions would have the **GREATEST** impact on maintaining control of RPV water level?

- A. Close all LFRVs
- B. Trip all Condensate Pumps
- C. Place Core Spray Parallel Isolation Valves in CLOSE
- D. Override Core Spray signals and place Core Spray Pumps in STOP

1			
	Question #	Question Developer Initials/Date: NTP 2/20/09	
1		22 D Gassier Developer initials/Date. NTF 2/20/09	
1	Answer		
L	AIIONGI		

Knowle	dge a	nd Ability	y Referen	ce Info	rmation			RO	SRO	
2.4.9 - E low pow loss of c	Emerge er / sh coolant	ency Proc utdown ir	r Level Control Importance cedures / Plan: Knowledge of implications in accident (e.g., at or loss of residual heat ategies.							
Level	RO		Tier#	2	Group #	1				
Referen	ices	20	01		EMG-SP10		RAP-H1d			
Explana		this real pump real A leak to drywell by the good force parallel loop of To stop first be core sprompart impact of Closing condens much lead to the valve to the valve of the	ctor power unning through the occur spray, and isolation work core spray core spray is addred to control the only its ate pumps than core there is ray paralled as going a	er level, ough a rs in the scram a unciator d since valves ver will injury with a n, then the service of are vere sprand remembers.	drywell and sond isolation sond isolation sond isolation sond isolation sond in the core sprayer to the RPV, then securing water level. The LFRV and sond isolation walve switch and sond in the core sprayer to the RPV, then securing water level. The LFRV and sond isolation walve switch and sond in the core spray initiation on valve switch and isolation closed.	w is minimals teadies of the set	ut at 8 greached results psig, the this premote the standard psignal to the standard psignal to the conference only the incorrespondence only the second psignal to the second p	gpm, what (as property sin the ecore seconds) topped. The largest flowest flow	en the ovided start spray each	
Referenc provided		pe ig exam:	Attachi	ment 20						
Learninç Objectiv	<u> </u>		.0.0010 L nd explair		10446 n operating co	ontrols and	d indicat	ions un	der	

Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge		Comprehension or Analysis			X 3:SPK	
10 CFR Part 55 Content:	55.41	10	55.43				

Question 23

The plant is at rated power when the following annunciator alarmed:

RPS MG SET 1 TRIP

Which of the following states the impact on indicated power?

- A. ALL ARPMs indicate 50%
- B. ALL APRMs indicate 100%
- C. APRMs 1-4 indicate 100%; APRMs 5-8 indicate 0%
- D. APRMs 1-4 indicate 0%; APRMs 5-8 indicate 100%

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Question #   22	liestion De	veloner in	tiale/Nato	NTP 2/23/09	
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	시간 아이들의 사람들은 살아 있었다.				
l Answer					
-	CONTRACTOR OF THE PROPERTY OF	Control of the second			Section 1

Knowle	edge ar	ıd Abilit	y Referen	ce Infor	mation			RO	SRO
212000 A4.05 - the conf	<b>Ability</b>	to manu n: Reac	ally operat tor power	e and/or	monitor in	Impo Ratir	rtance ng	4.3	4.3
Level	RO		Tier#	2	Group #	1		<u> </u>	
Referer	nces	F	RAP-9XF3	3					
Explana		has res APRM Answe APRM Answe Answe	sults in the s 5-8 will c r A is incors, and there r B is incorr C is incorr	loss of continue rrect single was nect single	d shows a los APRMs 1-4, to indicate no ce the power o resultant rece ½ of the Ace it lists the	which vormal. A loss do actor p PRMs	will indica Answer [ pes not in power red read dov	ate 0% po D is corre mpact ½ duction. vnscale.	ower. ct.
Referer provide		be ng exam	None						
Learnin Objecti	ve	Describe compon	8.0.0029 le the interlents and emponents	ock sign	10444 als and setpo system resp	oints fo onse ir	r the affe	ected sys power lo	tem ss or
Question Source		ce	Bank		Modifie Bank	d		New	X
	Question Cognitive Level:		Memory Fundan Knowle	nental	1:F		mpreher Analysis		
			Kilowie	-95				As a first seem of the first s	
		5	55.41	7	55.43				

Question 24 1 Point

The plant was at low power when a single annunciator alarmed:

SV/EMRV NOT CLOSED

The Operator reports the following indications:

- EMRV NR108A shows in the VALVE OPEN REGION
- TORUS TEMP BULK DIV 1 indicates 81 °F and rising very slowly
- ALL EMRVs indicates GREEN light ON and RED light OFF
- RPV water level indicates at the setpoint and steady

Which of the following states the plant impact and the **NEXT** required action IAW ABN-40, Stuck Open EMRV?

	<u>Plant Impact</u>	NEXT Required Action
Α.	EMRV NR108A is leaking by	Place AUTO DEPRESS VALVE NR108A switch to OFF
В.	EMRV NR108A is leaking by	Place the MASTER FEEDWATER LEVEL CONTROLLER in MAN
C.	EMRV NR108A is open	Initiate Torus cooling IAW the Primary Containment Control EOP
D.	EMRV NR108A is open	Place the NR108A EMRV NORMAL/DISABLE switch in DISABLE

Γ		
ı	Question #   Question Developer Initials/Date: NTP 2/23/09	
1	24 B Question Developer initials/Date. 1417 2/25/09	
1	Answer   Section 1	
L	Allswei   Section   Sectio	

Knowle	dge aı	nd Ability	/ Referen	ce Info	rmation			RO	SRO
A2.02 - following based of correct,	239002 SRVs A2.02 - Ability to (a) predict the impacts of the following on the RELIEF/SAFETY VALVES; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Leaky SRV							3.1	3.2
Level	RO		Tier # 2 Group # 1						
Referen	ices	Α	BN-40						
Explanation: lind wait for Op If a wait for Op If a wait for One con FW Ans Ans und		indicate in alarm for this Open E  If a FW wait unt FW tran Once in comment FW con Answer underst:	ed (as indiction). The incondition MRV, is retransient if stabilities in the manual, ince IAW to troller shall and what	cated be dication (Torus equired is in prozes, the end of the ABN all be placed to correct the correct incorrect inc	wer when leak by red light not s provide seventemperature red. ogress, the Alen place FW control anipulation of anipulation of aced in manual et impact, but the provided m, which did in the provided in manual the provided m, which did in the provided in	t lit, and E eral other ising). Ent BN directs control in n in manua the EMRV al. Answel the incorre sible if the alarm and	MRV are expected that the nanual. I is still is leaking the second of the candidate of the	ed indicated ind	tor not ations, Stuck tor is no d. and the ep.
References to be provided during exam:						CONTROL OF THE CONTRO			
Learning 2621.828.0.00 Objective Given ADS all and trends.						luate them	ı in tern	ns of lim	nits

Question Source	Memory or Fundamental Knowledge		Modified Bank		New	X X 3:SPK
Question Cognitive Level:				Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	5	55.43			

Question 25 1 Point

The plant is at rated power.

Which of the following signals will result in the following annunciator alarming:

- MN BRKR 1A 86 LKOUT TRIP
- A. Overcurrent
- B. Overvoltage
- C. Undervoltage
- **D.** Underfrequency

Question #		Question Developer Initials/Date: NTP 2/23/09
Answer	23 A A A A A A A A A A A A A A A A A A A	

LYTTO AATE	edge ar	ıd Abili	ity Refere	nce In	formation			RO	SRC
262001 AC Electrical Distribution K4.01 - Knowledge of A.C. ELECTRICAL DISTRIBUTION design feature(s) and/or interloc which provide for the following: Bus lockouts					or interlocks	Importance Rating		3.0	3.4
Level	RO	Tie		2	Group #	1			
References R		RAP-S2e	AP-S2e				**************************************		
<b>Explanation:</b> answer The oth electric		er A is co other answ	rect. /ers are d trips.	e lockout will oc e incorrect but p For example, t ignal.	olau	sible in that	they are		
Referer provide	and the second second	Secretaria de la Companya de la Comp	m: Non	9					
				6 LO 26	52-10449				
		State t			nterpretation of able in accordar				
	ve	State t combir				nce			
Objecti	on Sou	State t combir	Bank Memo	applica  ory or  amenta	Modifie Bank	nce		New	S.
Objecti  Questic	on Sou	State t combiners of the combiners of th	Bank Memo	applica ory or amenta ledge	Modifie Bank	ed	with the sys	New	S.

Question 26 1 Point

The plant was at rated power with the following DC electrical lineup:

- Battery Charger MG A is supplying DC Bus A
- Battery Charger MG B is supplying DC Bus B
- Battery Charger C1 is supplying DC Bus C

An event has then occurred. The Operator reported the following observations:

- A BATTERY DC AMPS indicates > 0 (discharge)
- B BATTERY DC AMPS indicates > 0 (discharge)
- C BATTERY DC AMPS indicates < 0 (charge)
- RBCCW Pump 1-2 indicates running

Given **ONLY** the above indications, entry into which of the following ABNs is required?

- A. ABN-45, Loss of USS 1A2
- B. ABN-48, Loss of USS 1B2
- C. ABN-50, Loss of VMCC 1A2
- D. ABN-51, Loss of VMCC 1B2

Question #	Question Deve	loper Initials/Date:	NTP 2/23/09
Answer	20 December 1997		

Knowle	edge ar	d Ability	Referen	ce Inf	ormation			RO	SRO
D.C. ELECTRICAL DISTR			automa RIBUTIO	automatic operations of the		Importance Rating		3.2	3.3
Level	RO	RO 1		2	Group #	1			
References		AE	3N-51		D-3033		3013	3 sh. 1	
Explan		indication The give amps is Both the VMCC 1 which is Therefore correct. Since R 1B2 and If the Canot norm	en is that en indica NOT not MG SE B2. The supplied re, VMCO Answer BCCW F answer andidate nal, then	for DC tions s rmal (n T A an stem a I from C 1B2 D is co Pump 1 B is in confus	how also that [neaning that cold MG SET B colds also shows that USS 1B2, and has lost power crect.	OC Battery urrent is out hargers are t RBCCW for thus USS and entry in the power has rollies or think	A and tof the powe Pump of 1B2 is not been ks that	DC Bat batteri red fror 1-2 is ru still pov BN-51 is en lost t	ttery B es). n unning, vered. s
Referer provide		be ng exam:	None			The state of the s			
나는 사람들은 사람들이 되었다. 그 사람들은 생생이 있다면 하고 있다면 하는 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은			et of sys	tem in	3-10445 dications or da ds and system		e and i	nterpre	t them

Question Source	Bank		Modified Bank	New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis	
10 CFR Part 55 Content:	55.41	7	55.43		

Question 27 1 Point

The plant is at rated power, with no control rod manipulations in-progress. It has been determined that the CRDM ball check valve for control rod 22-35 (currently at position 24) is stuck in its current, normal position.

Which of the following states the impact on the movement of this control rod?

- A. The scram time will be LONGER.
- B. The scram time will be **SHORTER**.
- **C.** The time to manually insert the control rod will be **LONGER**.
- **D.** The time to manually withdraw the control rod will be **SHORTER**.

I I					
Question #		Question De	eveloper Initial	s/Date: NT	TP 2/24/09
Question #	27 A	MUCCHOIL DI	orolopol lillia.	J, Dutty	
a					
Answer					

Knowle	dge an	d Abil	lity Referen	ce Info	rmation			RO	SRO
201003 Control Rod and Drive Mechanism K1.02 - Knowledge of the physical connections and/or cause- effect relationships between CONTROL ROD AND DRIVE MECHANISM and the following: Reactor water  Level RO Tier # 2 Group #						Importance 2.9 Rating		3.0	
Level	I RO Tier # 2 Group # 2								
Referer	ices		USAR 3.9.	4.1.2					
Explana		allow (accuproving to continue	whigher RPN cumulator pre- ides the following. There is complete a so- cer reactor presure reactor from the a below react from to admit for pressure from the from the from the from from from the fro	I pressure factoring: res about adequate ram in the ressures of the dractor pressure furnished force is sus, if the finsert the low pressure, it will take the second to t	wers until the are to continue alls below RP at 2.5 gallons are water capa are required to ator, the accumulator, the force in a the force in a the scrammed at a the scrammed and the continuous are all check when a the check	of water of city in each at low lator is assisted the children the accurate the control reservant the erator at the creck valve neck	novements.  Juring the drive reactor sisted be reck valved by the complete the reactor allows and as accontrol answer	the scrain of security reactions account to show the security reaction of the security reaction at the high eccumular of the high eccumular of the security reaction of the high eccumular of the high	1.2 m nulator res. At or rater is ure nift its cram e will ually no 1000 her nis hing correct

Learning Objective	2621.828.0.0011 LO 00078  State/identify the purpose of the following major components of a Control Rod Drive Mechanism, including the ball check valve							
Question So	ource	Bank	x	Modified Bank		New		
Question Cognitive Level:		Memory Fundan Knowle	nental		Comp or An	rehension alysis	X 3:PEO	
10 CFR Part	t 55	55.41	7	55.43				

Question 28 1 Point

Which of the following states the power supplies to the MSIV solenoids?

AC Power Supply	DC Power Supply
A. PSP 1 OR PSP 2	DF-D <b>OR</b> DC-F
B. CIP-3	DC-1 <b>OR</b> DC-2
C. CIP-3	DF-D <b>OR</b> DC-F
D. MCC 1AB2	DC-1 <b>OR</b> DC-2

Question #	Question Developer Initials/Date: NTP 2/24/09
"   28 C	adoction Developer finitials/Date. NTF 2/24/03
Answer	

			ty Referen		rmation			RO	SRO
K2.01 -	Knowle	edge of	ieat Steam electrical p isolation va	ower su	pplies to the	Importar Rating	ıce	3.2	3.3
Level	RO		Tier#	2	Group #	2			
Referer	ices		301.1		237E566 sh	12/14			
Explana	ition:	from C DC-F. All other	d an AC po IP-3. The Answer C er answers he correct ial power s	ower sup DC sole is correct are inco power s	(1 set per MSI oply. The AC set noids are either of the contract but plau upply. The AC and the DC set of the AC and the	supply for a er powered usible if the Supplies	all AC so d from D e candida listed an	olenoi C-D c ate did e vital	ds is or d not
Referen provide			None						
I:	a l	2621.828.0.0030 LO 03956  List the signals which initiate automatic closure of the MS setpoints of these signals.							
Learnin Objectiv	/e	List the	signals wh s of these	ich initia signals.	te automatic	closure of	the MSI\	/s and	d the
	<b>(e</b>	List the setpoint	signals wh s of these Bank	ich initia signals.	Modified		the MSI\		d the
Objectiv	n Sour	List the setpoint	s of these	or ental	Modified		New hension		d the
Objectiv Questio Questio	n Sour	List the setpoint	Bank  Memory Fundam	or ental	Modified Bank	Compre	New hension		d the

Question 29 1 Point

The plant is at rated power with the following Reactor Building HVAC lined-up as shown on the following page.

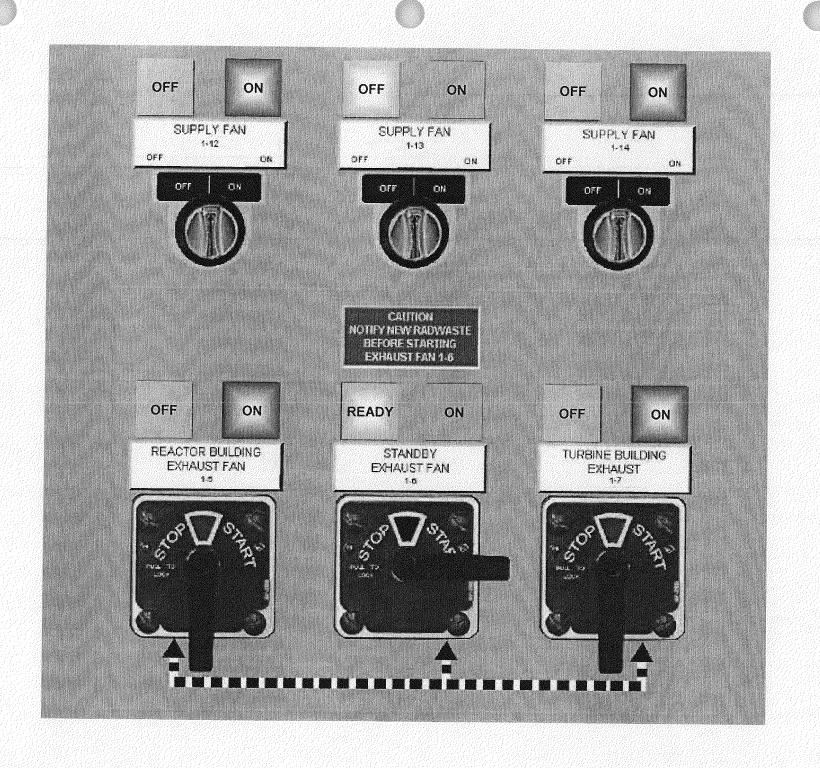
The following annunciators then alarmed:

- FDR TO 460V 1B2 TRIP
- 1B2 MN BRKR TRIP

With  ${
m NO}$  Operator action, which of the following states the impact on Reactor Building  $\Delta P$ ?

Reactor Building ΔP will ....

- A. NOT be impacted.
- B. go MORE negative.
- C. go LESS negative.
- **D.** go from negative to positive.



Question #		Question Developer Initials/Date:	NTD 2/2//na
	29 B	Dovolopol ilitials/Date.	111 2/24/03
Answer			
711101101			

	uye ai	iu Apiii	ity Referer	ice iiioi	mation		RO	SRC
malfunc	Knowle	edge of the PLA	the effect t	<b>LATION</b>	SYSTEMS	Importance Rating	3.1	3.3
Level	RO		Tier#	2	Group #	2		
Referer	ices		329					
Explana	ation:	The p power 1-14 (rema With I	rovided and supplied a 1B23 (fed fi ins energiz	nunciato are as fol rom USS ed). The air, the I	lows: SF 1-1. 1B2 and is α refore, one s RB ΔP, which	gative. ne loss of USS	s energiz EF 1-5 1 <i>I</i> energize	œd); S ∖2 d.
Referen	ces to		None		all and a second			
provide	d durir	ng exar	n:					
provide Learnin Objectiv	g /e	2621.8 Given t initiatio	28.0.0042 l he system	logic/ele etpoints	ctrical drawin	ngs, describe the	e system onse incli	auto uding
Learnin	g /e	2621.8 Given t initiatio power I	28.0.0042 l he system n signals, s	logic/ele etpoints	ctrical drawin	ed system respo	e system onse incli New	auto uding X
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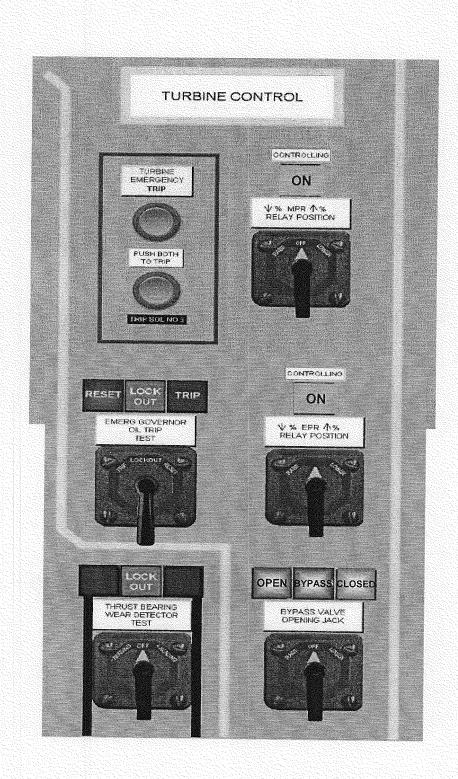
Question 30 1 Point

The plant is shutdown and cooling down with the Turbine Bypass Valves as **shown on the following page**. Present plant conditions are as follows:

- RPV pressure is 700 psig and lowering slowly
- RPV cooldown rate is 40 °F/hr

Which of the following states how the RPV cooldown rate can be RAISED?

- **A.** Place the EPR RELAY POSITION switch to the ↑% position.
- **B.** Place the MPR RELAY POSITION switch to the ↓% position.
- C. Place the BYPASS VALVE OPENING JACK switch to the RAISE position.
- **D.** Place the BYPASS VALVE OPENING JACK switch to the **LOWER** position.



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Answer	A-0-00 A-00 BARBARA					지하는 사람이 있는데 그 이번 사람들이 하나 있다.	
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Knowledge and Ability Reference Information									SRO
241000 Reactor/Turbine K4.16 - Knowledge of RE PRESSURE REGULATIN feature(s) and/or interlock following: Reactor cooldo		EACTOR NG SYS ks which	ACTOR/TURBINE IG SYSTEM design s which provide for the			Importance Rating		3.4	
Level	RO		Tier#	2	Group #	2			
References 318			8		Simulator				
Explanation: the Mi are co valves RAISE At this Answer The Mi cooldo		the MPR are control valves functions RAISE properties At this reconsider The MPR cooldow	or the Erolled by orther, the osition. A sactor property is incost setpoin, but the	EPR is in the bype operations of the bype ope	e seen by the n control and pass valve op ator will take the C is correct at the EPR has be used to continuous in answer Boldown rate. A	that the tu ening jack he bypass and answe no contro ontrol pres will act to	rbine by To ope opening T D is in I (outsidessure an	pass varient the base of the correct. The of its described thus bypass	alves ypass the range)
Referen provide		be ng exam:	None						
Learning 2621.828.0 Objective Identify and plant opera			nd explai	n syste	m operating o	controls/ind	dications	s under	all

	Comprehension or Analysis	
}		
I:3	13	13

Question 31 1 Point

The plant is shutdown for a refuel outage and you are working on a manpower schedule of Operators. Present plant conditions are as follows:

- The current Fuel Pool heat load is 0.5 x 10<sup>6</sup> BTU/hr
- Each spent fuel bundle represents a 0.5 x 10<sup>4</sup> BTU/hr heat load
- 40 spent fuel bundles will be removed from the RPV each shift

If the Augmented Fuel Pool Cooling System is to be placed into service **BEFORE** the Fuel Pool heat load reaches  $1.0 \times 10^6$  BTU/hr, when is the **LATEST** that you should schedule the manpower to place the Augmented Fuel Pool Cooling System into service?

Place the Augmented Fuel Pool Cooling System into service AFTER the ....

- A. first shift.
- B. second shift.
- C. third shift.
- D. fourth shift

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Level	RO		Tier#	2	Group #	2		
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Referen provide		be ıg exam:	None					
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Question Source	Memory or Fundamental Knowledge		Modified Bank		New	Х
Question Cognitive Level:				Comprehension or Analysis		X 3:SPK
10 CFR Part 55 Content:	55.41	5	55.43			

Question 32 1 Point

The plant was at 35% power during a startup when the following annunciator alarmed:

• H<sub>2</sub> SYSTEM TROUBLE

The TB EO reports that the Main Seal Oil Pump has tripped and that the Emergency Seal Oil Pump will **NOT** start.

Which of the following states the required action **AND** the generator HYDROGEN PRESS **PRIOR** to any Operator action? (Assume there are **NO** safety concerns)

	Required Action	<b>HYDROGEN PRESS indication</b>
Α.	Trip the turbine	Lowering to 0 psig
В.	Scram the reactor	Lowering to a value > 0 psig
C.	Maintain the generator within the Capability Curve	Lowering to 0 psig
D.	Maintain the generator within the Capability Curve	Lowering to a value > 0 psig

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Answer			하는 사람들은 사람들이 살아 살아 있다.		
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Knowle	dge ar	nd Ability	Referer	ice Info	rmation			RO	SRO
245000 Main Turbine Ge K6.04 - Knowledge of the malfunction of the followir TURBINE GENERATOR SYSTEMS: Hydrogen co		e effect t ing will h l AND Al	effect that a loss or ig will have on the MAIN AND AUXILIARY		Importance Rating		2.6	2.7	
Level	RO Tier# 2 Group# 2								
References 336				865D741		RAP-F 336.2	R6b		
Explanation: er su re (u do ca pro As hy be ge pro		emerger supply s requiren (unless a does red capabilit pressure As the s hydroge below th generate	ncy seal eal oil at eal oil at ent to el another of uire that y curve, e (which e eal oil progas will e seal oil or must be indication	oil pum a reductifier scilifferent the ge which is goes do essure I leak o I pressure on will le	er when a lose ps occurs. When a lose pressure. The pressure is the parameter is the parameter is a function of the generator be that the provided better to just be soure.	hen this or There is returbine us unsat). The intained wif generator g hydroge provided erator untill by bearing e capability	ccurs, be no proce nder the ne 336.1 vithin the r hydrog n pressu by beari the presoil. The v curve a	earing of edural ese cond proced e gener gen gas ure). ing oil, ssure is refore,	ditions dure ator just the lrogen
Referen provide		be ig exam:	None						
Learning 2621.828.0 Objective Given a set		et of sys	tem ind	10445 ications or da and system	ta, evalua status.	te and ir	nterpret	them	

Question Source	Bank		Modified Bank		Х	New	
Question Cognitive Level:	Memory or Fundamental Knowledge		Comprehension or Analysis		X 3:SPK		
10 CFR Part 55 Content:	55.41	7	55.43				

Question 33

The plant was at rated power when an event resulted in a high Drywell pressure condition. Present plant conditions are as follows:

- Containment Spray Pump 51B and ESW Pump 52B are running in the Drywell Spray Mode
- Containment Spray Pump 51D and ESW Pump 52D are running in the Torus Cooling Mode

The following annunciator then alarms:

LKOUT RELAY 86/S1B TRIP

Which of the following states the impact on the operating Containment Spray/ESW Pumps?

	Containment Spray/ESW B	Containment Spray/ESW D
Α.	<ul><li>Both pumps trip</li><li>Both pumps can be immediately restarted</li></ul>	Both pumps remain running
В.	Both pumps remain running	<ul> <li>Both pumps trip</li> <li>Containment Spray Pump can be restarted after 200 seconds</li> <li>ESW Pump can <b>NOT</b> be restarted</li> </ul>
c.	<ul> <li>Both pumps trip</li> <li>Containment Spray Pump can be restarted after 200 seconds</li> <li>ESW Pump can NOT be restarted</li> </ul>	<ul> <li>Both pumps trip</li> <li>Both pumps can be immediately restarted</li> </ul>
D.	Both pumps remain running	<ul><li>Both pumps trip</li><li>Both pumps can be restarted after 200 seconds</li></ul>

Question #		The state of the s			
	33 D	Question Deve	loper Initials/	Date: NTP	2/25/09
Answer					

Knowle	RO	SRO					
A1.07 - parame	Ability to place associately (SUPPRE	CI: Torus/Poo predict and/or ciated with op ESSION POO : Emergency	Importance 3.2 Rating		3.3		
Level	RO	Tier #	‡ 2	Group #	2		
Refere	nces	341		RAP-S1c		237E901	

The plant was at rated power when an event occurred resulting in a high Drywell pressure condition. B Containment Spray Loop is in the Drywell Spray mode, and D Containment Spray Loop is in the Torus cooling mode. The annunciator provided shows that startup transformer S1B has tripped. It had been supplying 4160 Bus 1B, and Bus 1D (and Bus 1B2). When the transformer trips, Bus 1B becomes de-energized and EDG 2 starts and loads onto Bus 1D. Thus, Bus 1B is de-energized and EDG 2 is supplying Bus 1D (and Bus 1B2).

Loop B pumps are powered from 4160 Bus 1C (ESW pump) and Bus 1A2 (from Bus 1C for the Containment Spray pump). Both these busses are still powered from startup transformer S1A and are unaffected by the loss of the other startup transformer. Therefore, the Loop B pumps remain running.

## **Explanation:**

Loop D pumps are powered from 4160 Bus 1D (ESW pump) and Bus 1B2 (from Bus 1D for the Containment Spray pump). Both these busses were initially powered from startup transformer S1B, which has been lost. Since Bus 1D has been re-powered by the EDG, ESW Pump D has power. EDG 2 immediately started and loaded onto Bus 1D. But, to prevent EDG loading concerns, the manual start of any containment spray pump and ESW pump on Bus 1D is prevented for 200 seconds after the EDG picks up the bus.

Therefore: Loop B pumps remain running, Loop D ESW Pump trips and can be re-started in 200 seconds, and containment spray pump D trips and can be manually restarted after 200 seconds. Answer D is correct.

The other answers are incorrect but plausible if the candidate does not know the meaning of the provided alarm, electrical distribution or the associated logic.

	References to be provided during exam:		None							
Learning Objective	Identify a	and explai	0009 LO 226-10446 explain system operating controls/indications under all ng conditions.							
Question Sc	Bank		Modified Bank	Modified X		New				
Question Cognitive Level:		Memory or Fundamental Knowledge				mpreh Analys	ension sis	X 2:RI		
10 CFR Part	55	55.41	5	55.43						

Question 34 1 Point

The plant was at rated power when the following events occurred:

- The AIRFAIL light above E MG SET SPEED CONTROLLER energized
- Annunciator FCS/RFCS TROUBLE alarmed

While investigating the alarms, the Operator inadvertently rotated the MASTER RECIRC SPEED CONTROLLER knob in the CCW direction from 47 Hz to 45 Hz.

Which of the following states the impact of this controller manipulation on the Recirculation Pumps **AND** what other action is required?

	<u>Impact</u>	Required Action
Α.	ALL Recirculation Pumps are at the new LOWER speed	Verify position on the Power Operations Curve
В.	ALL Recirculation Pumps remain at the INITIAL speed	Lower Recirculation Pumps speeds with the Moore Controllers
C.	Recirculation Pumps A, B, C, & D are at the new <b>LOWER</b> speed; Pump E is at the <b>INITIAL</b> speed	Lower Recirculation Pump E speed locally at the MG Set to match the other Pumps
D.	Recirculation Pumps A, B, C, & D are at the new <b>LOWER</b> speed; Pump E is at the <b>INITIAL</b> speed	Lower Recirculation Pump E speed with its Moore Controller to match the other Pumps

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	Answer			

Knowle	dge ar	ıd Abi	lity Refere	nce Inf	ormation			RO	SRO
202002 Recirculation Flow Control System A2.05 - Ability to (a) predict the impacts of the following on the RECIRCULATION FLOW CONTROL SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Scoop tube lockup BWR-2, 3, 4							ince	3.1	3.1
Level	RO		Tier#	2	Group #	2			
Referen	ces		301.2		RAP-J				
Explanation:		spee will for been spee To co at the All ot know	ed controller collow and wand the lost and the lost and the lost the sare control MG East scoop tubether answer	is take ill resul e scoop ne as b i, it is no e. Ansv s are in ng of th	ube will lock up n CCW (reduct tin lower speed tube is locked efore the speed ecessary to maker C is correct correct but place air fail or the	tion in spe ds. Becau I for recirc d change. nually cor usible if th	ed), all se spee ulation trol the	other Med contr pump E speed date do	IG sets of has i, its focally ses not
Reference provided			None						
Learning Objective  2621.828.0.0040 LO 00214  Explain what causes a scoop tube lockup and mechanicall occurs, including how to reset.							ally wha	t	

	AND DESCRIPTION OF THE PERSONS ASSESSMENT			
		Comprehension or Analysis		X 3:SPK
55.43				
	55.43	or	or Analys	or Analysis

Question 35

The plant was starting up after a refuel outage and power is stable and critical on the SRMs. Control rod withdrawals have been suspended temporarily.

The following annunciator then alarmed:

ROD DRIFT

The Operator notes that SRM PERIOD CHANNEL 21 meter indicator is moving upwards.

Which of the following states the expected indication for this event on the full core display?

One control rod position indication shows ....

- A. the number getting larger.
- **B.** the number getting smaller.
- C. an XX with a black backlight.
- D. a red backlight with NO number.

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	Question #						항공하는 사람들은 사람이 살아가는 않는 것이 하는 사람들은 사람	10.00
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	Answer							
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Level	RO		Tier#	1	Group #	1		
Refere	nces		ABN-6		The second secon			
Explana Referer	ices to	control meter control rod me core de In ans shows an und	I rod driftin indication of rod whose over out, the isplay. Answer B, the isa loss of coupled colling.	g outwarises) oc e positione rod po swer A is control ro	rd (period get curs. The exp n is getting no osition is auto correct. od would be	SRMs when in ting smaller or pected indication umerically large matically updated in incorrect.	r faster as ons show ler. As the ated on the I. Answer	the a contro e full C
higaine	u uum	ng exan						
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Learnin	ve	Given a responsindication	ı mode and	l directio ner, resp	n for control i	CRD System,	, describe system New	
Learnin Objecti	on Soul	Given a responsindication	mode and se of the tir ons and op	I directioner, respectation of the control of the c	n for control in ponse of the Controls.  Modifie	CRD System,	New nsion	X 2:RI

Question 36 1 Point

The plant was at rated power when an overwhelming smell of chlorine was noticed by several Control Room Operators.

Which of the following states how and why the Control Room HVAC System should be aligned, IAW procedure 331.1, Control Room and Old Cable Spreading Room Heating, Ventilation and Air Conditioning System?

- **A.** Manually trip and isolate the System to minimize air intrusion into the Control Room.
- **B.** Run System B in the **PURGE** Mode, to remove chlorine smells from the Control Room.
- **C.** Run System A in the **PART RECIRC** Mode to maintain a positive pressure in the Control Room.
- **D.** Run System B in the **FULL RECIRC** Mode to minimize the use of outside air into the Control Room.

Question #		100
Question # 36 D	Question Developer Initials	s/Date: NTP 2/26/09
Answer		

Knowle	dge ar	d Ability	Referer	ice Info	ormation			RO	SRO
A4.04 -	Ability 1		ly operat	/AC y operate and/or monitor in mental conditions			ince	2.8	3.0
Level	RO		Tier#	2	Group #	2			
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Explana	ation:	Operator proper in the giver as a mode the control of the control	rs in the node asson conditional condition	control sures the cons. Properation during as leak, gethe Cect.  e and cect and cect and cect but	ditions had charoom. Placing the highest quant ocedure 331.1 to minimize the arelease using the procedure R HVAC system ochlorine gas are chlorine intrusible but incorrare not appropot.	g the CR I- lity environ defines for e intrusion g no outs e directs year em in the for e stored of sion into the	IVAC synmenta ull recire of toxi ide air. ou to Al ull recire n site a he contithey are	ystem in I conditiculation c gases BN-33. A culation and their rol roome actions	ons for mode into ABN- mode n. All s that
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Question Source	uestion Cognitive Memory or		Modified Bank		X	New	
Question Cognitive Level:			X 1:P	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	7	55.43				1
Time to Complete: 1-2	2 minutes						

Question 37 1 Point

The plant was at 98% power when the Operator noted small oscillations in reactor power. These observations included the following:

- APRMs are oscillating between 97% and 99% power
- Generator electric is oscillating between 630 and 645 MWe
- Recirculation Pump C MG SET SPEED CONTROLLER is oscillating between 46 and 48.5 Hz.

Which of the following states the correct action IAW the applicable ABN?

- A. Take local manual control of Recirculation Pump C.
- B. Trip Recirculation Pump C and close the discharge valve.
- C. Place Recirculation Pump C MG SET SPEED CONTROLLER in MAN.
- **D.** Lower the MASTER RECIRC SPEED CONTROLLER to provide margin to 100% power.

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I Answer			
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Knowle	dge ar	nd Abilit	y Referen	ce Inf	ormation			RO	SRO
system	oility to operati ns for e	recogniz ng parar	e abnorm neters tha cy and ab	Importance Rating		4.5	4.7		
Level	RO		Tier#	2	Group #	2			
Referer	ices	A	BN-2					The second second	
Explana	ation:	ABN-2 affecte C is co If placin recircul control peak-p then tri reactor decisio The dis approp	With only d pump correct.  Ing the conlation pum. If control eak on AF pping the power to n but it is estractors a	r a sing ontroller ontroller is not PRMs, oscillate prever not direct re plau	ion pump cont gle pump oscill ir taken from A in manual doe pump can thei regained and to or generator o ting recirculation at exceeding 1 ected in processible but incor- other condition	ating, the UTO to Most regain considering the place the oscillation of the constant of the con	procedu AN (ma ontrol or d in locations eit scillating s directe be a col	ure direction of the al manusher reactions by 30 led. Lowenservations and listed as	cts the chanswer al ch 5% MWe, ering ve
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Learnin Objectiv	ve	Identify a	he Recirci	ret for <sub>l</sub>	226 plant emergen System, inclu	cy/off norr ding perso	mal situa ennel an	ations w d equip	/hich ment

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge		X 1:P	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	10	55.43			

Question 38 1 Point

Which of the following power supply losses will result in the **INABILITY** to detect fires at the Control Room Master Fire Alarm Panels A and B?

The loss of ....

- A. PSP 1
- B. PSP 2
- C. USS 1B1
- **D.** USS 1B2

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	Answer				이 얼마나 있다. 중에 하고 있어요? 하는 것이 없는 것이 없어요?	유리는 발생 그리고 하는 경우는 경우를 하는 것이다.	
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	Knowle	edge of		ower su	oplies to the	Importa Rating	nce	2.5	2.7
Level	evel RO		Tier#	2	Group #	2			
Referen	ices		ABN-48	BN-48					
Explana	ation:	to the	Control Ro	om Mas	of USS 1B2 ter Fire Alarm are incorrec	n Panels A	and B.		
Referen provide			None		AL THE				
Piovide	u uum	ng exar							
Learnin	g	2621.83 Identify	28.0.0019 l	in syster	n operating co	ontrols/inc	lications	under	all
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Learnin Objectiv	g ve	2621.8 Identify plant op	28.0.0019 l and explainerating co	n syster nditions. / or nental	n operating co	d	Ne <sup>s</sup>	w	
Learnin Objectiv Questio	g ve on Sour	2621.83 Identify plant op rce	28.0.0019 I and explain perating co	n syster nditions. / or nental	Modified Bank	d Compi	Ne <sup>s</sup>	w	= 1,750 (10 (10 (10 (10 (10 (10 (10 (10 (10 (1

Question 39 1 Point

The plant was at rated power when a LOCA occurred. Present plant conditions are as follows:

- RPV water level indicates 100" on the NR GEMACs.
- RPV water level indicates 96" on YARWAYs.
- RPV pressure is 600 psig and lowering slowly
- Drywell temperature indicates 280 °F
- Torus water level indicates 156"
- Torus pressure indicates 15 psig

Which of the following is correct under the present plant conditions?

- A. The EMRVs CAN function if required since their environmental qualification is NOT currently exceeded.
- **B.** Drywell Sprays **CAN** be initiated because the parameters are on the good side the Torus Load Limit (TLL) Curve.
- C. The YARWAYs are unreliable and should NOT be used to determine RPV water level due to exceeding saturation conditions.
- D. The NR GEMACs are unreliable and should NOT be used to determine RPV water level due to being below the allowable Minimum Indicated Level.

Question #	39 A Question Developer Initials/Date: NTD 2/27/00	
Answer	39 A Question Developer Initials/Date: NTP 2/27/09	

Knowle	dge ar	nd Ability	Referen	ce Infe	ormation			RO	SRO	
EK1.02 the followed DRYWE	- Know wing co LL TEI	ledge of the properties of the contract of the	emperature he operational implications of s they apply to HIGH JRE : Equipment on			Importance 2.9 3. Rating				
Level	RO		Tier#	1	Group #	1				
Referen	eferences EOP Bases EMG-SP28									
Explana	tion:	281 °F D EQ temp temperate work if no Answer I bases pre times. Do curve (un related to IAW SP- YARWA' curve an	W temporerature to the control of th	erature for safe erefore knswer rrect. T r/hy Dry orays c limit). eation c conditic e good nimum	when a LOCA represents the ety related equipated, at this temper A is correct. The Containment well Sprays can be initiated and be initiated or prevention of the irregion of the irrindicated water level. And the irregion of the irregion o	e DW des pment is ature of 2 nt Spray I nnot be in when on the initiation ace both the individual or level cu	ign temposition temposition initiation initiated in the good rive bas of Drywithe NR (curves) are	perature above the EMF  Limit contact at certact diside contact es is not rell Spra GEMAC saturation	e. The his RVs will urve in of the ays. Cs and ion can be	
Referen provide		be ng exam:	EMG-8	SP28						
Learning Objectiv	e	step in the	cedure E procedi	MG-32 ure, an	00 200.02, evaluat d apply this eva emergency con	aluation to				

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1:B	Comprehension or Analysis			
55.43	- Lagran and an annual section of the section of th			
		1.19	IIB   F	IIP

Question 40 1 Point

Which of the following will ensure that the Standby Gas Treatment System is available to protect the health and safety of the general public by minimizing an offsite gaseous radioactive release?

- A. Maintaining the charcoal filters dry.
- B. Maintaining absolute filter efficiency at a minimum of 80%.
- C. Maintaining the Reactor Building at a slight positive pressure.
- **D.** Verifying automatic system initiation on high Drywell pressure (≤ 3 psig) and RPV low water level (138").

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Knowle	dge ar	nd Ability	Referen	ce Inf	ormation			RO	SRO
EK1.02 of the fo	! - Knov Ilowing	concepts	the opera	ational apply	implications to HIGH OFF- ne general	Importal Rating	nce	4.2	4.4
Level	RO		Tier#	1	Group #	1			
Referer	eferences USAR 6.5.1 TS 4.5.H								
Explana		the hum humidity correct.  IAW the efficience With eith always of Testing high DW level poi	idity is m  TS refer  y of ≥99°  ner the no  pperated  is perforr  / pressur	aintair ioiodin ence, t %. Ans ormal f at a sl ned to e, or R	re, and thus hused below 70% e removal efficiency the SGT is test ower B is incorrect.  RB HVAC or Suight negative pure demonstrate the RPV low-low was incorrect.	. With no hiency falls ed to ensurect.  GT in servinessure. Anhat SGT in	eating to 78% re an a ce, RB nswer (	and 10  Answ  Absolute  pressu C is inco	0% er A is efilter ere is correct. caned:
Referen provide		be ng exam:	None						
Learnin Objectiv	ve		nt operat	ting co	-10435 nditions, descr ystem and its o				

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge		X 1:F	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	10	55.43			

Question 41 1 Point

The plant was at rated power when an inadvertent MSIV isolation occurred. The Operator reports that RPV pressure peaked at 1120 psig, and now indicates 950 psig and lowering.

Which of the following is correct regarding the Safety Valve and EMRV indications in the Control Room?

- A. ONLY 4 of the Safety Valves showed in the VALVE OPEN REGION during the transient
- **B. BOTH** combined EMRV tailpipe temperature indicators indicate a steady, constant elevated temperature
- **C. BOTH** combined EMRV tailpipes temperature indicators indicate an elevated temperature and are lowering slowly
- D. ONLY the combined EMRV tailpipe temperature indicator for NR108A, NR108B and NR108E indicate an elevated temperature and is lowering slowly

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Question # 141 C				
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Knowle	dge ar	nd Abilit	y Referen	ce Info	ormation			RO	SRO	
295025 High Reactor Pressure EK1.03 - Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR PRESSURE: Safety/relief valve tailpipe temperature/pressure relationships  Level RO Tier# 1 Group# 1									3.8	
Level	RO		Tier#	1	Group #	1				
Referer	erences 420 RAP-B46			I	TS 2.	3.B				
Explanation:  The plane resulted and low EMRV will have 1212 poperations for EM tailpiped Thus, it all EMI closed Answer the Carequired Answer Candid were standard were standard to the control of the c		pressure size opened sig). At 95 re setpoint and close RV tailpipe for the A, emperature RVs opened Answer Cor A is incorrect that 4 SV B is incorrect forgot ill open.	setpoin (lowes 0 psig, to close temper B & E e indice to correct singer the oper tect singer the oper tect singer the oper tect singer the oper tect singer tect singer the oper tect singer tect sing	sig, all EMRVs to open is 10% at safety valve pall EMRVS will see is 1019 psige temperature in teratures use or EMRVS, and a ations for both will be lowering rect.  The ce no safety valve processes and safety valve in the EMRVs and safety valve open setpoint in the EMRVs are setpoint for the end in the EMRVs are setpoint for the end in the	85 psig), a pressure some sure solutions a second for indicators a slowly signal solution and second for safety sopen at a sare closed closing or opened.	and NO setpoint is sed (lo ore, all for the or for a for the or for a for the or for a for the or for for the or for the	safety to ope west Ef EMRVs control commo C & D E isen sir EMRVs s plaus t Tech sig. plausible t EMRV	valves n is MRV have room on MRVs nce the s have ible if Specs le if the Vs		
		be ig exam	None:							
Learning Objectiv	re		8.0.0030 L Technical		32 ication requirer	ments who	en give	n applic	able	

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			Comprehension or Analysis		X 3:SPK
10 CFR Part 55 Content:	55.41	10	55.43			
Time to Complete: 1-2	2 minutes	The state of the s				

Question 42 1 Point

Which of the following indications are available on the Remote Shutdown Panel?

- A. RPV water level (YARWAY) and reactor power
- B. RPV water level (GEMAC) and RPV pressure
- C. RPV water level (FUEL ZONE) and RPV pressure
- D. RPV water level (FUEL ZONE) and Isolation Condenser A shell water level

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Knowle	dge ar	nd Abil	ity Re	eferen	ice Info	rmation			RO	SRO
295016 AK2.01 CONTR following	- Know OL RC	/ledge d OM AE	of the BAND	interro ONME	elations ENT and	between I the		portance ting	4.4	4.5
Level	RO		Ti	er#	1	Group #	1			
Referen	ces		346							
Explana	ition:	Cond Other	itions: enser distra	RPV B sheactors	water le ell water are inco	Panel has the evel (fuel zone level. Answeler but plaulable on the p	e), RI r C is isible	PV pressus correct.  if the car	ıre, and I	solation
References to be provided during exam:										
Learning Objectiv	e	Identify	and o	explai	-O 308-1 n systen nditions.	n operating co	ontro	ls/indicati	ons unde	er all
Questio	n Soul	ce	Ва	Bank Modifi Bank			d	x	New	
Question Cognitive Level:		Fu	Memory or Fundamental Knowledge		X 1:F	Comprehens or Analysis				
10 CFR I		5	5	5.41	7	55.43				
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Question 43 1 Point

The plant was at rated power with the following 125 VDC battery chargers in-service:

- Battery Charger MG Set A
- A/B static Charger
- Static Charger C1

The following annunciator then alarmed:

1A2 MN BRKR TRIP

Which of the following states the impact on the DC Distribution System?

- A. B Battery has lost its charger and shall be declared inoperable immediately.
- B. C Battery has lost its charger and shall be declared inoperable immediately.
- C. A Battery has lost its charger but it can be aligned to the Battery Charger MG B for charging.
- D. C Battery has lost its charger but it can be aligned to the standby Static Charger C2 for charging.

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Knowle	dge a	nd Abil	ity Referer	ice Inf	ormation			RO	SRO
AK2.01 PARTIA	- Knov L OR	vledge o	al Loss of D of the interr LETE LOSS tery charge	ance	3.1	3.1			
Level	RO		Tier#	1	Group #	1			
Referer	ices		ABN-45		338		3033 3028		
Explana	ition:	the A/C1. The p VMC0 Batter 1B2) a 1B2) a with th Answe	ed by the E /B static Ch rovided ala C 1A2. VMC ry Charger and the A/E and both ar ABN-45, C I ne loss of the er A is incomer C is incomer D is incomer.	rm sho CC 1A2 MG Se S Static e unaff Battery ne char rrect si	wer with the for Charger MG S and DC C is books a loss of polygon and DC C is books a loss of polygon and DC Charger is suffected by the expected B Battery ance A Battery ance both the C	set A, DC I eing charg ower to Us Static Cha from VMC pplied by I event. dered inop is correct still has its	3 is beir led by S SS 1A2, rgers C CC 1B2 MCC 1E erable i charge acted.	ng chargitatic Ch which 1 & C2. (through 21 (from mmedia	ged by narger feeds h USS m USS
Referen provide			None						
Learning Objectiv			28.0.0016 L or describe s.		-10453 his system is i	nterrelate	d with o	her pla	nt

Comprehension or Analysis	X 3:SPK
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Question 44 1 Point

The plant is shutdown with **ONLY** Shutdown Cooling in-service as the RPV cooling method. Present plant conditions are as follows:

- RPV water level is 160" and steady
- RECIRC PUMP SUCTION TEMPS indicates 347 °F
- Shutdown Cooling (SDC) Pump A is in service

Five minutes later, the Operator makes the following report:

• RPV pressure indicates 123 psig

Which of the following states the impact on the SDC System and the required action?

	Impact on SDC SDC Pump A tripped AND	Required Action
Α.	SDC is isolated	Bypass the SDC isolation interlock and restart SDC Pumps
В.	SDC is isolated	Initiate alternate RPV cooling using the Isolation Condensers
C.	SDC is <b>NOT</b> isolated	Bypass any failed Recirculation Temperature interlock and restart the SDC Pumps
D.	SDC is <b>NOT</b> isolated	Initiate alternate RPV cooling using the RWCU System

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	44 B	Question Developer	r initials/Date	e: NTP 2/28/	09
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MIISWEI		등등 경기를 하는 사람이 되었다면 살 때 얼마나 되었다.			
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Knowle	dge ar	nd Ability	Referen	ce Inf	ormation			RO	SRO
295021 Loss of Shutdown Cooling AK2.03 - Knowledge of the interrelations betwee LOSS OF SHUTDOWN COOLING and the foll RHR/shutdown cooling						Importal Rating	nce	3.6	3.6
Level	RO		Tier#	1	Group #	1			
Referen	ces	AE	3N-3		305		203		10 tawn 100 (10 tawn 10 tawn 1
Explana	ition:	RPV ten valves of ABN-3, condens Answers although Answer interlock emerger	nperature lose (iso an altern sers. Ans C and I n the requ A has the is is allow	e equal lating sate coower B or are ired a corred table merge	with only SDC ls 351.8 °F. At SDC) and all rubling method is is correct.  Incorrect since to ctions are plaused impact and W procedure, the correct is stated of the correct in the correct in the correct is stated of the correct in	350 °F, the unning SDC the use of the system usible.  bypassing but it is only	e SDC pump the iso has iso the SD allowe	isolations trip. I.  blation  blated,  C isolated during	n AW tion ng an
Referen provide	Service Services	be ng exam:	Attach 7(satu	ment 2 ration					
Learnin Objectiv	ve	2621.828 Describe compone failed con	the interl	ock sig	5-10444 gnals and setpe ed system resp	oints for the	∋ affect ding pc	ed syst wer los	em s or

Question Source	Bank		Modified Bank	X	New	
Question Cognitive Level:	Memory Fundan Knowle	nental		ompreh Analys	ension	X 3:SPK
10 CFR Part 55 Content:	55.41	7	55.43			
Time to Complete: 1-2	2 minutes				NATIONAL CONTRACTOR OF THE PARTY OF THE PART	

Question 45 1 Point

Which of the following states the bases for the Containment Spray Initiation Limit Curve in the Primary Containment Control EOP?

- A. A resultant excessive negative Primary Containment pressure could challenge Primary Containment integrity.
- **B.** A resultant excessive negative Torus pressure could prevent operation of Torus vent valves, when needed.
- C. A resultant excessive negative Torus pressure could exceed the load limit on the downcomers during an emergency depressurization.
- D. A resultant excessive negative Primary Containment pressure could prevent operation of Torus to Drywell Vacuum Breakers, when needed.

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Knowle	dge ar	nd Ability	Referen	ice Inf	ormation			RO	SRO
EK3.01 respons	295024 High Drywell Pressure EK3.01 - Knowledge of the reasons for the followir responses as they apply to HIGH DRYWELL PRESSURE: Drywell spray operation						Importance 3.6 Rating		
Level	RO		Tier#	1	Group #	1			
Referer	ices	EC	P Bases						
Explana	ation:	drop in p This dro by the va containm integrity. All other know the on a high primary of the evap by the va	primary of in presection of the presection of the primary containment or accum be	ontains sure care lief system with A is contained as is. O contained as is. O contained as is.	initiation of dry ment pressure an occur faster stem, and cou which can chall orrect. correct but plat peration of the inment water I essure limit. The could be in exters, but will not pers is related to	due to evant than can ld result in lenge prime ausible if the vent valve evel or cone rapid decess of the prevent the	aporativ be com a nega ary con e candi es coulo nfused v epressu e protec ir opera	e coolir pensate tive print tainmer date did to prewith the rization allottion. The	ng. ed for mary nt d not evented due to owed ne
Referen provide		be ig exam:	None						
Learnin Objectiv	/e	step in the	cedure E proced	EMG-32 ure, an	00 200.02, evalua d apply this ev emergency cor	/aluation to	nnical ba o detern	asis for nine coi	each rrect

Question Source	Bank		Modified Bank	l	New	Х
Question Cognitive Level:	Memory Fundan Knowle	nental	1:B	Comp or Ana	rehension alysis	
10 CFR Part 55 Content:	55.41	5	55.43			
Time to Complete: 1-2	2 minutes					

Question 46 1 Point

The plant was at rated power when a STATION BLACKOUT occurred.

Answer the following questions as they relate to the Isolation Condenser System, under the conditions above?

- 1. Can the Isolation Condenser System be manually initiated from the Control Room?
- 2. Can makeup water be provided to the Isolation Condenser shells?

<u>1</u> <u>2.</u>

A. Yes No

B. Yes Yes

C. No No

D. No Yes

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Knowle	dge ar	nd Abilit	ty Referen	ce Info	ormation			RO	SRO	
AK3.07 respons	- Know es as t ETE Lo	rledge of hey app OSS OF	plete Loss f the reaso ly to PART A.C. POV	ns for t		Importance 3.8 4				
Level	RO		Tier#	1	Group #	1				
Referer	ices	1	ABN-35		ABN-37		307			
Explana		AC por admiss is open closed AC por Filling AC gorditis makeu closed be marked be marked be marked be marked be took of the company of the co	wer in the sion valves in, and the valve is D wer. of the sheld by the Fidons, will be on loss of nually mand the shelf AC power andidates fire diesels	station.  to each second C power  Is usual AC power  ire Prote press re air or air. Evolution ells can character forget as sor power  solution	when a station. In the normal child are open I condensate read and can I ally requires Afrection water surized by dies perated, with en if the accurate in the plant I condensers can be filled from er B is correct about the use wer supplies to then the other	I configural, one conditions one conditions one conditions one conditions on the conditions of the system of fire protect of the system of the conditions of	tion, the densate e is clos lated with a wate of a wate of the shich undire pumplators, ischarged ted in the ction with the ction with the ction water and the ction w	e steam return vied. The th a los r pump ells car er the g ps. The and fail ed, they ne conti h the to vater su es and t	valve e s of . With n also given / can rol tal	
Referen provide			None							
Learnin Objectiv	/е	Given p	28.0.0023 L lant condit and the pl	ions, e	38 valuate the im	pact on the	e Isolati	on Con	denser	

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5.43			
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Question 47 1 Point

The plant was at rated power when a sudden and catastrophic loss of instrument air occurred.

Which of the following states the failure mode for the Isolation Condenser Makeup Valves and the reason for the permanently installed Alternate Air supply to the valve accumulators? (assume the accumulators are currently discharged)

	Makeup Valve Failure Mode	Reason for Alternate Air Supply
Α.	Closed	Allows controlling the valve to maximize the availability of the Isolation Condensers as a heat sink
В.	Closed	Allows opening to flood the shells in the event of a tube leak to minimize the radiation release
C.	Open	Allows closing the valve to prevent flooding the shells
D.	Open	Allows closing the valve to prevent draining the CSTs

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1	Answer		Service Control				
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Knowle	Knowledge and Ability Reference Information  295019 Partial or Total Loss of Inst. Air  AK3.01 - Knowledge of the reasons for the following esponses as they apply to PARTIAL OR									
AK3.01 respons	- Know es as t ETE L0	ledge of hey apply DSS OF	the reasc / to PART	ns for t	he following R JR : Backup			3.3	3.4	
Level	_evel RO Tier# 1 Group# 1									
Referen	ces	30	)7		ABN-35		USAF	R 6.3.1.1		
Explanation:		the valver pressur correct. Answer guidance though incorrect.	es to allo e in the e B has the e to flood doing so et. s C & D a	w the s vent of e correc the IC might n re inco	arged). The insystem to perform a loss of the rect since the rect are corrected are corrected.	orm its fund main heat s but there event of a s adiation rel	ction – sink. Ar is no p tube bro ease. <i>F</i>	to contr nswer A procedur eak, eve Answer	ol RP√ is ral en B is	
Referen provide	Control of the second	be ig exam:	None							
Learning Objectiv	е	Given pla	3.0.0023 L ant condit and the pl	ions, ev	38 valuate the im	pact on the	e Isolat	ion Con	densei	

Question Source	Bank		Modified Bank		New	X	
Question Cognitive Level:	Memory Fundan Knowle	nental	X 1:B	Comprehension or Analysis			
10 CFR Part 55 Content:	55.41	5	55.43				

Question 48 1 Point

The plant was in hot shutdown and was cooling down with the Shutdown Cooling System, when the following annunciator alarmed:

RB CCW ISOL

The Operator reports the following observations:

- Valve V-5-147, CCW INLET ISOLATION, indicates GREEN light ON, RED light OUT
- Valve V-5-167, CCW OUTLET ISOLATION indicates RED light ON and GREEN light OUT

Which of the following annunciators would be the **NEXT** expected annunciator to alarm?

- A. TORUS/DRYWELL DW TEMP HI
- B. MAIN STEAM TRUNNION RM TEMP HI
- C. RBCCW CCW/SD CLG/FUEL POOL TEMP HI
- D. CLEANUP SYSTEM AUX PUMP CCW TEMP HI

Question #			
1	48 A Question De	eveloper Initials/F	Date: NTP 2/28/09
Answer		ovolopol illicialo/L	ato. 1411 2/20/00
LAliswer			

	dge ar	ıd Abilit	y Referen	ce Intorr	nation		RO	SRC		
AA1.02 following	- Ability g as the OF CON	y to oper ey apply	Loss of Cate and/or to PARTIA	monitor AL OR C	OMPLETE	Importance Rating	3.3	3.4		
Level	RO		Tier#		Group#	1				
Referer	ices	2	006 sh. 1,	06 sh. 1, 3 RAP-C2c						
Explana	ition:	annunc RBCCV valve to coolers temper All othe	ciator and Winto the othe DW into the DW into the DW into the mill representation and the DW and th	provided primary of s closed) e cooling isse to the are com	operator obscontainment . RBCCW properties to the alarm point ponents coo	ng down with servation show is isolated (the rovides cooling a Drywell is not a Answer A is alled by RBCC).	v that the e RBCCV g to the D w lost, DV correct. V but are	/ inlet W air V located		
Referen provide		be ng exam	None:							
Learnin Objectiv	rning 2621.828.0.0035 LO 00048									
		Question Source		-				And the second of the second		
		'ce	Bank	X	Modified Bank	d	New			
	n Soul		Bank Memory Fundam Knowled	or ental		Comprehe or Analysis	nsion	X 3:PEO		
Questio Questio	n Sour	nitive	Memory Fundam	or ental		Comprehe	nsion			

Question 49 1 Point

The plant was at power when a large LOCA occurred. The following plant conditions currently exist:

- RPV water level is -60" and rising slowly
- The RPV has been depressurized by Emergency Depressurization
- Core Spray System 1 AND 2 are injecting into the RPV
- Containment Spray/ESW Pump 51A/52A are being used in the Drywell Spray mode
- Containment Spray/ESW Pump 51B/52B are being used in the Drywell Spray mode
- Drywell pressure is 4.9 psig and lowering
- Torus temperature is 100 °F and rising

The SRO has directed that you initiate Containment Spray Pump 51C in the Torus Cooling mode.

Which of the following actions are required to initiate Containment Spray Pump 51C in the Torus Cooling mode?

	<u>First Action</u>	Second Action
A.	Secure Containment Spray Loop A from Drywell Sprays	Initiate Containment Spray Loop C in Torus Cooling
В.	Initiate Containment Spray Loop C in Torus Cooling	Monitor for expected conditions
c.	Secure one Core Spray Loop	Initiate Containment Spray Loop C in Torus Cooling
D.	Initiate Containment Spray Loop C in Torus Cooling	Secure one Core Spray Loop

					The same of the sa		
Question #							
~~~~~	49 A	Ouest	ion Deve	loner Ini	tiale/Date	e: NTP 2/2	IR/AA
A		- Guooi	IOII DCAC	nober iiii	uais/Date	7. IN IF <i>212</i>	.01U3
Answer							

Knowle	edge ar	nd Abi	ility F	Referen	ce Info	rmation			RO	SRO
							Importa Rating	ance	4.1	4.1
Level	RO			Γier#	1	Group #	1			
Referer	ices		EMO	3-SP25		EMG-SP29				
Explana		not a IAW spray conta spray be m 4 psi adeq pump conta Secu a corr corre All ot not k coolin	EMG y/core ainme y), it p ainta g is re puate c can ainme aring c ntainn ect. cher d now t	edSP25 (e spray ent spray ined in seached) core conditions one conditions one conditions istracto he 4 pu	torus of main pay pumper the randoling is started by pumper tainmed ray pumpers are in the	water level at sooling), it state umps are rund cannot be state direction. It is a solid property of the correct but post of the correct but post it ation or the correct of the correct but post it ation or the correct of the correc	tes that if aning, that arted. IAV It also directly and to another can condition from DW boling is re-	4 contai an addit V EMG- ects that secure so the secontainmons, and m spraysory of spraysory the can	nment SP29 (controlled to the controlled to the	drywell ressure pefore nce ay DW, tiating r A is
Referen provide		NA PRODUCTION NEEDS NO.	m:	None						
Learnin Objectiv	e	Using step in	proce the p	procedu	MG-320 re, and	00.02, evalua apply this ev mergency con	aluation to	nnical ba	asis for nine cor	each rect

Question Source	Bank X  Memory or Fundamental Knowledge		Modified Bank		New	
Question Cognitive Level:				Comprehension or Analysis		X 2:RI
10 CFR Part 55 Content:	55.41	7	55.43			
Time to Complete: 1-2	2 minutes	l				

Question 50 1 Point

The plant was shutdown for a refuel outage and fuel shuffling was in-progress. The beginning-of-shift SRM count rates are provided below:

- SRM 21 75 CPS
- SRM 23 80 CPS
- SRM 22 70 CPS
- SRM 24 55 CPS

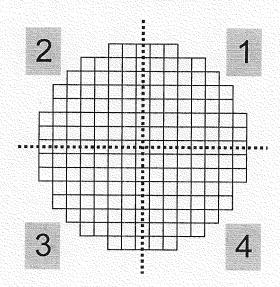
The SRM count rates midway through the shift are provided below:

- SRM 21 575 CPS
- SRM 23 580 CPS
- SRM 22 540 CPS
- SRM 24 520 CPS

In which core quadrant, if any, does the count rate require entry into ABN-7, Unexplained Reactivity Change?

- A. None
- B. 2
- **C**. 3
- D. 4

## Full Core Display



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Knowle	dge a	nd Abi	lity Refe	ren	ice Info	ormation			RO	SRO
295023 Refueling Accide AA1.06 - Ability to operat following as they apply to Neutron monitoring							Importa Rating	nce	3.3	3.4
Level	Level RO		Tier	#		Group #	1			
Referer	nces		ABN-7		<u> </u>	205				
Explanation:		Initia actio core, loade incor loadi calcu Of th 8 tim corre Answ large Answ	cplained I count rans by the land into the rect orieng from lations versions were B & rect.	Reate in the control of the control	activity requires fuel floo ected i acorrect ion, It r manufa n desig evided, al. SRM oth sho om SR	with fuel shufflich Change, any Se entry into the or operators (rondications count core location may also occur acturing process ning the core. Only SRM 24's I is located in own increases in M 24, but not breet. Answer with the core.	SRM which procedure procedure indocur was a resured final court for count ratexceeding	n rises (e, and e) bundle when a fe correct of income of the correct of the corre	3 times manual e from the fuel bunt tocation correct for the correct was more answer final raimes limes limes to the correct for the correct f	the ne dle is on but uel re than D is
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Learnin Objectiv	'e	Given	328.0.00 a set of ermine lir	syst	em ind	-10445 ications or dat s and system s	a, evaluat	e and ir	nterpret	them

Question Source	Memory or Fundamental Knowledge		Modified Bank	X	New	
Question Cognitive Level:			X 1:P	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	7	55.43			

Question 51 1 Point

The plant was at rated power when Torus water began to lower uncontrollably. The time line of the event is provided below: (T is in minutes)

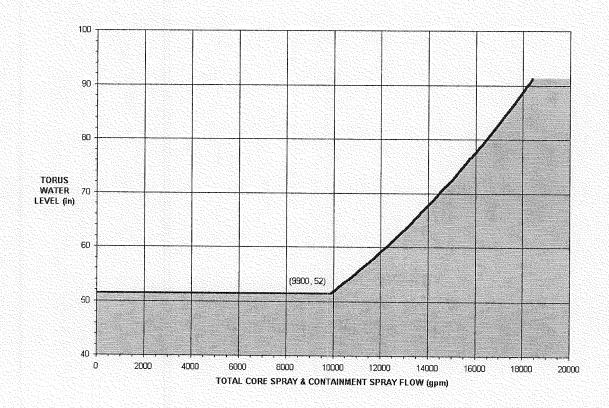
- T = 0 Torus water level indicates 153"
- T = 20 Torus water level indicates 133"

Assume that the Torus water level lowers at a constant rate.

Which of the following is correct (See Attached)?

- A. At T = 26, the Torus Vent Valves are unavailable.
- **B.** At T = 35, the function of the Downcomers is lost.
- **C.** At T = 45, **ALL** Core Spray Pumps are unavailable due to Vortex concerns.
- **D.** At T = 70, the EMRV Quenchers are uncovered.

# Core Spray Vortex Limit



Question # 51 D Question Developer Initials/Date: 3/1/09		
Answer	Question Developer Initials/Date: 3/1/09	'   '   '   '   '   '   '   '   '   '

Knowle	dge ar	nd Abi	lity	Referen	ce Info	ormation			RO	SRO
295030 EA2.01 following	Low S - Ability as the	Suppre y to de ey app	ssio tern	n Pool W	/ater L or inte	evel rpret the ESSION	Import Rating		4.1	4.2
Level	RO			Tier#	1	Group #	1			
Referen	ces		EC	P Bases		EMG-SP4		3E-20	0-08-0	16
Explana	tion:	From 143" equal torus unco Whe water correction water incor When water water water water water the state of t	n the [EC] te to dow was was verect. Ans r lev r lev r lev vort	e informa DP entry] D 10"/10 incomers ter level ted when ted when tel, the E swers A incel, the function in tel core sidex conce	tion given to the correct to the cor	cower when to ven, the drop minutes; 143" as or 1"/minute me uncovered 110", and the level drops to orus water level drops will come disabled rect.  Water level is 1 of the downcover water level is 1 ortex is not a cen torus water	in water leto 133" in e).  and lose EMRV quality go"  el is 83" (be uncover)  di when to 18" (153 comers is secondern (	evel is 1' 10 minu their fur uencher 153 – 70 vered. Ar rus wate – 35 = 1 still intac – 45" = IAW EM	"/min (19) utes; both action while beth action while beth beth action while beth beth action while beth action while action while beth action while action while beth action while action w	53" to th hen come At this is this er B is At this
Reference provided			m:	None						
Learninç Objectiv	e	Using step in	prod the	procedu	MG-32 ire, an	0 200.02, evalua d apply this ev mergency cor	/aluation	chnical b to deterr	asis for	each rect

Question Source	estion Cognitive Memory or		Modified Bank	I	Х	New	
Question Cognitive Level:					ompreh Analys		X 3:SPK
10 CFR Part 55 Content:	55.41	10	55.43				
Content: Time to Complete: 1-2		10	55.43				

Question 52 1 Point

The plant is at rated power. Which of the listed events will **ALWAYS** result in the following annunciator alarming:

- GENERATOR MN FIELD BRKR TRIP
- A. RPV water level 142"
- B. RPV pressure 1050 psig
- C. Startup Transformer SA lockout
- D. Moisture Separator Drain Tank high level

Question #	52 B Question Deve	eloper Initials/Date: NT	P 3/1/09
Answer			

Knowle	dge ar	nd Abi	lity Refe	ence li	nformation			RO	SRO
295005 Main Turbine Gene AA2.04 - Ability to determin following as they apply to M GENERATOR TRIP : Reac				ne and/or interpret the MAIN TURBINE			Importance Rating		3.8
Level	RO		Tier	# 1	Group #	1			
Referen	ces		ABN-10	I-10 LP 8280050 RAP-H				H1f	
Explana		every ques gene Whe which annu An R subs opera cann is no Answ At raiscrar will. A turn not fr sepa level, incor	y turbine tion asks rator trip. n RPV properties will the receiver A is inted power A is interest.	essure a generative de la generative de	ckout of startup A lockout on the	gize this a nts will re sig, an au and gen orrect. o initiate a trip at a le g a scran t is being will alwa transforr e main or a moistur ank high les in a moi	annunciate sult in a sult in a scram auto scram auto sevel of 14 approach ys result mer will ne auxiliary se separa level. If the sture ser	tor. So, tor	the cur, ne nd nual vel there am. t in a rmer level, ture
Referen provide			m: Nor	ie .					
Learnin Objectiv					49-10449 interpretation of	svstem a	alarms a	lone an	d in

Question Source	Bank		Modified Bank		New	Х
Question Cognitive Level:	Memory or Fundamental Knowledge		1:F	Compr or Ana	ehension lysis	
10 CFR Part 55 Content:	55.41	10	55.43			

Question 53 1 Point

The plant was at near-rated power with main generator voltage control in MANUAL.

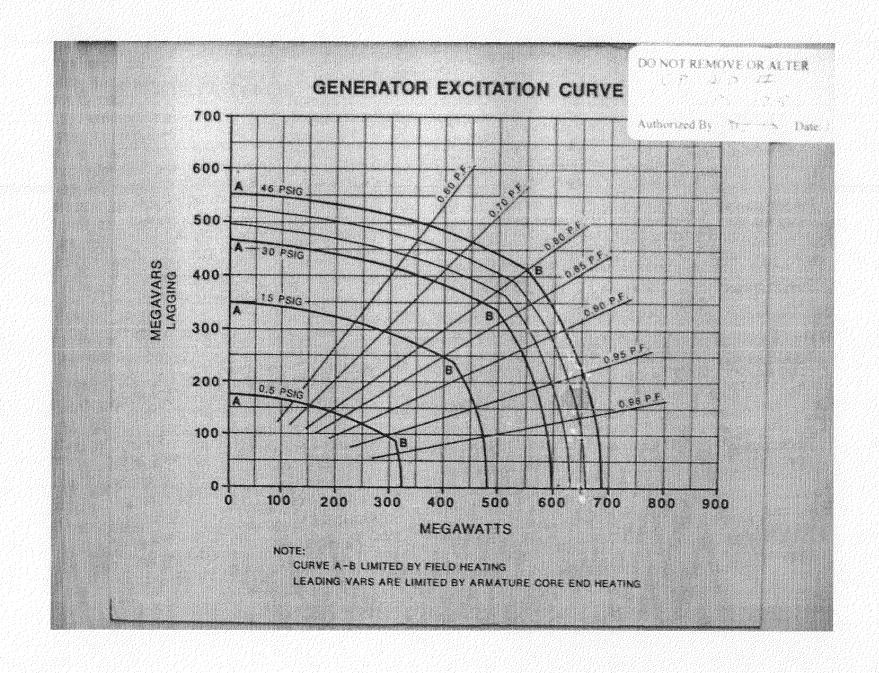
The following plant conditions currently exist:

- GROSS MEGAWATTS indicates 600 AC MEGAWATTS
- MEGAVARS indicates 125 MEGAVARS OUT
- HYDROGEN PRESS indicates 45 psig

The System Owner/Dispatcher has notified the Control Room of an electrical grid disturbance due to the trip of 2 generating units. You are requested to raise the plant MVAR OUT loading.

Which of the following states the **MAXIMUM** allowable generator MVAR loading (OUT) and how MVARs is adjusted by the CRO? (Assume a constant MWe loading) [See attached]

Maximum MVAR (approx)	<u>How Adjusted</u>
<b>A.</b> 385	Adjust the AMPLIDYNE ADJUST rheostat
B. 335	Adjust the EXCITER FIELD RHEOSTAT CONTROL 70M switch
<b>C</b> . 335	Adjust the AMPLIDYNE ADJUST rheostat
D. 385	Adjust the EXCITER FIELD RHEOSTAT CONTROL 70M switch



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	5787678123683688844484878481 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	[통진] 등 보고 있는 모든 사이 하면 있다. 하기를 받는 사람들이 되는 사람들이 되었다. 하기 중요한 사람들이 되었다.	
A4:4			
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Answer			
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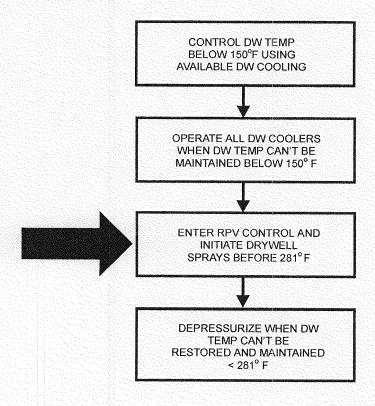
Knowle	dge ar	nd Abilit	y Referer	ice Inf	ormation			RO	SRO
Disturba AA2.01 - following AND EL	nces - Ability I as the ECTRI	y to dete ey apply C GRID	rmine and to GENEI DISTURE	e and Electric Grid  ne and/or interpret the GENERATOR VOLTAGE STURBANCES: Operating ability curve.					3.6
Level	RO		Tier#	1	Group #	1			
References 336.1									
Explana	tion:	switch. maximis about The oth MVAR which is	From lool um MVAR it 340 MV/ ner answe loading. If	king at as at a garage ARs. A rs either the care the 3	CITER FIELD the supplied given 600 MW nswer B is incorrect list the incorrect ndidate misres 350 line or 3355.	generator of le at 45 psi orrect. rect switch ad the grap	apabiliting hydromother the contraction or the cont	ty curve ogen pre incorred max loa	the essure ot dina
Reference provided			None:						
Learning Dbjective  2621.828.0.0025 LO 248-1 Given a set of system indicate to determine limits, trends				-10445					

Question Source	Bank		Modified Bank		New	X
Question Cognitive Level:	Memory Fundan Knowle	nental		Comp or Ana	rehension alysis	X 3:SPR
10 CFR Part 55 Content:	55.41	5	55.43			
Time to Complete: 1-2	2 minutes	1				

Question 54 1 Point

The overview of the Drywell temperature control leg in the Primary Containment Control EOP is shown below.

IAW the EOP Users Guide, which of the following states the bases for entering the RPV Control EOP in the 3<sup>rd</sup> box below?



- **A.** It ensures a reactor scram is initiated before the Drywell Air Coolers are tripped in later steps.
- **B.** It ensures a reactor scram is initiated before the Recirculation Pumps are tripped in later steps.
- C. It ensures the reactor is in the lowest energy state to reduce any impacts on the Secondary Containment.
- **D.** It ensures the reactor is in the lowest energy state prior to meeting any requirement to initiate boron.

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sanon pevelopel II	iiuais/Date: I	NIP 3/2/09
<b>)</b> (	stion Developer Ir	stion Developer Initials/Date: I

Knowie	age ar	ia Ability	/ Keterer	ice Into	ormation		RO	SRO		
295006 2.4.18 - the spec	Emerg		cedures . OPs.	/ Plan:	Knowledge of	Importance Rating	3.3	4.0		
Level	RO		Tier#	1	Group #	1				
Referer	ices									
Explana	ition:	reactor in later prior to incorrect Any prir RPV proprimary primary reason boron in reactor but this	scram is steps. Re initiating of. mary leak essure. Teaks into coolant leat this stepower an is not the	initiated period in the hus, repeaks in the eaks in the emperated more basis	d before the Retion pumps and rays. Answer Esecondary conducing the eneecondary contate the secondary Contate Primary Contature limit, used margin is achi	er RPV Control escirculation Pumed DW air coolers is correct and a tainment would largy in the RPV valuement. Answer ary containment, ainment Control in ATWS events leved as power gothe Primary Control in Primary Control in ATWS events leved as power gothe Primary Control in ATWS events leved as power gothe Primary Control in ATWS events leved as power gothe Primary Control in ATWS events leved as power gothe Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as power gother Primary Control in ATWS events leved as pow	ps are transwer A  De impact  Vould he  C is true  but it is  EOP. To  s, is base  eets sma	ipped ced is cted by lp with e for nit the ne ed on iller.		
Referen provide		be ng exam:	None							
Courses of action under emerger					200.02, evaluated apply this evaluated	aluation to deteri	asis for	each rect		

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tal	X 1:B	Comprehension or Analysis		
)	55.43			
	tal )	tal 1:B	tal 1:B or Analy	tal 1:B or Analysis

Question 55

The plant was at rated power when an event occurred requiring the Operator to insert a manual scram. The scram attempts failed and an electric ATWS was in-progress.

Which of the following actions is available to insert the control rods **AND** what indication will be available that shows the action will be successful?

	Required Action	Indication of Success
A.	Vent the Scram Air Header	Annunciator CONTROL AIR PRESS LO will alarm
В.	Vent the Scram Air Header	RPS 1/RPS 2 SCRAM SOLENOIDS will <b>DE-ENERGIZE</b>
c.	Open the individual Scram Test Switches	RPS 1/RPS 2 SCRAM SOLENOIDS will <b>DE-ENERGIZE</b>
D.	Open the individual Scram Test Switches	SDV ISOLATION will show the SDV valves <b>CLOSED</b>

		Annual Section 1999
	[18] 이 사람들은 얼마 하나 못 하다면서 가게 얼마를 하는데 하나 하지 않는데 하는데 하는데 하는데 하는데 하는데 하는데 하는데 하는데 하는데 하	5, 15, 15, 15
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Question #	(2) [ - P. L. C.	
55 A	Ounction Davidonar Initials/Data - NTD 2/2/20	
00	Question Developer Initials/Date: NTP 3/2/09	
		100
Answer I		
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Power A 2.4.35 - local au	Nbove / Emerg xiliary (	APRM D gency Propertor	tions Pres ownscale ocedures / tasks duri al effects.	or Unki ' Plan: I		Importa Rating	ance	3.8	4.0
Level	RO		Tier#	1	Group #	1			
Referer	ces	S	SP-21	-	237E566 sh	ı. 3	2013	sh.6	= 0 to 1 to
Explanation:		Soleno in an e scram the EO When to control air presalarm, normal Venting the Grobefore	ids remaind lectric AT\ test switch in the plate in the scrame air and the scrame is drawn. Are scramed the scrame at the scrame and the scrame are solenows.	n energ WS (ver nes). Ver nt. air hea e scran opping, nciator nswer A n air do bid light	e-energize and ized. Both of the the scram aidenting the scram aidenting the scram der is vented and valves will retain the Control Aidential is normally not a scorrect.  Des nothing to des (ie, RPS remaindications rerescribed)	ne actions r header m air hea  and isolate position r Press L t-alarmed  change the pains ene	s stated opening der is posent der is stated	can be the income will ventus of air. aciator ventual state s it was	used lividual d by t all When vill on a
		Opening an individual scram test switch acts to de-energize the scram pilot valves for the selected HCU. It does de-energize the group solenoid lights. Answer C is incorrect.							
		On a normal scram, the solenoids to the SDV valves become de- energized and the valves will close. On an electrical ATWS, they remain energized and open. The individual scram test switches have no impact on these valves and they remain open, even though each scrammed control rod delivers hot water to the SDV. Answer D is incorrect.							

Learning Objective	용면하다. # 요즘 아마리 전화면 전환 보다는 " (C. C. C							
Question Source  Question Cognitive Level:		Bank		Modified Bank	3	New	X	
		Memory or Fundamental Knowledge				rehension alysis	X 3:PEO	
10 CFR Part Content:	55	55.41	10	55.43			1	

Question 56 1 Point

The plant was at rated power when the Operator reported the following:

- RPV pressure has lowered to 1010 psig
- Generator electric indicates 585 MWe
- REACTOR FEEDWATER INLET TEMP indicates 302 °F
- The ROD DRIFT annunciator is NOT alarming
- CORE ΔP has lowered by 3.3 psid

Which of the following states the event that has occurred and the required action? (Assume that **NO** Operator actions have occurred)

	<u>Event</u>	Required Action
Α.	A Feedwater heater(s) has tripped	Reduce power to prevent exceeding rated power
В.	The EPR setpoint has drifted	Place the MPR in service to prevent further changes
c.	Several control rods have moved inward several notches	Manually scram the reactor to ensure the reactor is in an analyzed state
D.	A recirculation pump has tripped	Close the affected pump discharge valve to prevent windmilling the pump

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Question #						
	Question	m lanalar	and the street		rn 9/9/00	
I VV D	<b>Wucauu</b>	II L/EVEIUL		5/1/24110 IN	1 - 3/////	
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I A						
I Answer						
		The second of th				

Knowle	dge ar	nd Ability	Referen	ice Inf	ormation			RO	SRO
Flow Cir 2.2.44 A verify th understa	culation to the status of the	n o interpre s and ope	t control reration of or actions	oom ir a syst	ced Core ndications to em, and irectives affect	Rating	Importance Rating		4.4
Level	RO		Tier#	1	Group #	1			
Referen	ces	Si	mulator		301.2		ABN-2	2	
Explana	tion:	Indication 1010 ps 585 MW about 3 show a partial lo indication of the indication of	ons show ig; gener /e; FW te 12 °F to 3 lowering oss of forens. Answheater tripower. If action. Ar setpoint or electrice would rit.  power, the to move ator woul	the foll ator elempera 302 °F; of read color er D is pped, this occurrent for this occurrent factorint fac	power when incoming: RPV has ectric has lowed ture entering the and core ΔP has correct. Then colder was ecurred, then colder was ecurred, then lowed in such a variable in such a variable. If it went a leectric output to alarm. A manufiting. Answer Desire in the entering of the enteri	as lowered red from a ne reactor as lowered ss of a rebe indication the wering red ay to call the other twould drawled to the continual scram	d from 1 about 64 has dro ed. Thes circulati ive of the e RPV v actor po e and el for the re would directio op. Ans elected rol rod o is requi	020 ps 40 MWe opped fr se indica on pum ese  vould re ower is t ectrical turbine d drop, I n, then wer C is . If any drift	ig to e to com ations p (a esult in the out RPV s
Referen provided		be ig exam:	None			indicates and the second secon			
Learning Objectiv		2621.828 Describe			-10450 ocedure sectio	ns and ste	ens for r	dent	

personr	nel allocatio	on and eq	uipment ope	ration IAV		
urce	Bank		Modified Bank	ı	New	X
Question Cognitive Level:		Memory or Fundamental Knowledge				X 2:DR
55	55.41	5	55.43			
	personr EOP & urce gnitive	personnel allocation EOP & EOP Supp  urce Bank  gnitive Memory Fundan Knowle	personnel allocation and eq EOP & EOP Support Proces  urce Bank  gnitive Memory or Fundamental Knowledge	personnel allocation and equipment ope EOP & EOP Support Procedures and El urce  Bank  Modified Bank  gnitive  Memory or Fundamental Knowledge	personnel allocation and equipment operation IAN EOP & EOP Support Procedures and EPIPs.  urce Bank Modified Bank  gnitive Memory or Fundamental Knowledge  55	urce Bank Modified Bank New  gnitive Memory or Fundamental Knowledge Comprehension or Analysis

Question 57 1 Point

A fire was detected in the 4160V C Vault. The fire suppression system was manually activated.

Which of the following cautions apply prior to entering the room?

Caution must be exercised due to the effects of the fire suppression of ....

- **A.**  $CO_2$  in the atmosphere.
- B. halon in the atmosphere.
- C. water spray on energized circuits.
- **D.** water spray and flooding of other areas.

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	Nucetion #   Section #
	Question # 57 A Question Developer Initials/Detail NTD 3/3/00
1	57 A Question Developer Initials/Date: NTP 3/3/09
	unswer
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600000					mation		RO	SRO		
AK1.02	- Know wing c	ire On-site ledge of the operation applications of oncepts as they apply to Plant Fire On						3.1		
Level	RO		Tier#	1	Group #	1				
Referen	ces	Α	BN-29		333		The first section of the section of			
Explana	tion:	portable pressure the sys Answere Other of to other	e extinguis re CO <sub>2</sub> system was a r A is corre listractors r suppress	shers can stem sha activated ect. are inconsion meth	nnot extinguis II be activate then SCBA rrect but plau nods at the st	C or D, the Alsh the fire, the d. Procedure is required pricessible as it lists ation and if the m is activated.	n the low 333 direct or to entry hazards e candida	s that if		
Referen provided	Some and the second sec	be ng exam	None:	None						
Learning Objectiv	e	Given a	8.0.0019 L set of syst nine limits	em indic		a, evaluate an tatus.	d interpre	t them		
Questio	n Sour	'ce	Bank		Modified Bank	d	New	X		
Level:		Memory Fundam Knowle	iental	1:P	Comprehe or Analysis					
10 CFR Part 55 Content:		55.41	5	55.43						

Question 58 1 Point

The plant was at rated power when a LOCA occurred. Present plant conditions are as follows:

- RPV water level is 10" and lowering
- RPV pressure is 470 psig and lowering
- · All systems are available and operating as designed

In the RPV water level leg of the RPV Control – No ATWS EOP, Emergency Depressurization (ED) is required when RPV water level reaches 0" and an injection source is lined up and running.

Which of the following states the bases for waiting until RPV water level lowers to 0" to ED?

- A. It allows the Operators time to align Condensate Transfer to the Core Spray System.
- **B.** This ensures the peak cladding temperature is limited to 2200 °F while steam cooling.
- C. It maximizes the time that adequate core cooling is assured through submersion.
- **D.** It allows time to initiate Torus Cooling in preparation for the Emergency Depressurization.

Question #	: : : : : : : : : : : : : : : : : : :	200
Question #	58 C Question Developer Initials/Date: NTD 3/3/00	
	58 C   Question Developer Initials/Date: NTP 3/3/09	
	The state of the s	
Answer	20mm   10mm   20mm	
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SOURCE AND ADDRESS OF THE PROPERTY OF THE PERSON OF THE PE		

Knowle	dge aı	nd Ability	Referen	ce Info	rmation			RO	SRO
EK3.02 - response	Know es as t	or Low Wa vledge of they apply coverage	the reaso	er Level e reasons for the following o REACTOR LOW WATER			ance	4.4	4.7
Level	RO		Tier#	1	Group #	1			
Referen	ces	E(	OP Users	Guide		1			***************************************
Explana		10" and head of IAW the and ade until ade cooling top of ac decreas attempt the core has decided until ade cooling top of ac decreas attempt the core has decided until ade cooling top of ac decreas attempt the core has decided until ade cooling top operation condens. As stated below Tanot excelled to Tanot excelled t	lowering the running the running the running the running equate constructive fueling to restore with steament and ensate in the reased in the running as designate transition of the running ed 1800 D is incorrus Cook the running construction of the running ed 1800 D is incorrus Cook the runn	and RP ng core ers guide re cooling re cooli	when a LOCA V pressure is spray pumps e, the core re ig is assured. Ing is threaten long as RPV the time during st be used to in sources; an m cooling) or per region. Ar er to inject inte ate injection s is not correct tion. Answer cooling is only am cooling, of wer B is incor to plausible sin	currently mains covered becaused becaused becaused becaused becaused becaused becaused becaused by the RPV cource. But to secure A is incorrect becaused because	above vered (sold not be see adeceding the upon RPV of throught, with expected and RPV expect.	ubmerg e perfor quate co ns abov er level lineups oper por water le t. h the co core spo oray to a	ed) med ore te the tion of vel allow evel is uld
Referenc provided		be ig exam:	None						
Learning Objective	•	2624.845. Given a co	opy of RF	PV Conti	ol, describe i	n detail eal basis, a	ach ster	or to perfo	orm

Question Source	Bank	ired.	Modified Bank	<b>y</b>	New
Question Cognitive Level:	Memory Fundan Knowle	nental	X 1:B	Comp or Ana	rehension alysis
10 CFR Part 55 Content:	55.41	5	55.43		

Question 59 1 Point

The plant was starting up after a refuel outage. Present plant conditions are as follows:

- Control rod withdrawals are in progress
- The SRMs have each increased by a factor of 16 (4 doublings)

If a control rod drop accident were to occur on a control rod indicating full out, and the reactor goes prompt critical, which of the following states how the rod drop accident should have been **PREVENTED AND** how the plant responds to the event?

	<b>Accident Prevention Method</b>	<u>Plant Impact</u>
A.	Successful completion of the RWM operability test	Plant scram on SRMs
В.	Successful completion of the RWM operability test	Plant scram on IRMs and/or APRMs
C.	Successful coupling check of fully withdrawn control rods	Plant scram on SRMs
D.	Successful coupling check of fully withdrawn control rods	Plant scram on IRMs and/or APRMs

Question #		
Answer	59 D	Question Developer Initials/Date: NTP 3/3/09

Knowle	dge ar	nd Ability	y Referen	ce Info	rmation			RO	SRO
AK1.01 of the fo	Knov- Ilowing	vledge of concept	activity Ad f the opera ts as they TIVITY AD	ational i apply to	3.7	3.8			
Level	RO		Tier # 1 Group # 2						
Referer	erences TS Table 3.1.1 ABN-6 302.2								
Explana	ces to	indicate reactor reactor the IRM IRMs a stop the To expethe conblade in at the fifalls to IAW 30 check pits drive the coulinserted Because incorrect The RV rod. The drop at B are in the be	es full out, goes pror power. The sand AP and probable rise in period by the full out post the SRM of the S	experiempt crithe SRMs. Foly the Allower. rod drower. rod drower ade musomewsition, the position, the position, which N-6, if a ck at the D is colon digned to limit	ithdrawn contr verifies the co an uncoupled e current powe	ol rod dro result in a ride any s past the past the rothings r ncoupled to re. At a la blade bed rol rod sha control rod control rod er level, the scram sign punt of rea f power ris	p accided very ray cram fur scram port all corrections its attentiones under the control of the	ent and to pid rise notion action act	the in s do he s to lace: nd the ne drive and ing ed to during fully
provide	d durir	ng exam	• 100 mg						
	g		8.0.0029 L						

Objective	compor	Describe the interlock signals and setpoints for the affected system components and expected system response including power loss or failed components.								
Question Sc	ource	Bank	×	Modified Bank	y	New				
Question Cognitive Level:		Memory Fundan Knowle	iental		Compor Ana	rehension llysis	X 3:PEO			
10 CFR Part Content:	55	55.41	10	55.43						
Time to Con	nplete: 1-2	2 minutes								

Question 60 1 Point

The plant was at rated power when the Control Room was notified by the Radwaste Operator of the following annunciator alarming:

1-7 SUMP REACTOR BLDG FLR DRAIN SUMP HIGH LEVEL

## Answer the following:

- 1. Which of the following states why Sump 1-7 was specifically chosen (as compared to other RB sumps) as an entry into the EOP?
- 2. What automatic actions occur to alleviate the condition for which the EOP is entered?

	Reason Sump 1-7 Chosen	<u>Automatic Actions</u>
A.	Sump 1-7 is the <b>SMALLEST</b> RB sump	The sump pump starts <b>AND</b> several sump inputs are isolated
В.	Sump 1-7 is the <b>ONLY</b> RB sump with a high level alarm	The sump pump starts <b>AND</b> the Bypass Drain valve <b>OPENS</b>
C.	Sump 1-7 is the <b>SMALLEST</b> RB sump	The sump pump starts <b>AND</b> the Bypass Drain valve <b>OPENS</b>
D.	Sump 1-7 is the <b>ONLY</b> RB sump with a high level alarm	The sump pump starts <b>AND</b> several sump inputs are isolated

			THE RESIDENCE AND ADDRESS.
Question #			
30030011 77   60	D   Question Deve	loper Initials/Date: NTP 3/3/09	
Answer			
Allawei			

Knowled	dge ar	nd Abili	ity F	Referen	ce Info	rmation			RO	SRO
Water Le EK2.01 SECONI WATER	evel - Knov DARY LEVE	wledge CONTA L and th	of th AINI ne fo	inment High Sump/Area  Rating  ne interrelations between MENT HIGH SUMP/AREA collowing: Secondary and floor drain system				ince	3.1	3.2
Level	RO		Tier # 1 Group # 2							
References JC 147434 sh. 3						RAP-RB10	C(1-7)			
Explanation: IAW it is is co		IAW to the second secon	o 1-6 ng tl he E re or rect.	is and flo he high EOP Use nly RB s answers	or drair water o ers Gui ump w are ind	level, the sum are isolated condition in the de, Sump 1-7 hich is instrurtorrect but plad the system	. These ac e sump. ' is specific nented with	tions w ally cho h an ala	ill help i osen be arm. An	n cause swer D
References to be provided during exam:										
Learning Objectiv	Using the	he S al b	asis for	ary Con each si	2 tainment Con tep and apply on under eme	this evalu	ation to	determ	iine	

Question Source	Memory or Fundamental Knowledge		Modified Bank		X	New	
Question Cognitive Level:			X 1:F	Comprehension or Analysis			
10 CFR Part 55 Content:			55.43	ı			

Question 61 1 Point

The following is a partial summary of steps contained in the temperature leg of the Secondary Containment Control EOP:

# IF A PRIMARY SYSTEM IS DISCHARGING INTO SECONDARY CONTAINMENT

- BEFORE TEMPERATURE REACHES A MAX SAFE VALUE THEN ENTER RPV CONTROL – NO ATWS
- 2. IF TEMPERATURE EXCEEDS A MAX SAFE VALUE IN 2 AREAS, THEN EMERGENCY DEPRESSURIZE

IAW the EOP Users Guide, which of the following states the bases for Emergency Depressurization above?

- It places the RPV in the lowest energy state
- 2. It reduces the driving head on primary systems discharging into the Secondary Containment
- 3. It allows RPV injection from low pressure systems to makeup for the primary system leak
- 4. It minimizes the amount of energy available to be deposited into the Primary Containment
- A. 1 ONLY
- B. 1 AND 2
- C. 2 AND 3
- **D.** 1, 3 AND 4

Question #	
61 B	Question Developer Initials/Date: NTP 3/3/09
Answer	
/\!\V\V\	

Knowle	dge a	nd Abilit	y Referen	ice Info	rmation			RO	SRO
Temper EK3.01 respons CONTA	ature - Knov es as t INMEN	vledge of they app NT AREA	ry Contair f the reaso ly to HIGH TEMPER pressurizat	ons for th SECON	e following	Importa Rating	ance	3.5	3.8
Level	RO	O Tier# 1 Group# 2							
Referer	ices	E	OP Users	Guide					
Explana	tion:	integrit continu ED will driving the sec answer It is true system Answer ED is p	that is por y, equipment led safe of place the head and condary co A (1 only) e that lower s available C is incor erformed le to be relea	ses a direct locate peration. plant in flow from the incorporation RP for RP for RP for the for the Torect (2 and the Torect for the Torect f	its lowest en in primary sy nt. Answer B rect. V pressure w V injection, b	ergy state stems that 3 (1 and 2) will make a ut it is not not reduce	and will are distinction is corrected the base eleases enthe are the are	nment ent or I reduce chargin ect and e, low process for the	e the g into essure ne ED. ergy f
Referen provided		be ig exam	None:						
Learning Objectiv	e	Using the	basis for	iry Conta each ste	ainment Con p and apply under emer	this evalua	ation to	determi	ine

Question Source	Bank		Modified Bank		New	Х
Question Cognitive Level:	Memory Fundan Knowle	nental	X 1:B	Comp or Ana	rehension alysis	
10 CFR Part 55 Content:	55.41	5	55.43			

Question 62 1 Point

The plant was at rated power with the MASTER FEEDWATER LEVEL CONTROLLER in MAN when a Recirculation Pump tripped. The operator noted the following:

RPV water level peaked at 183"

Which of the following states the expected automatic plant response from this event? (Assume **NO** Operator action)

- The MFRV A LIMIT, MFRV B LIMIT, & MFRV C LIMIT lights ENERGIZE and remain ENERGIZED
- 2. ALL Feedwater Pumps indicate RED light OFF and GREEN light ON
- 3. ALL MSIVs indicate RED light OFF and GREEN light ON
- 4. ALL Turbine Reheat and Intercept Valves indicate RED light OFF and GREEN light ON
- 5. MAIN BREAKER 1A AND 1B indicate RED light ON and GREEN light OFF
- A. 2 and 4
- **B**. 2 and 5
- **C.** 1, 2 and 3
- **D.** 2, 4, and 5

Question #		
I 777   62 A	Question Developer Initials/	Date: NTP 3/4/09
Answer		
Allawei		

Knowledge and Ability Reference Information							RO	SRO
AA1.03 followin	B - Ability to g as they	actor Water Lev o operate and/o apply to HIGH F am system	r mon		Importa Rating	ance	3.1	3.1
Level	RO	Tier#	1	Group #	2			
Referer	nces	ABN-10		RAP-H5d RAP-H5f		RAP-		

The plant was at rated power with FW level control in manual when a recirculation pump tripped. With reactor power reduced and FW at the rated power flow, RPV water level will rise. RPV water level peaked at 183" which results in a turbine trip at 175" and Reactor Overfill Protection (ROPS) activation at 181", which results in the trip of all operating FW pumps (ROPS is automatically bypassed when total FW flow is < 2.23 million lb/hr, but this is not the case here). When the turbine trips, all reheat and intercept valves go closed. Also when the turbine trips, main breakers 1A and 1B open and Startup Breakers S1A and S1B close to supply power to the station from the startup transformers.

# **Explanation:**

At rated power, feedwater total flow is about 7.2 million lb/hr evenly distributed among the 3 FW pumps and so each FW pump flow is about 2.4 million lb/hr flow. It is conceivable that when the turbine tripped at 175" and reactor scrammed, that FW flow could rise since RPV pressure has lowered. The MFRV LIMIT lights, which are normally de-energized, will energize when an individual FW pump flow reaches 2.76 million lb/hr flow. If each individual FW pump flow did rise to this limit right after the scram, then this runout protection clamps flow at the limit. But as flow rose to 183", all FW pumps will trip. The runout MFRV LIMIT lights will then de-energize as flow goes below the limit.

There is no automatic closure of the MSIVs on high RPV water level.

Therefore, the following is correct:

- Selection 1 is false (MFRV LIMIT lights do not remain energized)
- Selection 2 is true (all FW pumps are tripped)

	•	Selection :	3 is false	(MSIVs are c	ppen)		
		Selection ( closed)	4 is true (	turbine trip w	ith rehe	at/intercept va	alves
		Selection of A is corre		(main breake	ers 1A,	1B are open)	
References provided du		None					
Learning Objective	Describe	28.0.0055 I e the interl			ints for	the affected sy	/stem
		ents and e emponents			onse inc	luding power	
Question Sc	failed co					New	
Question So Question Co Level:	failed co	omponents	y or nental	Modified	I Com		loss or
Question Co	failed co	Bank  Memory Fundan	y or nental	Modified	I Com	New prehension	x X

Question 63 1 Point

The plant was at rated power when the MSIVs inadvertently and **SIMULTANEOUSLY** closed. The Operator makes the following report:

- EMRVs are cycling open (for 12 seconds) and closed (for 15 seconds)
- ISOL CONDENSER SHELL A AND B indicate 205 °F and rising
- The EDGs are in standby

Which of the following is correct for the conditions provided? (Assume  ${
m NO}$  Operator actions)

- **A.** An ATWS has occurred with power < 2%.
- B. An ATWS has occurred with power > 2%.
- **C.** This is normal for an isolated full power scram.
- D. Reactor power can be reduced with Recirculation flow AND control rods.

Question a	#   B		
	63 B	Question Developer Initials/	Date: NTP 3/4/09
Answer			

Knowle	dge an	ıd Abilit	ty Referen	ce Info	ormation			RO	SRO	
AA2.02 following	Imp AA2.02 - Ability to determine and/or interpret the ollowing as they apply to HIGH REACTOR PRESSURE : Reactor power  evel RO Tier # 1 Group # 2							4.1	4.1	
Level	RO		Tier#	1	Group #	2				
Referen	ces	2	120	USAR Table 5.2-1						
Explana	tion:	EMRV conder tempe RPV properties that the stands level to contain low contain	's are cyclinnsers are in rature). The ressure (1 nave initiated by (EDGs wow-low; sind the rest and at term an ATWS liately on 1 pressure that pressure tha	ng on he service isolated on Foundating about EMRV WS had answer of the control o	or scram. But high RPV presce (as evidence tion condense ig) or RPV was start on a high re are no indicate then there must always cycling, there is occurred with A and C are induce power. But is grecirculation duce power. But is already trippeditions for 12 nswer D is incomplete.	sure, and sed by the rs automa ter level los sure since in DW presentions of a stions of a stions of a stions of steam power is high power sincorrect.  If of steam is a power is a power sincorrect.  If of steam is a power is a power sincorrect.  If of steam is a power is a p	both ison high shitically in the ED sure or any primary was m. With at least till above the culation the other EMRVs	blation nell watenitiate on the Series are RPV who hary ter level both in the Series are open	er n high ne ICs in ater all low- Answel I rods trip s trip if	
Referen provide			None							
Learning Objectiv	e	Given a		PV Coi	55A ntrol With ATW including tech					

each ste	ep as requi	red.				
rce	Bank		Modified Bank		New	×
nitive	Memory or Fundamental Knowledge		어느 경험에 가는 것이 하는 것이 하는 것 같아요. 그는 그는 그는 그는 것이 때문에 살아보고 말했다.			X 3:SPK
5	55.41	10	55.43			
	rce nitive	rce Bank nitive Memory Fundam Knowle	rce Bank nitive Memory or Fundamental Knowledge	rce Bank Modified Bank  nitive Memory or Fundamental Knowledge	rce Bank Modified Bank  nitive Memory or Fundamental Knowledge Compror Anal	rce Bank Modified Bank New nitive Memory or Fundamental Knowledge Comprehension or Analysis

Question 64 1 Point

The plant was starting up after an extended refuel outage. Present plant conditions are as follows:

- Reactor power indicates 50%
- RPV pressure indicates 1000 psig
- Feedwater Pumps A and B are in service
- Condensate Pumps B and C are in service

An event then occurs resulting in the following annunciator alarming:

MN BRKR 1B 86 LKOUT TRIP

Which of the following states the impact on the plant? (Assume  ${
m NO}$  Operator action unless stated)

- A. Feedwater Pumps A and B will trip
  - The reactor will scram on RPV low water level
- Feedwater Pump B will trip
  - Feedwater Pump A will remain running
  - The reactor will scram on RPV low water level
- C. RPV water level will lower
  - The Operator can start the standby Feedwater Pump
- D. RPV water level will lower
  - The Operator should insert a manual scram due to the loss of Recirculation Pumps C and E

			***************************************	
Question #	64 Δ		D FROM A R. DANIEL NO.	
	64 A	Question Developer Initi	als/Date: N I F	' 3/4/09
Answer				

Knowle	edge ar	nd Ability	Referen	ce Info	ormation		RO	SRO
2.4.31	- Emer iator ala	Reactor W gency Pro arms, indic	cedures	/ Plan:	Knowledge of onse	Importance Rating	4.2	4.1
Level	RO		Tier#	1	Group #	2		
Referer	The plate power. 1B. When we will end the power. This will trip of recover.	AP-T2c		RAP-J1d				
Explana		1B. Whe & C, rec a loss of still ener This will trip of re water led Because incorrect Because Bus 1B vincorrect ABN-2 re But recir are still e	en this oc irculation f both run gized, was leave the circulation well will lo e Feedwa t. e the star which ha t. equires a culation energized	ccurs, for pump aning control in the	eedwater pumps B & D, and or ondensate pumper low suction a cor still at power ps B & D, with till the scram semp A trips on low edwater pumper lower, Pump C al scram if multiple C & E are power in the scram if multiple cor in the scram if multiple corrections in the scram in the scram is scram if multiple corrections in the scram in the scra	age and lockout os B & C, conder ther loads on Bunps, the FW purposes the FW p	nsate puris 1B trip  np A, who time delection. For a is corrower B is  is powered. Ansvered. Ansvered. Ansvered. Ansvered. Bus 1A	imps E b. With ich is ay. to the RPV ect. red by ver C i
Referen provide	State of the state	be ng exam:	None					
Learnin Objectiv	ve	2621.828 Given the signals, s loss or fai	system etpoints,	logic/el and ex	lectrical drawin	gs, describe the response includ	system ding pow	trip ver

Question Source Bank			Modified Bank	'	New	Х
Question Cognitive Level:	Memory Fundan Knowle	nental		Compor Ana	rehension alysis	X 3:SPK
10 CFR Part 55 Content:	55.41	10	55.43			
Time to Complete: 1-2	2 minutes		l l			

Question 65 1 Point

Which of the following states the required **LOGIC** to **IMMEDIATELY** initiate the Standby Gas treatment System?

High trip of the .....

- A. Refuel Floor Radiation Monitor C9 OR B9
- B. Refuel Floor Radiation Monitors C9 AND B9
- C. Reactor Building Vent Manifold Radiation Monitor 1 OR 2
- D. Reactor Building Vent Manifold Radiation Monitor 1 AND 2

	보고 있는데 100mm 100m	
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	65 C Question Developer Initials/Date: NTP 3/5/09	
저 말이 살림을 내가 보고 있다는 때 마음이 되었다. 바쁜		- 1
IAnguar	성분의 열차면 화했다. 영화, 프리프리아 제품 (Hander) 아니라 (Hander) 사람이 있는 사람이 있는 사람이 되었다. 아니라 사람이 사람이 있는 것이 나를 하는 것이 되었다. [Hander]	- 1
Answer	내용하는데 하면 보다 하는데 보다는 그는데 그는데 그는데 그는데 그는데 그는데 그는데 그는데 그는데 그는	
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Knowle	dge ar	nd Ability	Referen	ice Inf	ormation			RO	SRO
Levels EA1.03 following CONTA	- Abilit as th NMEN	y to opera ey apply t IT AREA F	ate and/o o HIGH : RADIATI	r moni SECO ON LE	NDARY	Importa Rating	ince	3.8	3.8
Level	RO		Tier#	1	Group #	2			
Referen	References  RAP-10F1f  A single high trip of any of the radiation monitors listed w the automatic initiation of the Standby Gas Treatment Sy (SGTS). The refuel floor radiation monitors can individua SGTS, but only after a 2-minute time delay. A high trip of RB vent manifold radiation monitors will result in the imminitiation. Answer C is correct.  The other answers are plausible if the Candidates confus								
Explana	tion:	(SGTS). SGTS, b RB vent initiation	matic init The refu ut only a manifold Answer er answei	lation lel floo fter a radial C is c	of the Standby or radiation mon 2-minute time dition monitors wisorrect.	Gas Trea itors can elay. A hi Il result ir	tment S individu gh trip ( ) the im	System ally initi of either mediate	ate of the SGTS
Reference provided		be ig exam:	None						
Learninç Objectiv	е	2621.828. Given the	system I	ogic/e	-10439 lectrical drawing ts, and expecte	gs, descri	be the s	system :	auto

Question Source	Bank	X	Modified Bank		New	
Question Cognitive Level:	Fundan	Memory or Fundamental Knowledge		Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	7	55.43			

Question 66 1 Point

The plant was at rated power when the following annunciator event occurred:

Bus 1A became de-energized

Which of the following RO actions is correct IAW OP-OC-101-111-1001, Strategies for Successful Transient Mitigation?

- A. Announce the loss of the bus, scram the reactor, then announce the manual scram as an update
- **B.** Announce the loss of the bus and intention to scram the reactor as an update, pause, then scram the reactor
- C. Announce the loss of the bus, pause while RPV water level stabilizes, then report RPV water level actions as an update
- D. Announce the loss of the bus and intention to lower Recirculation Flow as an update, pause, then reduce Recirculation Flow

Question #			
Answer	66 B	Question Developer Initials/Date: NTP 3/5/0	9

Knowie	age ar	III ADIIIT	y Referen	ce imo	rmation			RO	SRO
	nowledg			onsibili	ties during all	Importan Rating	ce	4.1	4.4
Level	RO		Tier#	3	Group #				
Referer	nces		DP-OC-10 001	-OC-101-111- ABN-2			301.2		
Explana	ation:	This read set and set and set and set and set and Reaction IAW Al Operator and set and	emoves por everal Reci- i, for multipar. IAW OP- ention to see to to visual sed action the reactor or A has the mance of the er C could I ulation Pulliparts or C could I ulation Pulliparts is incorrect tor Action ving Recircus e incorrect	wer to reculation of the Recipion of the Recip	ver when power Parent Pumps. An I reculation Pumpt 1-111-1001, the data pause be exhally agree who the action. The is an RO respect actions, but a sanderstood as sentially performative C is incorrespondent of the performation. Answer Electrical performation and the same time of the performation of the per	ump and Commediate (contrips, is to be Operator fore acting, with or disagned incorrect.  It is incorrect, incorrect incorrect since to stabilize the to stabilize the stabilizet.	onden Opera manu shoul This t gree w or will t Answe t metl ce the power ze. Bu e Imm er redu	isate putor Activally scribe allerith the chen mater B is controlly trip of the check and the check are diate and the check are	ump on in ram th state ows anually correct gy for he tion the y ology,
Referer provide		be ng exam	None						
Learnin Objecti		Mass ASSESSMENT CONTRACTOR						7.3.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7	

Question Source	Memory or Fundamental Knowledge		Modified Bank		New	Χ
Question Cognitive Level:			X 1:P	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	7	55.43			
Time to Complete: 1-2	2 minutes			100 TO 100 T		

Question 67 1 Point

The plant was at rated power when the Operator noted the following observations:

- CRD TOTAL FLOW indicates 10 GPM
- CRD FLOW CONTROLLER indicates 100%
- DRIVE WATER FLOW indicates DOWNSCALE
- COOLING WATER FLOW indicates DOWNSCALE
- CLG WTR/REACTOR ΔP indicates DOWNSCALE
- DRV WTR/REACTOR ΔP indicates UPSCALE

Which of the following states the cause for the noted indications and the corrective action?

	<u>Cause</u>	Corrective Action
A.	The CRD <b>FCV</b> has failed open	Place the alternate <b>FCV</b> in service
В.	The CRD <b>FCV</b> has failed closed	Place the alternate <b>FCV</b> in service
C.	The CRD cooling water <b>PCV</b> has failed closed	Establish CRD cooling water on the cooling water <b>PCV</b> bypass valve
D.	The CRD drive water <b>PCV</b> has failed closed	Establish CRD drive water on the drive water <b>PCV</b> bypass valve

		AND DESCRIPTION OF THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON	***************************************	-
Quantina #				
Question #	67 D O			
	67 D Question Developer Initials/	Jate: N I	P 3/5/09	
Answer				
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Knowle	dge ai	nd Abili	ty Referer	ice Info	rmation			RO	SRO
Conduct of Operations  2.1.7 Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretion.								4.4	4.7
Level	RO		Tier#	3	Group #				
Referer	ices		237E487		302.1				
Explana Referen		If the I incorre alternation of the cooling downs would CRD of the cooling FCV of PCV divater I	al expected CRD flow is FCV had farect. FCV had farect. In either ate FCV in cooling water wo cale ΔP or also increasioning water gwater flow pen further id fail close	indication	e indication, Cloon when no count the flow content, it would shan normal, notes and it would in the corrective had failed cloon show a greated upscale on the FCV by iled closed, the stablish flow a flow can be reconstant.	ontrol rod ontrol valve of the sthan andicate no reaction where action where the other, swer C is increased in the set of	motion showing and indicated flow. A could be corrected to the corrected fould be so systematically and the corrected flower fl	is in programmer licated to licated to licated to licated to licated to licated atter and licated action on CR eno	ogress pen. total er A is B is ce the d a low ing n. ED the e wate
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_earning Objectiv	е	Describ emerge	ncy or off-r	pret pro ormal o	o0 cedure sectio conditions that equipment ope	involve th	is syste	em inclu	uding

Question Source	Memory or Fundamental Knowledge		Modified Bank Comp or Ana		New	X
Question Cognitive Level:					rehension Ilysis	X 3:SPK
10 CFR Part 55 Content:	55.41	5	55.43			

Question 68 1 Point

The plant is starting up after a refuel outage.

Which of the following states who can manipulate Reactor Controls?

- A. An Equipment Operator candidate who is being directly supervised by an active licensed operator.
- **B.** An active licensed operator with a corrective lenses license restriction who does not have his glasses.
- C. An inactive licensed operator who is reactivating and who is being directly supervised by an active licensed operator.
- D. A Reactor engineer who has been selected for the next initial license training class who is being directly supervised by an active licensed operator.

Ougstion #				
Question # 68 C	Question Develo	pper Initials/Da	ite: NTP 3/5/0	9
Answer				

Knowle	dge ar	nd Ability	y Referen	ice Info	rmation			RO	SRO
	(nowle	dge of th	e process	orocess for controlling or status.			Importance Rating		4.3
Level	RO		Tier#	3	Group #				
Referer	ices	OP-AA-103-102		10CFR55.	OP-AA-105-102 OP-AA-105-101				
Explana	ition:	controls controls reactor would of IAW the enrolled room in function supervi must be operate It is the operate restricti Only a the con In answ candida	s is related. s. Procedicts. Procedicts. Procedicts. Procedicts and in a liceral anipulations will be a sion of an ereactivator. Answer a consumer on are material and the integrations and in the initial and ini	d to who ures allo (apparated the 103-103 as read ons. IAV perform active ting and r C is constituted in the candidate wer D, and the candidate were candidate were candidate were candidated to the candidate were candidated to the candidated	ning the configure can change by only certain tus and mechange and mechange and inactive ctivation programmed in the presence and increase training part of the system entire training part of the configure part of the system entire training part of the configure part of the configure of the system entire training part of the configure of the configure of the configuration of the config	or manipular individual anisms the lower lever licensed or am to per 102, the lisence and Therefore, rect super leet his license functioning progression of andidate in agineer is	ulate the als to make the make the inactions where the inactions w	reacto anipular eactor) must be ain conto be directive op fan act erictions are manipused opense currentl	r te the ition of e crol ft ct perator ive . The nse pulate perator.
Referen provide			None:						
provided during exam:  Learning 2621.830.0  Objective Assess the					1 nt operations	of a reacti	vity rela	ted evo	lution.

Question Source	Bank		Modified Bank		New	Χ
Question Cognitive Level:	Memory Fundan Knowle	nental	1:P	Comprehension or Analysis		
10 CFR Part 55 Content:	55.41	10	55.43			

Question 69 1 Point

The plant is starting up after an outage. The Operator is preparing to synch the main generator by closing 230 KV Breaker GD1. The Operator observes the following:

- The synchscope needle at Panel 8F/9F is rotating in the SLOW direction (counterclockwise)
- INCOMING voltage is slightly GREATER then RUNNING voltage

Which of the following is the next expected Operator action?

- A. Place 230 KV BREAKER GD1 to CLOSE.
- B. RAISE turbine speed using the SPEED LOAD CHANGER.
- **C. LOWER** turbine speed using the SPEED LOAD CHANGER.
- **D.** Adjust Generator terminal voltage using the EXCITER FIELD RHEOSTAT CONTROL 70M.

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1 4	Question#	의 <u>사람들은 사용하는 사용하는 사용하는 사람들은 하는 사람들은 사용하는 사용하는 사람들은 사용하는 사람들은 사용하는 사람들은 사용하는 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은</u>
		69 B Question Developer Initials/Date: NTP 3/5/09
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1 4	Answer	에 가게 가는 것을 받는데 하는데 얼마를 가게 되었다. 그는
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Knowle	edge ar	nd Ability	Referer	ice Info	ormation			RO	SRO
required	oility to I to ope	manipulat	e the co acility be	the console controls as cility between shutdown and			Importance Rating		4.1
Level	RO	RO		3	Group #				
Referer	nces	31	5.1			albumani in managani in ma			
Explana	ation:	breaker incoming synchsc to raise correct a Answer with the It is provided in the right now	to synch g voltage ope is m turbine s and answ A is inco grid. ided in t v — slight	the ge is slig oving in peed under C is rrect since the questly high	and is preparing the control of the	grid. The in running I ction. The load chain tor output voltage is g. Once the	ndication but that very not nger. A t is not where e turbir	ons show the ext step nswer E yet in pl it shou ne is spe	w that will be is hase ld be ed up,
Referen provide	action for the second second	be ng exam:	None						
Learnin Objectiv	ve	2621.828 Given nor describe o	mal ope	rating p	documer s	nts for t	he syste	∍m,	

Question Source	estion Cognitive Memory or		Modified Bank		New	X
Question Cognitive Level:				the fact that the second second second second	Comprehension or Analysis	
10 CFR Part 55 Content:	55.41	6	55.43			

Question 70 1 Point

The plant was at rated power when the following annunciator alarmed:

RADIATION MONITORS PROCESS WTR – SVC WTR HI/TROUBLE

The EO reports that the Service Water Radiation Monitoring Pump has stopped and **CANNOT** be started.

Which of the following states the required action?

- A. Initiate a plant shutdown in preparation for removing Service Water from service.
- **B.** Swap RBCCW heat exchanger cooling water from Service Water to Emergency Service Water.
- **C.** Notify Chemistry to initiate sampling of the discharge IAW the Offsite Dose Calculation Manual.
- **D.** Notify Chemistry to initiate sampling of the intake IAW the New Jersey Pollutant Discharge Elimination System Permit.

Question	ı # <sub>  70</sub>	C	Questic	n Developer	· Initials/Dat	e: NTP 3/6/09	
Allswei							

Knowle	dge an	nd Ability	y Referen	ce Inf	ormation			RO	SRO
Radiatio 2.3.11 <i>A</i>			radiation i	diation releases.			Importance Rating		4.3
Level	RO		Tier#	3	Group #				
<b>References</b> RA			AP-10F3(	3	406.2		CY-O (ODC	C-170-3 M)	301
Explan	ation:	system notified IAW 40 comply from th The OI sampling securing proced Swapp has no The NJ	is no long to begin 26.2 preca with the Ce effluent DCM requing is proper by the rele ures, sam ing heat e impact or PDES Pe gical conc	ger fun samplication a DCM pathwires that erly initiase wo pling is exchanged the permit do	then the service totioning. IAW and analyzer and limitations, (which is to saw). Answer Beat the effluent of the samp and be prudent attempted first ger cooling measures not contain olus sampling to the sam	the RAP, coing dischart chemistry ample and is correct. Telease maling cannot at. But as stand answedium, whice and Answer any require	hemist ge can should analyzo y conti be est ated in ver A is rement	ry should all samples samples as the samples incorrect the samples incorrect samples as related to the samples are lated	ld bles. fied to es long as d, ect. brmed, ect. d to
Referer provide		be ng exam	None						
Learnin Objecti	VA	Using th		ıres, id	388 entify and inte Water System		al and	abnorm	al

Question Source	Bank		Modified Bank	X	New	
Question Cognitive Level:	Memory Fundan Knowle	nental	X 1:P	npreh	ension sis	
10 CFR Part 55 Content:	55.41	11	55.43			

Question 71 1 Point

The plant was at rated power when an ATWS occurred.

IAW SP-21, Alternate Insertion of Control Rods, which of the following alternate control rod insertion methods has the potential to **RAISE** the airborne contamination levels in the Reactor Building?

- A. Venting the Scram Air Header
- B. De-energizing the Scram Solenoids
- C. Venting the Control Rod Drive Over Piston Volume
- D. Raising the CRD Cooling Water Differential Pressure

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	Question # 71 C				
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1	Answer				
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2.3.14 Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.  Level RO Tier# 3 Group#  References EMG-SP21 GE 197E871 147434 sh. 2 BR 2011 sh. 2  Several methods to insert control rods IAW SP-21 may result in increased radioactivity in the Reactor Building. Of those listed, which are all ways to insert control rods, only venting the control rod over piston volume has a caution regarding increased airborne contamination levels. This process results in RPV coolant being directed to Reactor Building Sump 1-7. Steam could escape from the sump during the venting process. Answer C is correct.  References to be provided during exam:  Learning Objective Given a copy of RPV Control With ATWS, describe in detail each steep or conditional statement, including technical basis, and how to perfor each step as required.  Question Source Bank X Modified Bank  Question Cognitive Memory or Fundamental Knowledge  10 CFR Part 55		1000		y Referer	nce Info	rmation			२०	SRC
References  EMG-SP21  GE 197E871  Several methods to insert control rods IAW SP-21 may result in increased radioactivity in the Reactor Building. Of those listed, which are all ways to insert control rods, only venting the control rod over piston volume has a caution regarding increased airborne contamination levels. This process results in RPV coolant being directed to Reactor Building Sump 1-7. Steam could escape from the sump during the venting process. Answer C is correct.  References to be provided during exam:  Learning Objective  Civil 197E871  Alt7434 sh. 2 BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2011 sh. 2  BR 2	2.3.14 hazards	Knowle that n	dge of ra nay arise	during no	ormal, ab	ination normal, or		nce 3	3.4	3.8
Several methods to insert control rods IAW SP-21 may result in increased radioactivity in the Reactor Building. Of those listed, which are all ways to insert control rods, only venting the control rod over piston volume has a caution regarding increased airborne contamination levels. This process results in RPV coolant being directed to Reactor Building Sump 1-7. Steam could escape from the sump during the venting process. Answer C is correct.  References to be provided during exam:  Learning Objective 2621.845.0.0053 LO 3055A  Given a copy of RPV Control With ATWS, describe in detail each steen or conditional statement, including technical basis, and how to perfor each step as required.  Question Source Bank X Modified Bank  Question Cognitive Memory or Fundamental Knowledge  10 CFR Part 55	Level	RO		Tier#	3	Group #				
increased radioactivity in the Reactor Building. Of those listed, which are all ways to insert control rods, only venting the control rod over piston volume has a caution regarding increased airborne contamination levels. This process results in RPV coolant being directed to Reactor Building Sump 1-7. Steam could escape from the sump during the venting process. Answer C is correct.  References to be provided during exam:  Learning Objective  Civen a copy of RPV Control With ATWS, describe in detail each steen or conditional statement, including technical basis, and how to perfor each step as required.  Question Source  Bank  Modified Bank  New  Question Cognitive Level:  Memory or Fundamental Knowledge  Comprehension or Analysis 3:SP	Referer	ıces	F	EMG-SP21   GE 197E871						2
Learning Objective  2621.845.0.0053 LO 3055A  Given a copy of RPV Control With ATWS, describe in detail each ste or conditional statement, including technical basis, and how to perfor each step as required.  Question Source  Bank  X  Modified Bank  New  Question Cognitive Level:  Memory or Fundamental Knowledge  Comprehension or Analysis  3:SP			are all piston contam directed sump of	eed radioa ways to ir volume ha ination le d to Reac luring the	activity in asert con as a cau vels. Thi tor Build	the Reactor I trol rods, only tion regarding is process res ing Sump 1-7	Building. Conventing the increased ults in RP'  Steam conventions:	Of those list ne control r d airborne V coolant b ould escap	ed, od o	which over
Given a copy of RPV Control With ATWS, describe in detail each stee or conditional statement, including technical basis, and how to perform each steep as required.  Question Source  Bank  Modified Bank  New  Question Cognitive Level:  Memory or Fundamental Knowledge  Comprehension X 3:SP			er region of the control of the cont	the contract of the contract o		And the second s				
Question Cognitive Hemory or Fundamental Knowledge    Comprehension or Analysis   Comp			Given a or condit	copy of R	PV Contement, in	trol With ATW	S, describ nical basis	e in detail , and how	eacl to p	n step erform
Level: Fundamental or Analysis 3:SP	Questio	n Sou	rce	Bank	Bank X			New		
10 CFR Part 55		n Cog	nitive	Fundan	nental					X :SPK
Content:   55.41   12   55.43	10 CFR		5	55.41	12	55.43				

Question 72 1 Point

Which of the following conditions requires that Radiation Protection be notified to assess any radioactive releases including the release of tritium?

- A. Initiating Drywell Sprays during EOPs
- B. Inserting control rods during an ATWS condition
- C. Venting the Primary Containment IAW the Hardcard
- D. Initiating the Isolation Condensers during a cooldown

Question #			
Question #	72 D	Question Developer Initials/Date: NTP 3/6/09	
Answer			

Knowle	dge a	nd Abili	ty Referen	ce Inf	formation			RO	SRO
pertainir respons entry red	Knowle ng to lic e to ra quirem	edge of f censed of diation r ents, fu	operator du monitor ala el handling	ities, s rms, c respo	ontainment	Importa Rating	ance	3.4	3.8
Level	RO		Tier#	3	Group #				
Referen	ces		307						
Explana		placed shall be released during Operar duty. A Initiating pressurement of the ES proced is incompleted in the ES proced is incompleted atmosp the nor to asset in the experiment of the experime	I in service be notified to es, includir a cooldow tion of the Answer D is ang Drywell are or temp Il Sprays re antainment W System Iural require arect. ang control re about incre and ass g the Drywe be to be mal RB Ve	by eit or asset or as	her manual or a sess, minimize an release of tritium a plant scram on Condenser Sect.  Is during EOP is e is elevated, use the use of the heat exchange the nout to the extra to notify RP during the hardcard se directly to the stem, but there Answer C is income.	automatic and contain Using has occu System is a performe sually from ESW purer could renvironme aring Dryv Procedure is incorrect will allow the outside is no required.	initiation any rales later a Licen a L	n, Rad I dioactive n Conde he past sed Op- n Drywe CA. Inition ube lea adioactive e is no ays. Ans have se ire RP	Pro re ensers erator  II ating k in vity to ewer A everal
Referenc provided			None:						
CONTRACTOR OF THE PERSONS									

Objective		lant condit and the pl		uate the imp	act on th	e Isolation Co	ndense
Question So	ource	Bank		Modified Bank		New	х
Question Cognitive Level:		Memory or Fundamental Knowledge		X 1:P	Comprehension or Analysis		
10 CFR Part Content:	55	55.41	12	55.43			

Question 73 1 Point

Which of the following states the definition of the following EOP symbol?



IAW the EOP Users Guide, this designates a Support Procedure ....

- A. as high importance.
- B. will override plant interlocks.
- C. could cause an increase in off-site release rate.
- **D.** to be completed **immediately**, and without delay.

Question #	73 B Question Developer Initials/Date: NTP 3/6/09	
Answer		

Knowle	dge ar	ıd Abilit	ty Referer	ice Infor	mation			RO	SRO
			res/Plan FEOP terms and definitions.  Tier # 1 Group # 1  EOP Users Guide  designated symbol states that plant interlocks marridden. Answer B is correct. other answers may be considered correct if over by known.					3.9	4.3
Level	RO		Tier#	1	Group #	1			
Referer	ces	E	EOP Users	Guide					
Explana	ntion:	overric The ot	lden. Ansv her answe	ver B is c	orrect.				rlocks
Referen provide			None						
Learnin Objectiv	re	2621.845.0.0050 LO 3065  Recognize how caution statements and notes are repres EOP flowcharts.					sented ir	ı the	
Questio	n Sour	се	Bank	X	Modifie Bank	d	N	ew	
Questio Level:	n Cogr	nitive	Memory Fundan Knowle	nental	X 1:D	A CONTRACTOR OF STATE	Comprehension or Analysis		
10 CFR Content			55.41	10	55.43				
Content					00.40				

Question 74 1 Point

The plant was at rated power when an event occurred.

From **ONLY** the information provided on the Heat Removal/Core Cooling SPDS screen printout (**SEE ATTACHED**), which of the following is correct?

- A. Core Spray is injecting into the RPV.
- B. The Tech Spec cooldown rate has been violated.
- C. The Isolation Condensers have automatically initiated.
- **D.** The RPV Flooding No ATWS EOP should be entered.

INSERT CORE COOLING SPDS.PPT HERE

			······································		
Ougstion #					
Question #	74 0	A 4! B			
	/4 U	Question Deve	loper initials/l	Jate: N I P 3/7/09	9
Answer					
WIIO AACI		맞춤 이 경기 가지 하나 가지 않는 것이 하다.			

movieuge ai	nd Ability	y Referen	ce Info	ormation			RO	SRC	
Emergency Pro 2.4.21 Knowled to assess the same reactivity contraction coolant conditions, rad	dge of the status of sol, core of system	e paramet safety fund cooling and integrity, c	ctions, d heat contain	heat removal, ontainment ntrol, etc.					
Level RO		Tier#	3	Group #					
References	E	MG-SP28		EOP Users	EOP Users Guide				
Explanation:	Heat Recooling upscale level incollevel incollevel incollevel. The saturation level. The data injection manuall graph, it cannot I The TS	emoval/Co , shows the e and that dicators are core spray vn rate is ne reference RPV water on curve a his condition evel, as is evel, evel, as is evel, evel, evel, evel, evel, evel, evel, evel, evel	ore Coo e follow flashing re off; 2 y nor fe 75 °F/h ce prove er level and sho on wou shown able RP\ lo ATV . Answ hat RP\ g. Answ rate lir	power when are pling printout, wing: 1) 5 RP\ g is occurring? RPV pressuredwater are controlled in the provided the fuel zone of the fuel in the fuel in the fuel in the fuel zone of the fuel zo	used to as / water lever in the reference is currently in expense seen that in the backet of the determination of the currently in the result of the result	seess acrel indicated frequency freq	dequate cators shegs and psig; 3 4) the cators and psig; 3 4) the cators are shere is a centry irons poir be due sig. From the spray cooldow	core now 2 8) curren d er RPV nto nt to the ed or n the	

indications of what water level was before, it cannot be determine from only the provide data that IC have auto initiated on RPV wat level. The pressure graph shows a constant normal pressure up the event, then a lowering pressure. Therefore, the ICs could not have auto initiated on RPV high pressure. Answer C is incorrect.										
References provided du	and the second s		EMG-SP28							
Learning Objective	Using profor each	step in th	EMG-3200 e procedu		y this ev	ate the technic aluation to de anditions.				
Question Source		Bank		Modified Bank		New	X			
Question Co Level:	ognitive	Memory Fundan Knowle	nental			orehension alysis	X 3:SPR			
10 CFR Part Content:	: 55	55.41	7	55.43						
Time to Cor	nplete: 1-2	minutes	1		No. of the Control of					

Question 75 1 Point

The plant was at rated power when an event occurred requiring the SM to declare an Unusual Event emergency classification. **NO** emergency response facilities have been activated.

You have filled the role as the Shift Communicator. IAW EP-AA-112-100-F-05, Mid-Atlantic Shift Communicator (CR) Checklist, which of the following are you responsible for?

- A. Notifying the NJ OEM using the Auto Ring phone
- B. Notifying the NRC using the Health Physics Network
- C. Reviewing an NRC Event Notification Form prior to transmittal
- **D.** Establishing/maintaining communications with the TSC and EOF using the Operations Status Line

	The second second second second second		-	<del>andersaciones anomenicales</del>	Contraction processing and	Name and Association of the Contract of the Co				
16	Jupetion #									
1 >	Question #		A	^	4 = 1000					
		10	A	uues	tion Dev	/eloner	Initiale/	Date N	ΓP 3/7/09	
						. v. vp v.	1011151551551		11 011100	
1 /	Answer									

Knowledge and Ability Reference Information									RO	SRO
2.4.39 k	Cnowled	dge of	ures/Plan of RO responsibilities in plementation.				Importance Rating		3.9	3.8
Level	RO			Tier#	3	Group #				
References		EP-AA-112-1 05			-100-F-	EP-MA-114-100				
Explanation:		The Shift Communicator Checklist, EP-AA-112-100-F-05, directs that the Shift Communicator perform state/local notifications IAW EP-MA-114-100. After reviewing the completed State/Local Notification Form provided by the Shift ED, the Shift Communicator will notify the NJ EOM (New Jersey Office of Emergency Management) of the data contained in the State/Local Notification Form. Answer A is correct.  The Shift Communicator might communicate with the NRC but through the HPN line. Answer B is incorrect.  The Shift ED will complete the NRC Event Notification Form and there is no requirement that the Shift Communicator review it (as they would review the State/Local Notification Form). Answer C is incorrect.  During an Alert or higher, the Operations Communicator establishes communication with the TSC and EOP – not the Shift Communcator. Answer D is plausible but incorrect.								
Referen provide			m:	None						
Learnin Objectiv	re l									

# OC ILT 08-1 NRC EXAM - RO KEY

Question Source	Bank		Modified Bank		New	Χ
Question Cognitive Level:	Memory Fundan Knowle	nental	X 1:P	Comp or An	rehension alysis	
10 CFR Part 55 Content:	55.41	10	55.43	1		

Question 1 1 Point

The plant was at rated power when the Operator reported that Drywell pressure indicated 2.4 psig and rising rapidly and a manual scram was inserted. All IMMEDIATE OPERATOR ACTIONS of ABN-1, Reactor Scram, were completed.

One minute later, the following annunciator alarmed:

CONTROL AIR PRESS LO

The Operator reported that all air compressors are running and that INST AIR SUPPLY PRESS indicated 22 psig and lowering rapidly.

Two minutes later, the current plant conditions were as follows:

- RPV water level is 61" and lowering
- RPV pressure is 420 psig and lowering
- Drywell pressure is 9.2 psig and rising slowly
- INST AIR SUPPLY PRESS indicates 0 psig

With **ONLY** the information provided, which of the following actions shall the SRO direct?

- A. Lineup and initiate Drywell Sprays IAW Support Procedure 29, Initiation of the Containment Spray System for Drywell Sprays
- **B.** Rapidly depressurize the RPV with the Isolation Condensers and inject into the RPV with Core Spray, IAW the RPV Control No ATWS EOP
- C. Start all available Feedwater Pumps and use the MFRV controllers to maximize injection into the RPV, IAW ABN-1, Reactor Scram
- D. Rapidly depressurize the RPV with the Turbine Bypass Valves and inject into the RPV with Core Spray, IAW the RPV Control – No ATWS EOP

Question #	1 B Question Developer Initials/Date: NTP 1/6/09
Answer	
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Answer					era di Antonio di Santa di Sa				
Knowle	dge an	d Abi	ility Referer	ice Info	rmation			RO	SRO
AA2.01 following	- Ability g as the F INST	to de y app	tal Loss of Ir etermine and ply to PARTI, ENT AIR : Ir	or inter		Importa Rating	ance	3.5	3.6
Level	SRO		Tier#	1	Group #	1			
Referen	ces		RPV Contr ATWS EOI	선생이가 보다하여 생긴하다.	ABN-35			ry inment ol EOP	
Explana	tion:	Follo performance of the perform	owing the material primed, which RVs in manual solutions, and RI sure of 9.6 prolled by the prolled by the correct.  given conditions and low then lower tion systems and low then lower tion systems are availabled and answer and answer that parameted answer that paramete	anual scr include al and cland elesig. With panel of other high ions stat ne press V water pressur RPV was to inject surizing e the out able and ver D is invell temp eters are cause the annot din trol EOI the Prime	cower when income, all imme as tripping 2 foosing them. As a level has drawn no instrume perator, and to gh pressure For the term of the RPV with the Company can be used incorrect.  The within the company of the RPV with the Company of the RPV within the Company of the RP	diate oper eedwater After the sopped to 6 ant air sup- thus beside RPV inject vater level every Control oe maintale ecessary the TS con the turbinave close for this provided, the containmer annot veri annot veri annot veri annot conti	rator act pumps, cram, al 31", with ply, no I les CRE ion soul — No A ined by of main to allow oldown ne bypa ed on lourpose.  e operaint spray fy the ple leg. Al rol EOP	tions are placing I instrument a Dryw MFRVs Dand porce. And the properties of air Answer tor canninitiation lant is well and the properties of air a	e all ment vell can be ossibly swer C wer. OP essure water essure es is r, but n limit vithin aying all

	initiate	DW sprays	V sprays. Answer A is incorrect.						
References provided du	None:								
Learning Objective	Given a or condi	copy of RF	0052 3055 by of RPV Control – No ATWS, describe in detail ea al statement, including technical basis, and how to p s required						
Question So	ource	Bank		Modifie Bank	d		New	X	
Question Co Level:	ognitive	Memory Fundam Knowled	ental			Compr or Ana	ehension lysis	X 3:SPR	
10 CFR Part Content:	: 55	55.41		55.43	5				
Time to Con	nplete: 2-3	minutes		1	<b></b>		+		

Question 2 1 Point

The plant was operating at rated power when the following annunciators alarmed:

- FIRE PUMP 1 RUNNING
- FIRE PUMP 2 RUNNING

An EO notifies the Control Room of black smoke in the vicinity of the Core Spray Booster Pumps NZ03A and NZ03C, and that fire suppression has actuated.

One minute later, the following annunciators alarmed:

- EMRV OPEN
- SV/EMRV NOT CLOSED

The Operator reports that the **RED** light is **ON** for EMRV NR108C and Torus water temperature indicates 85 °F and rising slowly.

Which of the following actions shall the SRO direct? (See attached)

- A. Pull fuse 16F301C for EMRV NR108C IAW ABN-40, Stuck Open EMRV.
- B. Scram the reactor IAW FSP-RB1D, Fire Support Procedure for RB 51' Elevation.
- C. Place the Control Room HVAC System in the PART RECIRC mode IAW ABN-29, Plant Fires
- **D.** Initiate Torus Cooling IAW Support Procedure 25, Initiation of the Containment Spray System in the Torus Cooling Mode.

### ATTACHMENT 101.2-3 (continued) TABLE 1

### **FIRE DETECTION INSTRUMENTATION**

Fire			Required
Area/Zone	<u>Location</u>	<u>Detection Zone</u>	# of Detectors
RB-FZ-1A	Rx. Bldg. 119' elev	Sprinkler Sys. #10	1 (WFS)
RB-FZ-1B	" 95' "	. NA	24*
RB-FZ-1C	" 75' "	NA	22*
	" 75' "	Sprinkler Sys. #11	1 (WFS)
RB-FZ-1D	" 51' "	RK01/RK02	2
	" 51' "	1 – North	6+
	" 51' "	2 - North	7+
	·" 51′ ·"	1 – South	6+
	" 51' "	2 - South	6+
RB-FZ-1G	" 38'/51' "	Shutdown Pump Rm	7
RB-FZ-1E	" 23' "	1 – North	7+
	" 23 "	2 – North	6+
	" 23' "	1 – South	6+
	4 23' "	2 - South	6+
RB-FZ-1F	" 19' "	NA	4
			(1 per corner room)
TB-FA-3A	4160 Swgr. Rm.	Vault "C"	
TB-FA-3B		Vault "D"	
TB-FZ-11C	<b>"</b>	Gen. Area	5+
TB-FA-26	<b>(</b>	"C" Battery Rm.	
OB-FZ-4	Cable Spread Rm.	4A-Zone 1	3+
		4A-Zone 2	3+
		4A-Zone 3	4+
		4A-Zone 4	5+

Question # 2 B Question Developer Initials/Date: NTP 1/7/09 Answer		
	Question #	Ouestion Developer Initials/Date: NTD 1/7/09
Answer	Question #	Z B Question Developer initials/Date. NTF 1/1/05
	Answer	

A CONTRACTOR OF THE PROPERTY OF THE		100 mm	/ Referen	ce Infe	ormation			RO	SRC
		nine and FIRE C	d interpret the following as they ON SITE: Need for emergency			Importance Rating		3.2	3.8
Level	SRO		Tier#	1	Group #	1			
Referen	ices	1	01.2	1.2 ABN-29 ABN-40			FSP-F	RB1D	
Explana	tion:	Pumps together elevation receives associated RB1D. condition ABN-40 EMRV the assemble Placing Answer Placing maintain any smuthis act Initiating condition conditions.	NZ03A & er, one car on 51'. Mo d. The attate fire are IAW FSPons is to so o, Stuck O (answer A ociated cofuses is defended the Control of a positivo oke from a positi	NZ030 concluments ached a RB-1D cram to pen E control so rect. Fol Rock entering a colling to the tore, and	n the vicinity of C, which are locude there is a fater, indication procedure sector. The prompt make the provides of the provi	cated on fire in the ns of an ortion allow entry con anual activer B is ortion close an able the Entrol Room. AB the procedule is currer Control E	RB 51' r Reactor pen EM s the Ca dition in cons for correct. to close open E EMRV if om Evac  ECIRC m, which N-29 do re could ottly belo EOP, wh	north. To Building RV are andidate andidate and the set the ope MRV is it is still auation mode with the set of the set o	aken ng e to - en with I oper vill keep requir

	384 St. London C.	31D	Company of the Compan						
Describe emergen personne	and interpacy or off-nel allocatio	nd interpret procedure sections and steps for plant or off-normal conditions that involve this system including illocation and equipment operation in accordance with							
urce	Bank		Modified Bank	d	,	(	New		
Question Cognitive Level:		ental						X 3:SPR	
55	55.41		55.43	5					
	2621.828 Describe emergen personne applicab	2621.828.0.0019 L Describe and interpersonnel allocation applicable ABN, SE  Describe and interpersonnel allocation applicable ABN, SE	2621.828.0.0019 LO 286-10 Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable ABN, SDRP, EOR  Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable ABN, SDRP, EOR  Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable ABN, SDRP, EOR  Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable ABN, SDRP, EOR  Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable ABN, SDRP, EOR  Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable ABN, SDRP, EOR  Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable ABN, SDRP, EOR  Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable ABN, SDRP, EOR  Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable ABN, SDRP, EOR  Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable ABN, SDRP, EOR  Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable ABN, SDRP, EOR  Describe and interpret proces emergency or off-normal compersonnel allocation and equapplicable and expersonnel allocation and equapplicable and expersonnel allocation	2621.828.0.0019 LO 286-10450  Describe and interpret procedure section emergency or off-normal conditions that personnel allocation and equipment operapplicable ABN, SDRP, EOP, EOP Support Bank  Memory or Fundamental Knowledge	2621.828.0.0019 LO 286-10450  Describe and interpret procedure sections emergency or off-normal conditions that in personnel allocation and equipment opera applicable ABN, SDRP, EOP, EOP Suppose Bank  Memory or Fundamental Knowledge	2621.828.0.0019 LO 286-10450  Describe and interpret procedure sections and steemergency or off-normal conditions that involve the personnel allocation and equipment operation in applicable ABN, SDRP, EOP, EOP Support Procedure Bank  Memory or Fundamental Knowledge  Compare Com	2621.828.0.0019 LO 286-10450  Describe and interpret procedure sections and steps emergency or off-normal conditions that involve this personnel allocation and equipment operation in accapplicable ABN, SDRP, EOP, EOP Support Procedure.  Bank  Modified Bank  Comprehor Fundamental Knowledge	2621.828.0.0019 LO 286-10450  Describe and interpret procedure sections and steps for plant emergency or off-normal conditions that involve this system in personnel allocation and equipment operation in accordance applicable ABN, SDRP, EOP, EOP Support Procedures, and Surce  Bank  Modified Bank  New  Ognitive  Memory or Fundamental Knowledge  Comprehension or Analysis	

Question 3 1 Point

The plant was starting up after an outage. Present plant conditions are as follows:

- RPV pressure indicates 1000 psig
- RPV water level is 165"
- 2 Turbine Bypass Valves indicate RED light ON
- The REACTOR MODE SELECTOR switch is in RUN

The Operator reports that **ALL** Turbine Bypass Valves are changing to the **OPEN** position and 1 minute later, the reactor automatically scrams while the Operator is controlling RPV water level.

Which of the following states a reactor scram signal in this event and the Tech Spec (TS) bases for the scram signal?

	<u>Scram Signal</u>	TS Bases for Scram Setpoint
A.	APRM downscale	To minimize the possibility of exceeding the fuel clad safety limit
В.	IRM upscale	To minimize the possibility of exceeding the fuel clad safety limit
C.	MSIV position	To prevent a fast RPV depressurization and resultant rapid cooldown
D.	MSIV position	To anticipate the pressure and flux transients which occur during normal or inadvertent MSIV closure

	Question # 3 D Answer	Question Developer Initials/Date: NTP 1/7/09
L	HIIDMAI	

Knowle	dge an	ıd Abili	ty Refere	ence Info	rmation		RO	SRO
295006 AA2.06 Ability to determine and/o they apply to SCRAM : Ca		the first of the f		이 사람이 되었다. 그렇게 하는 것이 되어 있다면 하다면 살아 나를 보고 있다. 그 그들은 그리고 있는 것이 살아 있다면 하는데		3.5	3.8	
Level SRO 1			Tier#	1	Group #	1		
Referer	ices		TS 2.3					
Explana	ation:	when RPV p MSIV main s and flu valve  As the reactive APRN upsca scram to the indicar the fue Answer The ballow RI	all TBV goressure of Sclose to position. Steam iscourted transies closure. At the RPV devity which is signal, be event, artions down ale IRMs del clad saler B is incompt.	o open, a will lower or minimized TS 2.3 Belation valued the will be dependent of the work of the work of the work of the will be dependent of the work of the wor	and the plant until it reache the cooldow ases provided by (MSIV) close occur during is correct.  es, water will isplayed as loonly provided sociated APR ted, the IRMs id formation waswer A is in the a scram sight but not where the consideration of the provided in the IRMs in the consideration was a scram sight but not where the cooleans are scram sight of the IRMs in the consideration was a scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram sight of the IRMs in the cooleans are scram are scr	nal to prevent los the mode switch e bases for the M by the reactor scr	BVs openis point, will scram of the present is dding ne Downscram. In cause a sigh state ower as of main is in rul	en, all n from n 10% sure olation gative ale An a e prior rgin to n.
Referen provide			n: Non	6				
Room/Plar		/arious pl Plant logs	ant indica , evaluat	ations (and the e the indication	eir values) or cop ons to determine and Technical Sp	plant sta	atus	

Question Source	Bank	Modifie Bank	d	New	X
Question Cognitive Level:	Memory or Fundamental Knowledge			omprehension r Analysis	X 3:SPK
10 CFR Part 55 Content:	55.41	55.43	2		

Question 4 1 Point

The plant was at rated power when an event occurred, as shown on the timeline below:

- 0900 USS 1B2 trips
- 0910 Generator trips, reactor scram signal
- 0911 The Operator reports indications of an ATWS
- 0913 An EO is directed by the Control Room to perform Support Procedure actions in the plant
- 0917 SM declares an Alert emergency classification
- 0936 **ALL on-site** emergency response facilities are **ACTIVATED** and have assumed command and control functions
- 0938 The EO notifies the Control Room that a small quantity of contaminated water was spilled while completing his tasks and requests assistance from Radiation Protection (RP)

IAW EP-AA-112, Emergency Response Organization (ERO)/Emergency Response Facility (ERF) Activation and Operation, which of the following states how the SM shall request RP assistance?

The SM requests the assistance to the ....

- A. TSC.
- B. OSC.
- C. EOF.
- D. OCC.

Question # 4 A Question Developer Initials/Date: NTP 1/7/09  Answer				
Answer	Que	estion#	4 A	Question Developer Initials/Date: NTP 1/7/09
	Ans	swer		

Knowle	Knowledge and Ability Reference Information									
Power # 2.4.37 kg	Above A Knowled	APRM Do	wnscale	ns Present and Reactor inscale or Unknown ines of authority during ergency plan			ince	3.0	4.1	
Level	SRO		Tier#	1	Group #					
Referer	nces	E	P-AA-112		EP-AA-112	2-200				
Explana	ation:	action to that an e respons commar no longe from pla will then answers condition provide	o facilitate emergence facilitie and and color the emergence of the emerge	e inserticy is de s (TSC) ontrol of ergence anel, the e perse are in peratical supp	own. An EO is tion of control eclared and the and OSC) are of the emergency director. When SM makes to connel from the correct. During ons Command ort for the upseclared emergence.	rods. The at all on-site activated icy. In this nen the SM chis request OSC. And g non-emer (Center (Cet condition)	condition to end to the condition of the	ons also rgency ave asson, the ses assise TSC, was correct staffed TSC pro	show umed SM is stance which ct and to ovides	
Referer provide		be ng exam:	None	None						
Cobjective G-101 DBIG-CT1 LO G-101 DBIG-CT1 DBIG					control turnov			of the Sta	ation	

Question Source	Bank	Modified Bank	New	X
Question Cognitive Level:	Memory or Fundamental Knowledge	1:P	Comprehension or Analysis	
10 CFR Part 55 Content:	55.41	55.43	1	

Question 5 1 Point

The plant was operating at rated power with 5 Recirculation Loops.

IAW Tech Specs 6.7 and Tech Specs Section 2:

- 1. Which of the following events will require that a Safety Limit Violation Report be generated?
- 2. Which of the following states the **MAXIMUM** amount of time from the violation, to submit the Safety Limit Violation Report to the NRC?

	<u>1. Event</u>	2. MAXIMUM AMOUNT OF TIME
Α.	RPV pressure peaked at 1276 psig	10 days
В.	RPV water level lowered to 52" TAF	10 days
C.	MCPR lowered to 1.09	3 days
D.	APRMs indicated 106% and <b>NO</b> automatic scram occurred	3 days

(	Question#	5 B	Qu	estion De	eveloper li	nitials/Dat	e: NTP 1/	8/09
١,	Answer							
L					-	-		

Knowle	dge ar	ıd Abi	ility F	Referen	ce Info	ormation			RO	SRO
295031 Reactor Low Water 2.4.30 - Knowledge of ever operation/status that must organizations or external a the NRC, or the transmiss			ents rela t be rep agencie	ents related to system be reported to internal agencies, such as the State,			ince	2.7	4.1	
Level	SRO			Tier#	1	Group #	1			
Referen	ces		TS	2.1.D		TS 6.7				
Explanation:		and excepress loop excepristry limit Safe within and Answer Cane Answer is incomplete the second the second and	submededs sure oper eeded umer is no oty Lira the time wer Adidate wer Correct parai	nission of 1375 ps is > 800 ration; R if and a natation, it exceeds it Violates of the requestion of the state of the stat	of a Sarig (with point p	y limits, when a fety Limit Viola irradiated fue and core flow is ter level is < 4 is not initiated lysis must be plation. Answer and is corrected the pressure set event, but he ove the value	ation Report in the RF is > 10%, No is above by the properformed mit violation in the submitted in B meets out. Answer is incorrect, as the incorrect will not resistant in the incorrect in the	ort: RPV PV), wh MCPR i TAF; otective to verificate does to the 0 both the r B is correct bu s 1275 orrect ti	y pressuren RPV s < 1.10 If an LS fy that a soccur, Commise event priect. It the psig. Imme. And a scram	re / / / / / / / / / / / / / / / / / / /
References to be provided during exam:			None							
Room/Plar				ous plar nt logs, o	nt indica evaluat	20 ations (and the e the indicatio iting License a	ns to dete	rmine p	olant sta	itus

Question Source	Bank	Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge	X 1:D	Compror Anal		
10 CFR Part 55 Content:	55.41	55.43	2		

Question 6 1 Point

The plant is in cold shutdown and is cooling down with the Shutdown Cooling System (SDC). The following conditions currently exist:

- RECIRC PUMP SUCTION TEMPS indicates 209 °F
- The Primary Containment is still inerted
- RPV water level is 175" and steady

An event then occurs as shown in the timeline below:

- 0800 Annunciator RBCCW SURGE TANK LVL HI/LO alarms
- O804 The EO reports the RBCCW Surge Tank indicates 1" and lowering and the Tank makeup valve is full open
- 0806 The Radwaste Operator reports RB Floor Drain Sump 1-7 high level is in alarm
- 0808 Maintenance reports that they are unable to quickly mitigate the event
- O809 The SM observes Drywell pressure at 1.7 psig and steady and Drywell temperature at 140 °F and steady
- O810 The SM starts the 1-hour clock to monitor entry into EAL MA5(1) (SEE ATTACHED)

Which of following actions shall the SRO direct NEXT?

- A. Trip all Recirculation Pumps IAW ABN-19, RBCCW Failure Response.
- B. Operate all available Drywell Coolers, IAW SP-27, Maximizing Drywell Cooling.
- **C.** Isolate the Reactor Water Cleanup System IAW the Secondary Containment Control EOP.
- **D.** Initiate Isolation Condensers by placing the Condensate Return DC valves to OPEN, IAW 307, Isolation Condenser System.

Insert EAL Cold Matrix from EP-AA-1010, page OCGS 3-21 here.

Question # 6	Question Developer Initials/Date: NTP 1/8/09
Answer	

Knowle	dge an	d Abi	lity Referen	ice Inf	ormation			RO	SRO
2.1.23 -	Ability ed plan	to per	tal Loss of C form specific edures durin	syste	m and nodes of plant	Importance Rating		4.3	4.4
Level SRO			Tier#	1	Group #	1			
Referer	nces		EP-AA-101	0	ABN-3		ABN-	19	Walter Control of the
Explana	ation:	uniso the f SM s EAL hour due t and all re Open Prim than Thus With servi Cont EOP RBC from incor Since Isola °F. B	olable leak in loor drain tan starts the 1-h entry shows. Therefore, to the lack of RPV water to ecirculation pration of the ary Contains the entry cos, the ABN cas of RE cainment Core, it directs is CW – not RV the loss of Frect.  The RPV has tion Conden but with RPV	n RBConk, and that RPV to the RPV to the RBConk annot be annotation be annot be anno	in indications are CW (lowering set not corrected lock for entry into RPV temperature has CW cooling to Set ature > 212 °F, be tripped. Answer it is suggested as it is suggested from sump 1-7 in OP. In the Section of leaking system of leaking system is cooling median used now the level > 160", in d. Answer D is	turge tank quickly). Sto emerge re is > 212 streached SDC. With the RBC swer A is conditions stature & present at RPV tentitiation per status of the EOP.	level ar Some til ncy EA 212 °F the RB CW ABN correct. lirected show paressure) orrect. CU be ruinto the intainment of RWCU Answers heating mperati	nd high me late L MA5( at least and is r CCW le N direct from the ramete for the emoved e Secon ent Con s case, J is dire r C is	level in r, the 1). This 1 rising eak s that EOP. I from idary trol is cted

References to be provided during exam:			TQ-AA-1010 EAL Cold Matrix; page 3-21 inserted after the question				
Using the	procedur	e, identify		in norm	nal and	d emerger	псу
Question Source  Question Cognitive Level:			Modified Bank			New	X
		ental		The second secon			X 2:RI
55	55.41		55.43	5			
	2621.828 Using the operation urce gnitive	2621.828.0.0035 Le Using the procedur operations of the R  urce Bank  gnitive Memory Fundame Knowled	Matrix; page 3-21 after the question  2621.828.0.0035 LO 00061  Using the procedure, identify operations of the RBCCW Sy  urce  Bank  Memory or Fundamental Knowledge	Matrix; page 3-21 inserted after the question  2621.828.0.0035 LO 00061  Using the procedure, identify and expla operations of the RBCCW System.  Memory or Fundamental Knowledge	Matrix; page 3-21 inserted after the question  2621.828.0.0035 LO 00061  Using the procedure, identify and explain norm operations of the RBCCW System.  Modified Bank  Genitive  Memory or Fundamental Knowledge  Fr.	Matrix; page 3-21 inserted after the question  2621.828.0.0035 LO 00061  Using the procedure, identify and explain normal and operations of the RBCCW System.  Modified Bank  Genitive Memory or Fundamental Knowledge  Comprehension	Matrix; page 3-21 inserted after the question  2621.828.0.0035 LO 00061  Using the procedure, identify and explain normal and emerger operations of the RBCCW System.  Modified Bank  Memory or Fundamental Knowledge  To after the question  Modified Bank  Comprehension or Analysis

Question 7 1 Point

The plant was at power when the following annunciators alarmed:

- RPS MG SET 1 TRIP
- VLDP-1 PWR XFR

The Operator reports that CRD Pump A is running.

Which of the following actions shall the SRO direct?

- A. Declare Battery B inoperable IAW ABN-45, Loss of USS 1A2
- B. Declare Battery C inoperable IAW ABN-50, Loss of VMCC 1A2
- C. Declare V-14-31, DC Steam Inlet to Isolation Condenser A, IAW ABN-51, Loss of VMCC 1B2
- D. Declare V-14-33, DC Steam Inlet to Isolation Condenser B, IAW ABN-53, DC Bus A and Panel Failures

Question #	7 B Question Developer Initials/Date: NTP 1/8/09
Answer	

Answer									
Knowle	dge ar	nd Ability	/ Referen	ce Info	rmation			RO	SRO
295004 AA2.03 following	Partial - Ability g as the	or Total y to deter ey apply t	Loss of D mine and	C Pwr /or intei AL OR (	rpret the	Importance Rating		2.8	2.9
Levei	SRO		Tier#	1	Group#	1			
Referen	ces	А	BN-50						
Explana		and that The corpower's USS 1A 1A2 by Operator only VM VMCC and C2, This will Bus C but 45 (which Answer incorrect The validepend 1B2). But the corporation of the co	t Panel V mmon sup supply to V A2, which itself, wor or reports d from US ICC 1A2 i 1A2 also   and with I result in ous voltage ch is not e b is correct procedu wes listed ing on wh	LDP-1 I  pply to be  VMCC also de uld result in the se SS 1A2. is lost.  provide the los a dische e. IAW entered ect and ure.  in answ ich AC	ors show that has transferred to the these load 1A2 is USS 1A2-energizes VI alt in the annustem that CRE Therefore, US power to bos of VMCC 1A2-arge of Battery C shanswer A is invers C & D will bus is lost (USA are the incompared to the compared to the c	ed to its all ids is 460 A2. There MCC 1A2, nciators p Pump A SS 1A2 is th Battery A2, both cry C and a ch shall be dencorrect s	ernate VAC VI fore, eit or the I rovided is runni still en Bus C hargers reduct e entere clared ir ince it still en declared:	power s MCC 1A her the loss of \ . But, th ng whic ergized charger are gor ion in Ba ed), and hoperab tates the	upply. 2. The loss of /MCC e h is and s C1 ne. attery ABN- le. e
Referen provide		be ng exam:	None						
Cobjective  2621.828.0.0012 LO 26  Describe and interpret pemergency or off-normal personnel allocation an applicable ABN, SDRP,					ocedure section conditions that equipment op-	t involve t eration in	his syst accorda	em inclu ance wit	h

Question Source	Bank		Modified Bank	J	X	New		
Question Cognitive Level:	Memory or Fundamental Knowledge				Comprehension or Analysis		X 3:SPK	
10 CFR Part 55 Content:	55.41		55.43	5				
Time to Complete: 1-2	2 minutes							

Question 8 1 Point

The plant was at rated power with I&C performing Lo-Lo RPV water level channel functional testing.

Due to a test error, a Lo-Lo RPV water level signal was simultaneously initiated in **ALL** RPS channels.

Current plant conditions were as follows:

- RPV water level dropped to 115" and has recovered to 186" and steady
- RPV pressure indicates 975 psig and lowering slowly
- Primary Containment parameters are normal

Which of the following methods shall the SRO direct to initiate a cooldown?

- A. Open the EMRVs IAW SP-12, Alternate Pressure Control Systems EMRVs
- B. Open the Main Turbine Bypass Valves IAW the RPV Control No ATWS EOP
- C. Open the Isolation Condenser Vents IAW SP-15, Alternate Pressure Control Systems IC Tube Side Vents
- Open the RWCU Letdown Flow Controller IAW SP-14, Alternate Pressure Control Systems – Cleanup in Letdown Mode

Question # 8 A Question Developer Initials/Date: NTP 1/8/09 Answer			
Answer	Question #	8 A Question Developer Initials/Date: NTP 1/8/09	
	Answer		

Knowle	dge an	ıd Abil	ity l	Referenc	e Info	rmation			RO	SRO	
295020 Inadverte AA2.04 - Ability to following as they CONTAINMENT		/ to det ey appl	erm y to	ine and/ INADVE	or inte RTEN	İ	Importance Rating		3.9	3.9	
Level	SRO			Tier#	1	Group#	2				
Referer	ices		EM	G-SP12		RPV Contr ATWS EO					
Explana	ation:	is initiativent vent vent vent vent vent vent vent	iate ed, valved, a ssection of the school of	d in all R the MSI\ es (these nd the re d in the R e, with th Answer abe vents on the lo- e vents a vater leve Answer ( lishing R ntly RW( by opening orect.  condition or cooldo	PS charges are a seactor of the property of th	ot be used for / water level s as the ICs ar 81", the EOP	a lo-lo RF valves, and tainment is of these is of these is WS EOP.  It turbine by a reasons signal; and the not requires the polished the lo-lo RF controller, which impediments wing Torus	V wated Isolation solation vpass version to I the Isolation to I the Isolation to Use Isola	r level s ion Con valves) is are alves ca y have -15 only be isolate Cs be he use of r level s isolation RPV. A	ignal i dense go annot allow ed. At of SP- signal) n	
Referen provide			m:	None							
Learning 2621.845.0.0052 LO 3055 Objective Civen a capy of DD/ Control No ATM											

			and the second second second second second	or conditional statement, including technical basis, and how to each step as required.									
Bank	Modified Bank		X N	ew									
Memory or Fundamental Knowledge		Comprehension or Analysis		ion	X 3:SPK								
55.41	55.43	5											
	Fundamental Knowledge	Fundamental Knowledge 55.41 55.43	Fundamental Knowledge or An 55.41 55.43 5	Fundamental Knowledge or Analysis 55.41 555.43 5	Fundamental Knowledge or Analysis								

Question 9 1 Point

The plant was at rated power when a Control Room evacuation was declared (**NOT** due to a fire). **ALL** SUBSEQUENT OPERATOR ACTIONS of ABN-30, Control Room Evacuation, were completed prior to evacuating.

ALL required Shutdown Panels have been activated IAW ABN-30, Control Room Evacuation.

Current plant conditions are as follows:

- All control rods are inserted
- RPV pressure indicates 1050 psig and lowering slowly
- RPV water level is 150"
- Torus water level is 151"
- Drywell pressure is 2.8 psig
- Offsite power is supplying the station
- Chemistry reports that Primary Containment Hydrogen is 0.5%

Which of the following actions shall the SRO direct to the RO?

- A. Manually trip all Feedwater Pump breakers locally IAW ABN-30, Control Room Evacuation
- B. Vent the Drywell due to hydrogen concerns IAW the Primary Containment Control EOP
- C. Maintain RPV pressure < 1045 psig with Isolation Condenser B IAW the RPV Control No ATWS EOP</p>
- D. Confirm ALL Recirculation Pump Discharge and Suction Valves closed IAW ABN-30, Control Room Evacuation

Question # 9 C Question Developer Initials/Date: NTP 1/9/09 Answer		
Answer	Question #   9 C	Question Developer Initials/Date: NTP 1/9/09
	Answer	

Knowle	dge ar	ıd Abilit	y Referen	ce Info	ormation			RO	SRC
2.4.34 - RO task	Emerg	ency Pro	eactor Pressure ency Procedures / Plan: Knowledge of med outside the main control room gency and the resultant operational						4.1
Level	SRO		Tier#	1	Group #	2			
Referer	nces	Δ	ABN-30 RPV Contro				– No		
Explana	ıtion:	of the State of following trip feed. The RF that RF valves, EMRVs control ABN-3 locally not be stem stripping incorred. There a Control of hydrentering incorred. There are circular ecircular exacular ecircular exacular ecircular exacular ecircular exacular ecircular exacular exacul	SUBSEQUAGE: scram, edwater and PV pressure and can be and RWG method at the breattripped in tates that a all Feedwat. The Primare venting the Primare numerous at the primare numerous tripped in the primare numerous the numerous	TENT Conturbined conditions and conditions are legal control c	nen an evacual PERATOR ACE trip, close MS ensate pumps of the RPV Cornaintained < 10 mented with the lation Condensemote Shutdown backup methodout this is performed and IAW ABN-trian performent and IAW ABN-trian and IAW ABN-tria	cTIONS of BIVs, trip reserved as to trip a comport of evacor actions an accomport of the Comport	ATWS with the conduction of the confusion of the control of the co	EOP dil turbine ensers, pressurer C is co water Propumps of The quo included Answe Containro Answe Containro Answe Containro Answe Containro Answe Containro Answe Compressione	de the mps, rects bypas e could estion es r A is nent e value er B is ior to g all

References provided du	to be	None		ole response				
Learning Objective	2621.845 Given a c	opy of RF onal state	V Contro ment, inc	I – No ATW luding techr				
Question Cognitive F		Bank		Modified Bank	Modified Bank		New	X
		Memory or Fundamental Knowledge				Comprehension or Analysis		X 3:SPF
Level.								

Question 10 1 Point

The plant was at rated power when indications and local reports confirmed an earthquake has just occurred.

The US directs the EOs to conduct a visual inspection of their areas for damage.

5 minutes later, the following events occur:

- TORUS LEVEL HI/LO annunciator alarms
- The Operator reports that TORUS LEVEL WIDE RANGE indicates 139" and lowering
- The EO calls the Control Room and reports flooding in the NW RB corner room from a Core Spray Pump line break, and that water level in the room is above the MAX SAFE value

At the direction of the US, the Operator closes the Core Spray Pumps A/C suction valves and Torus water level stabilizes at 135".

Which of the following actions shall the SRO direct?

- A. Manually scram the reactor, IAW ABN-38, Station Seismic Event
- B. Perform a rapid power reduction, IAW the Primary Containment Control EOP
- C. Initiate a manual reactor shutdown, IAW the Primary Containment Control EOP
- **D.** Emergency Depressurize the RPV, IAW the Secondary Containment Control EOP

Question #	10 A	Question Developer Initials/Date: NTP 1/9/09	- 1
Answer			

295036 Secondary Containment High Sump/Area Water Level 2.4.8 - Emergency Procedures / Plan: Knowledge of how abnormal operating procedures are used in conjunction with EOP's.							4.5		
Level S	RO	Tier#	1	Group #	2				

The plant is at power when an earthquake occurs resulting in a core spray line break downstream of the core spray pump suction valve. A lowering torus water level and flooding in the NW RB Corner Room becomes evident. Two EOPs are entered – Primary Containment Control EOP, and Secondary Containment Control EOP. In the torus water level leg of the PCC EOP, a scram is required if torus water level cannot be maintained above 110". The leak is stopped at 135" (by closing the core spray suction valve). In the SCC EOP, it is necessary to recognize if a primary system is discharging into the secondary containment. In this case, it is not. The SCC EOP then directs a reactor shutdown if water level goes above the max safe value in 2 or more areas. In the question, only 1 area has flooding.

## **Explanation:**

With flooding stopped at 135" and in only one area, the EOPs do not require either a scram or reactor shutdown. But ABN-38, Station Seismic Event, requires a reactor scram if: 1) the seismic event caused a spurious actuation; 2) directly resulted in the inoperability of any safety system or a system required to complete a safe shutdown; or, 3) can potentially affect the public safety. The break in the core spray suction line is a direct result in the loss of a safety system from the earthquake. Also, the torus leak itself was a result of the earthquake and this loss of primary containment integrity could potentially affect public health. Because of this, a manual reactor scram is required IAW the ABN, although not required by the EOPs. Answer A is correct.

A scram is required if a primary system is discharging into the reactor Building and flooding in 2 areas exceeds the max safe value, IAW the Secondary Containment Control EOP. If flooding not from a primary system exceeds the max safe value in 2 areas, then a reactor

shutdown is required in the same EOP. An emergency Depressurization is required in the Primary Containment EOI water level lowers to 110". The drywell vent header downcom begin uncovered at this point and the primary containment suppression function is lost. All other answers are incorrect be plausible.								
References to provided duri		None						
Learning Objective								
Question Source		Bank		Modified Bank			New	X
Question Cognitive Level:		Memory or Fundamental Knowledge				Comprehension or Analysis		X 3:SPK
10 CFR Part 55 Content:		55.41		55.43	5			
Time to Comp	olete: 1-2	minutes						

Question 11 1 Point

The plant is at rated power when the following annunciator alarmed (among others):

#### IP-4A PWR LOST

After being dispatched, Electrical Maintenance reports that the breaker to IP-4A has sustained heavy damage and needs to be replaced.

Which of the following states the plant impact from the event, **AND** the required Tech Spec action?

	<u>Plant Impact</u>	Required TS Action
A.	IRMs 11-14 are inoperable	Place the plant in COLD SHUTDOWN within 24 hours (of the event start)
В.	Auto start of the Standby Gas Treatment System	Place the plant in COLD SHUTDOWN within 30 hours (of the event start)
c.	Main Steam Radiation Monitors fail downscale	Place the plant in COLD SHUTDOWN within 24 hours (of the event start)
D.	Reactor Manual Control is inoperable	Place the plant in COLD SHUTDOWN within 30 hours (of the event start)

Question # 11 D Question Developer Initials/Date: NTP 1/10/09
Answer

Knowle	dge ar	ıd Abi	lity Referer	ice Info	ormation			RO	SRO
A2.01 - Ability to (a) predict the impacts of the following on the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.); and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Under voltage  Level SRO Tier# 2 Group# 1  References TS 3.7  OP-OC-108-104-1001  The plant is at power when vital bus IP-4A e							ance 2.6		2.8
Level	SRO		Tier#	2	Group #	1			
[m Main Lauren Barren						9XF6b			
Explanation:    Vous be to red spin Add ship column and occurrent and oc		voltade become requisive special shall correct Answers occurs.	ge. When the mes inoperate the reactive that the ify a time). Constructive Constructive Constructive Constructive A and Constru	able. TS able. TS able. TS able. TS plant b DP-OC- ondition the co chave l bus los e correc	irs, the reactors 3.7.A.1.c recall If the buse placed in control 108-104-100 as for Operational Shutdown when the incorposes and incorposes are also and incorposes and incorposes are also also and incorposes are also also also also also also also also	r manual of quires this is lost whit old shutdow I, Guidanc ons, states within 30 h rect plant in	control so bus to the at poon the for Ling in this ours. A mpact (down re	ystem be energy wer, TS does no miting a case, th nswer E  these in	gized 53.7.B ot ind ne plant is mpacts ent.
Reference provided			m: TS 3.7						
Learninç Objectiv	가요하는 유명하는 지역에 되는 사람들이 없었다. 이 사람들이 사람들이 없는 사람들이 없는 사람들이 되었다. 그는 사람들이 되는 사람들이 나는 사람들이 되었다. 그는 사람들이 나는 사람들이 되었다.							tus	

Question Source	Bank	Modified Bank	New	X
Question Cognitive Level:	Memory or Fundamental Knowledge	X 1:F	Comprehension or Analysis	
10 CFR Part 55 Content:	55.41	55.43	2	
Time to Complete: 1-2	? minutes			

Question 12 1 Point

A plant startup was in-progress. The following conditions currently exist:

- RPV pressure is 925 psig
- 3 Turbine Bypass Valves are open
- The REACTOR MODE SELECTOR switch is in STARTUP
- All IRMs read between 25-35% on Range 10

A fault in the turbine control system resulted in the simultaneous closing of **ALL** Turbine Bypass Valves and the APRMs peaked at 39%. All systems then responded as designed.

Which of the following Limiting Safety System Settings (LSSS) were exceeded, if any, and the time requirement to notify the NRC from this event?

LSSS Exceeded	NRC Notification
A. None	None
B. IRMs	4 hours
C. APRMs	4 hours
D. Reactor Low Water Level	8 hour

0#	
Question #	12 B Question Developer Initials/Date: NTP 1/10/09
Answer	

Knowle	dge ar	nd Abili	ty Referen	ce Info	rmation			RO	SRO
A2.04 - A following (IRM) S' use proconseque	Ability on the STEM edures ences	to (a) pr e INTEF // ; and ( s to corr of those		npacts of RANGI n those l, or mit condition	of the E MONITOR predictions, igate the	Importa Rating	nce	3.7	3.8
Level	SRO		Tier#	2	Group #	i			
Referen	ces		LS-AA-1020 Table SAF	),	TS 2.3				
Explana		power force. <a href="#">38.4</a> 1020 protect actuat testing Answer The Allevel das it de incorrections."	rises to 41 When powed was exceptable SAF, extraction system ion results or reactor er B is corrected by the second of the secon	%. With er rose eeded a any even (RPS) from an operation is not a low po	This results the Mode Sy to 41% on the and a reactor ent that result when the read is part of a on, requires a exceeded. It is wer scram an ower scram, be	vitch in State APRMS, scram occurs in actual actor is crit pre-planned 4-hour not so not know ad it may h	artup, I the LS curred. tion of t ical exc ed sequ otification on what ave be	RM trips SSS for I IAW LS the reac cept who uence d on to the t RPV w en exce	s are in RMs or -AA- tor en the uring e NRC. ater eded,
Reference provided	E OTAL SALES		n: LS-AA	-1020,	Table SAF				
Learninç Objectiv	е	Given v Room/F	Plant logs, e	t indica evaluate	tions (and the the indication ing License a	ns to dete	rmine p	olant sta	tus

Bank	Modified Bank		New	X	
Memory or Fundamental Knowledge		Comprehension or Analysis		X 3:SPR	
55.41	55.43	2			
	Memory or Fundamental Knowledge	Bank  Memory or Fundamental Knowledge	Bank  Memory or Fundamental Knowledge  Bank  Compresor or Analy	BankBankNewMemory or Fundamental KnowledgeComprehension or Analysis	

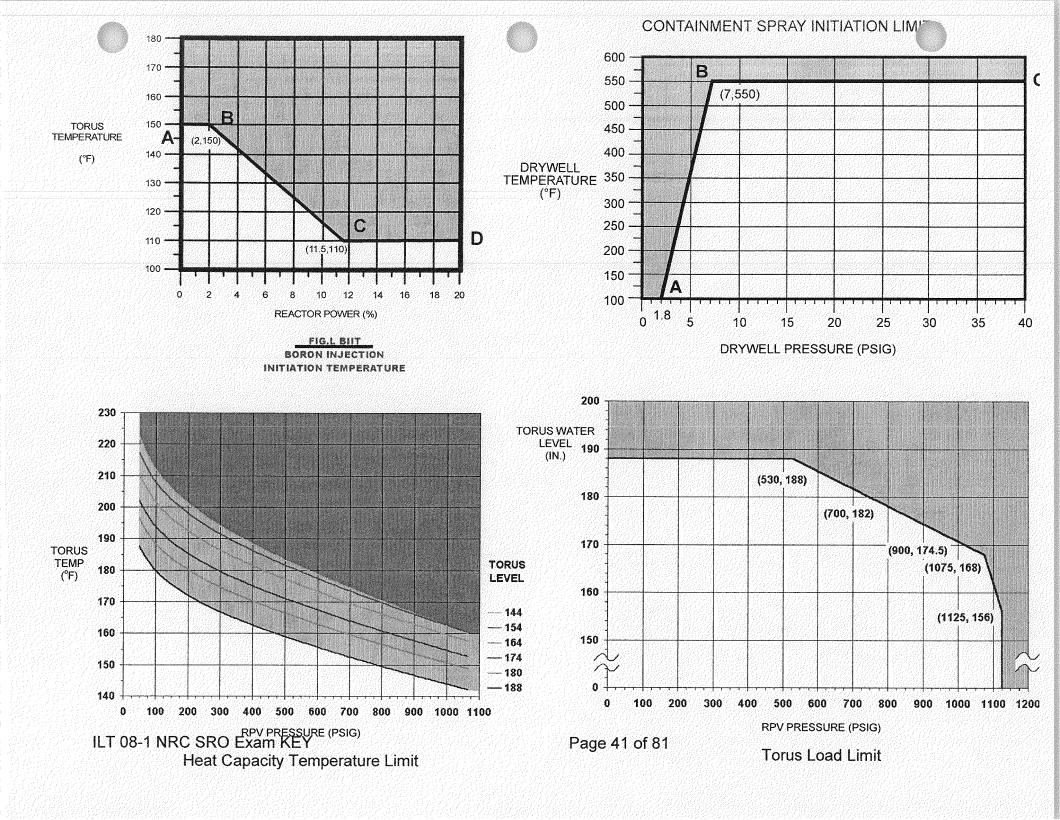
Question 13 1 Point

The plant was at rated power when an event occurred. Present plant conditions are as follows:

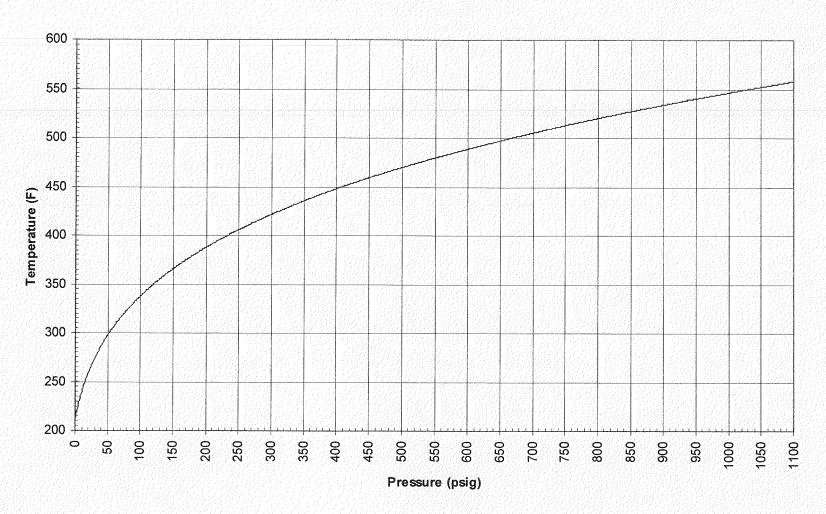
- ALL but 6 control rods indicate green backlight; the remaining 6 control rods indicate position 04
- RECIRC PUMP SUCTION TEMPS indicates 440 °F and lowering
- RPV water level indicates 134" and rising slowly
- Drywell pressure indicates 11 psig
- Drywell temperature indicates 225 °F
- Torus water temperature indicates 153 °F
- Torus water level indicates 160"

Which of the following actions shall the SRO direct? (SEE ATTACHED)

- A. Initiate Liquid Poison IAW Support Procedure 22, Initiating the Liquid Poison System
- **B.** Emergency Depressurize the RPV IAW the Emergency Depressurization With ATWS EOP
- C. Before RECIRC PUMP SUCTION TEMPS indicates about 425 °F, stop injection into the RPV from the Core Spray System, IAW the RPV Control No ATWS EOP
- D. Terminate and prevent RPV injection from sources external to the Primary Containment not required for adequate core cooling IAW the Primary Containment Control EOP



### **Saturated Steam**



Question #	13 C	Question Developer Initials/Date: NTP 1/12/09	
	'		
Answer			

	dge ar	ıd Abi	ility Referer	ice Infor	rnation		RO	SRC
2.1.25 -	9001 Low Pressure Core Spray 1.25 - Conduct of Operations: Ability to interpret Ference materials, such as graphs, curves, tables,					Importance Rating	3.9	4.2
Level	SRO		Tier#	2	Group #	1		
Referen	ces		RPV Contr ATWS EO					
References  Explanation:		The plant was at power when an event occurred. The conditions provided require entry into the RPV Control – No ATWS and Primary Containment Control EOP. The recirculation pump suction temperature (which is trending down) shows that RPV pressure is about 375 psig and lowering. A note in the RPV Control – No ATWS EOP states that if Core Spray is running (which it is), then to secure Core Spray before RPV pressure drops to 310 psig (which equates to about 425 °F), as long as core cooling is assured. RPV water level is given as 134" and slowly rising; thus, adequate core cooling is assured. With this, and RPV pressure lowering, Core Spray should be prevented from injecting. Answer C is correct.  The indications show that several control rods did not insert to position 00 but inserted to position 04. Under these conditions, the reactor can still be declared shutdown under all conditions and thus the RPV Control – No ATWS is the correct EOP. The conditions show that the Boron Injection Initiation Temperature (BIIT) curve is violated, and SLC should be injected if the RPV Control – With ATWS EOP was the correct EOP. Since there is no ATWS EOP entry, there is no direction to inject SLC due to violation of the BIIT curve. Answer A is incorrect.  Emergency Depressurization would be required if the Heat Capacity Temperature Limit (HCTL) were violated. But the conditions show						

	and the second second section of the second second second					
oe g exam:	None					
Given a correction	opy of RF onal state	V Contro ment, inc				
Эе	Bank		Modified Bank		New	х
itive	Memory or Fundamental Knowledge					X 3:SPK
	55.41		55.43	5		
	Given a condition conditio	2621.845.0.0052 3  Given a copy of RF or conditional state each step as required as the company of the conditional state each step as required as the company of the compan	2621.845.0.0052 3055  Given a copy of RPV Controller conditional statement, included the step as required  Bank  itive Memory or Fundamental Knowledge	2621.845.0.0052 3055  Given a copy of RPV Control – No ATW for conditional statement, including technological step as required  The step as required  Modified Bank  Itive  Memory or Fundamental Knowledge	2621.845.0.0052 3055  Given a copy of RPV Control – No ATWS, describer conditional statement, including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required  The statement including technical basis each step as required basis e	2621.845.0.0052 3055  Given a copy of RPV Control – No ATWS, describe in detail ender conditional statement, including technical basis, and how to each step as required  Modified Bank  New  itive  Memory or Fundamental Knowledge  Comprehension or Analysis

Question 14 1 Point

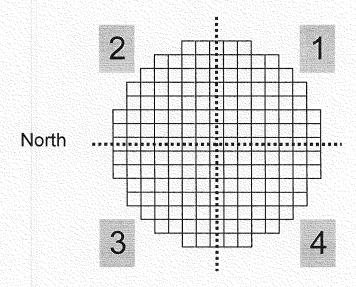
The plant is in a refuel outage and fuel movements are in-progress on the refuel floor.

The Refuel Platform Operator had just latched onto a spent fuel bundle in the fuel pool and the mast was being raised to the NORMAL UP position. The intended core location for the bundle is in the 4<sup>th</sup> core quadrant. The following report was then received from the Control Room Operator:

The SRM ALL IN light is extinguished

IAW Procedure 205, Reactor Refueling, which of the following directions shall the Fuel Handling Director (SRO) provide?

- **A. ALL** core alterations shall be halted.
- B. Core alterations shall be halted in the 4<sup>th</sup> quadrant **ONLY**.
- C. Core alterations may continue ONLY if SRM 24 indicates > 1 CPS.
- D. Core alterations may continue with NO further confirmations/verifications.



Question #   14 A	Question Developer Initials/Date: NTP 1/12/09
Answer	

215004 2.1.20 -	Source Ra	bility Reference Inge Monitor If Operations: A	Importance Rating	4.6			
Level	SRO	Tier#	2	Group #	1		
Referer	nces	205.0		TS 3.9	TS 1	.21	

The plant is shutdown with core alterations in progress. A spent fuel bundle is currently being moved within the spent fuel pool, to be inserted into the core area. The control room operator reports to the refuel operator that the SRM all in light is extinguished. Under normal refueling conditions, this light is illuminated and shows that all SRMs are fully inserted. With the light extinguished, one or more SRMs are no longer fully inserted, and thus cannot be considered operable.

Procedure 205 (P&L) requires that a minimum of 2 SRMs are fully inserted, operable and reading at least 1 CPS. The procedure also requires one operable SRM in the quadrant where the core alteration is being performed and one shall be located in an adjacent quadrant.

Since not even the control room operator is able to tell from the panel indications which SRM is not fully inserted, the refuel SRO cannot assume which SRM(s) is/are affected either, and must therefore halt all core alterations – not just alterations in the 4<sup>th</sup> core quadrant.

# **Explanation:**

TS 3.9 mirrors the same requirement for required SRMs during core alterations as in the procedure. TS 3.9.G goes on to state that if the TS requirements are not met, to cease all core alterations.

TS definition 1.21 defines core alteration, and it only applies to the core area. Loss of SRM operability has no impact on fuel movements in the spent fuel pool. Therefore, all core alterations must cease, but movements in the spent fuel pool may continue. Answer A is correct.

If the Candidate believes the given malfunction only impacts the fourth quadrant, then answer B would appear correct, but it is not.

It is true that an operable SRM must be reading at least 1 CPS IAW procedure 205. But operable SRMs must also be fully inserted. Answer C is incorrect.

If the Candidate thinks that the SRM ALL IN light is normally extinguished when all SRMs are fully inserted, then answer D would

		pear correct. Since the light is ON to show that all SRMs are fully erted, answer D is incorrect.							
References to be provided during exam:		None							
Learning Objective	State the operation 2621.812 Using pla	the responsibilities of the following personnel during refueling tions IAW procedure 205.0: Fuel Handling Director. 312.0.0003 LO 01132. plant references, state and interpret the Technical Specification ements associated with fuel handling.							
Question S	ource	Bank	Modifie Bank	ed		New	X		
		Memory o Fundamer Knowledg	ntal		ompror Anal	ehension ysis	X 2:DF		
		55.41	55.43	7					
10 CFR Par Content:	155	33.41	39.43						

Question 15 1 Point

The plant was at rated power, with Isolation Condenser A out of service and isolated. An event then occurred, resulting in the following plant conditions:

- RPV water level indicates 82" and rising
- Drywell temperature indicates 275 °F
- Drywell pressure indicates 2.1 psig
- Breakers GD1 and GC1 indicate green light ON
- ARI INITIATED annunciator is in alarm.
- ROPS is in BYPASS
- APRMs associated with RPS 1 indicate downscale
- APRMs and LPRMs associated with RPS 2 are oscillating: the APRMs and LPRMs are oscillating between 10 and 55

Which of the following directions shall the SRO direct?

- **A.** Reduce recirculation flow to minimum, IAW the RPV Control With ATWS EOP
- B. Inject the Liquid Poison System IAW Support Procedure 22, Initiating the Liquid Poison System
- C. Spray the Drywell IAW Support Procedure 29, Initiation of the Containment Spray System for Drywell Sprays
- D. Maintain RPV water level 138" 175" IAW Support Procedure 19, Feedwater Condensate and CRD System Operation

100 (100 (100 (100 (100 (100 (100 (100		
Question # 1!	B Question Developer Initials/Date: NTP 1/12/09	
Answer		
[VII2AGI		

2.4.6 - I		iquid Control S y Procedures / rategies.	Importance 3.7 4.7 Rating				
Level	RO	Tier#	1	Group #	1		
Referer	nces	RPV Contr w/ATWS E					

The reactor was at rated power when an event occurred. With RPV water level at 82", a scram should have occurred and a containment isolation signal. Conditions also show that ROPs has been bypassed, which is a step in the ATWS EOP. Also, the APRMs/LPRMs are oscillating in one RPS channel. A power loss could account for the other channel APRMs showing downscale. But given ARI initiated, ROPS manually bypassed and oscillating neutron instrumentation (with no control rod positions provided), an ATWS has occurred.

During an ATWS condition, if oscillations on the LPRMs of 30 watts/cm<sup>2</sup> peak-to-peak occur, then SLC should be initiated IAW SP-22. The conditions are provided that APRMs/LPRMs are oscillating between 10 and 55. Answer B is correct.

## **Explanation:**

In the power leg of the ATWS EOP, if the generator is still on-line, it directs to runback recirculation flow to minimum. But, when RPV water level dropped below 90", all recirculation pumps will automatically trip. Answer A is incorrect.

Conditions of high DW temperature exceed an entry condition for the Primary Containment Control EOP. In the DW temperature leg, spraying the DW is directed only if conditions are within the containment spray initiation limit (CSIL) curve. From the conditions given, the point is on the bad side of the curve and the DW cannot be sprayed from high temperature. DW sprays can also be performed from the DW pressure leg, but it requires DW/Torus pressure > 12 psig. DW pressure is given less than this value. Answer C is incorrect.

When power is >2% in the ATWS EOP, RPV water level should be lowered to below 30" by terminating and preventing. The normal water band of 130-175" is reserved for when the power is <2% during

	an ATW	S. Answer	D is inco	rrect.					
References provided du		Marie 17 august 2003 (Newschaffeld Television Co. Co.	ırve (prov Juestion 1						
Learning Objective	있는 해가 있는 것이 없는 br>								
Question So	ource	Bank		Modifie Bank	d		New	х	
Level:		Memory of Fundame	ntal			Compr or Ana	ehension lysis	X 3:SPH	
Levei:		Kilowieu	ae.						

Question 16 1 Point

You have just taken the shift as the SRO. During the previous shift, control rod 30-19 was declared inoperable and valved out of service at position 48. All requirements of Tech Spec 3.2, Reactivity Control, have been verified as satisfactory.

Two hours later, a SJAE malfunction resulted in a degrading condenser vacuum which required a manual scram. The Operator reports the following observations:

- Control rods 30-19 AND 30-15 both indicate position 48
- Annunciator COND VAC TRIP 2 10 INCHES is in alarm.

Which of the following actions shall the SRO direct?

- A. Confirm Recirculation Flow is runback to minimum IAW the RPV Control With ATWS EOP
- **B.** Bypass the MSIV low-low water level isolation signal IAW Support Procedure 16, Bypassing MSIV Lo-Lo Isolation Interlocks and the RBCCW Interlocks
- C. Depressurize the RPV with a cooldown rate below 100 °F/hr using the Main Turbine Bypass Valves IAW the RPV Control No ATWS EOP
- D. Depressurize the RPV with a cooldown rate below 100 °F/hr using Cleanup in Letdown Mode IAW Support Procedure 14, Alternate Pressure Control Systems – Cleanup in Letdown Mode

Knowle	dge an	d Abilit	y Referen	ce Infor	mation			RO	SRO
214000 RPIS A2.02 - Ability to (a) predict the impacts of the following on the ROD POSITION INFORMATION SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Reactor SCRAM							nce	3.6	3.7
Level	SRO		Tier#	2	Group #	2			
Referer	nces		RPV Contro		TS 3.2				
Explana	ation:	then verod (not but 2 c green I remain position reactor 19), the without the AT remain EOP sI entered	erified, which the solution of	ch included with the corn and will and will the 2 and ender a witted an axited an architecture.	isolated at podes shutdowne full out pontrol rod valvet a second conew SDM can with a control rods d, it can be control to all conditions d the RPV Conew Sound the RPV Conew Sound the RPV Conew Sound the RPV Conew Sound So	n margin vesition. Follost scram of ed out of sontrol rod sontrol rod sontrol rod southour und stuck full-odetermined without boontrol – Note to the edge of the e	with any owing to condition ervice in also rerestuck fuller all cout. The that the cout and cout.	v other of the scrains (blar is expectation) with the condition of the condition of the ATS EOP	controlem, all onk with cted to the ot 30-les even if the or will rws
		into the water le conclud Control direction provide prevent cooldon	e RPV Con evel from a ded shutdo I – No ATV on to initiate ed alarm sh t opening o	trol – wanted trol – was full power und WS EOP and a norm tows coof the turns the RW6	no ATWS Edwer scram. So wer scram. So wer scram. So were all condowned to the correct of the condowned enser vacuum system. The condowned enser vacuum system. The condowned enser was selected to the condowned enser was selected enserted enser enserted ens	OP will be since the recons withou ot EOP to end is correct uum at 10's valves. A	enteredeactor of t boron enter. In But sin this we n altern	d on low an be , the RF n this E( nce the vill close nate met	RPV PV OP, the and chod to

If the Candidate concludes that the ATWS EOP is the correct EOP to follow, then directing Recirculation flow to minimum would be correct if the turbine were still on-line. There are no indications the turbine is on-line, nor is the ATWS EOP the correct procedure. Answer A is incorrect. Regardless of any conditions, except that an ATWS is in progress, bypassing the MSIV isolation signal would be correct. But since the ATWS EOP is not the correct EOP, performance of this step is incorrect. Answer B is incorrect References to be None provided during exam: Learning 2621.845.0.0052 3055 Objective Given a copy of RPV Control - No ATWS, describe in detail each step or conditional statement, including technical basis, and how to perform each step as required. Modified X **Question Source** Bank New Bank Memory or Comprehension X **Question Cognitive Fundamental** or Analysis Level: 3:SPK Knowledge 10 CFR Part 55 55.41 55.43 5 Content: Time to Complete: 1-2 minutes

Question 17 1 Point

The plant was at rated power when the hydrogen monitor for the in-service offgas recombiner was declared inoperable. The alternate recombiner is tagged out of service.

To continue to use the AOG System, which of the following shall the SRO direct, **AND** which states the bases for the hydrogen concentration limit of 4% in Tech Spec 3.6.F, Condenser Offgas Hydrogen Concentration?

	SRO Direction	<u>TS Bases</u>
A.	Sample once per day	This represents the flammability limit of hydrogen in air
В.	Sample once per day	This represents the lower limit of detection of hydrogen in steam
C.	Sample every 8 hours	This represents the flammability limit of hydrogen in steam
D.	Sample every 8 hours	This represents the lower limit of detection of hydrogen in air

1		A CONTROL OF THE CONT	
	Question #	17 A Question Developer Initials	/Date: NTP 1/13/09
	Answer		
L	<i></i>		

		Control of the second second of the second s	.,0.0101		ormation		RO	SRO
	Equipr				of limiting its.	Importance Rating	4.0	4.7
Level	SRO							
Referen	ces	TS	3.15		TS 3.6.F			
Explana	tion:	recombi 3.15, da a freque monitori IAW TS hydroge the flam correct.	ner temp ily samplency of 8 ng and te 3.6.F ba n concer mability I The othe	erature ling of hours empera ses, th atration imit of er answ	There is no ince monitoring is the recombine is intended for a ture monitorine offgas stream to ensure that hydrogen in aivers either have oth. Answer A	inoperable. The outlet is requested when both the organization of the system is incorrect the incorrect the incorrect the incorrect the incorrect incorrect in the incorrect incorrect in the incorrect incorrect in the incorrect incorrect in the incorrect incorrect incorrect incorrect in the incorrect incor	herefore, I. ired. Sample hydrogen inoperable d at < 4% operated answer A is	AW TS bling of e. below
Referen provide		be ig exam:	TS 3.1	15 - 12				
	a	2621.850	.0.0090 I	LO 019	920	50000000000000000000000000000000000000	copies of C	

Question Source	Bank	Modified Bank	New	X
Question Cognitive Level:	Memory or Fundamental Knowledge	1:F	Comprehension or Analysis	
10 CFR Part 55 Content:	55.41	55.43	2	

Question 18 1 Point

The plant was at rated power when an event occurred. Present plant conditions are as follows:

- COND B FLOW HI POSSIBLE RUPTURE annunciator is in alarm
- SHELL B LVL HI/LO annunciator is in alarm
- ISOL CONDENSER B LEVEL indicates 9.5'
- Isolation Condenser B CANNOT be isolated
- RADIATION MONITORS OFFGAS HI annunciator is in alarm
- RADIATION MONITORS OFFGAS HI-HI annunciator is in alarm.
- MAIN STEAM RAD HI annunciator is in alarm.
- MAIN STEAM LINE RAD MONITORS indicate > 3000 mr/hr
- RPS 1 and RPS 2 SCRAM SOLENOIDS lights are de-energized
- Several Area Radiation Monitors in the Reactor Building are reading slightly above their high setpoint
- The Site Emergency Director has declared a GE EAL (RG1, Radiological Effluent)

Which of the following actions shall the SRO direct?

- A. Emergency Depressurize the RPV IAW the Radioactivity Release Control EOP
- B. Emergency Depressurize the RPV IAW the Secondary Containment Control EOP
- C. Depressurize the RPV to maintain the cooldown rate below 100 °F/hr IAW the RPV Control No ATWS EOP
- **D.** Rapidly reduce RPV pressure with the Main Turbine Bypass Valves IAW ABN-26, High Main Steam/Offgas/Stack Effluent Activity

Question #	18 A Question Developer Initials/Date: NTP 1/13/09	
Answer		
771101101	The Control of the Co	and the statement of th

			lity Refere		rmation			RO	SRO
2.4.45 -	Ability	to pric	onitoring Sy oritize and in annunciator	nterpret f		Importance		4.1	4.3
Level	SRO		Tier#						
Referen	ces		Radioactiv Release C EOP						
Explana	tion:	and Conwate RPS enter the street of armair The fuel (which IAW ED containdictions)	main steam denser B as a level in the solenoid liqued red: RPV Control of the solenoid liqued: RPV Control of the solenoid requirement damage, and the Rad Research be directed at level of the solenoid requirement and the solenoid red be directed red at level of the solenoid red red red red red red red red red re	line rad e evidence e shell. The ghts de-e ontrol — ondary (farm), Rad condense ation mo to to ED d a Gen d declared elease E0 ted from to be a condense d a max ded sho	owing: fuel fariation alarms bed by the highest plant has benergized. The No ATWS ECOntainment of the Rad Report of the Rad Report of the Secondary of the Secondary of the Secondary of the safe value extent of the safe value extent of the e	; a tube bre ; h flow ann scrammed e following DP (on RPN Control EO elease Con and ABN-2 elease EOI ncy declare ed). Therefolia A is correct. ary Contains a primary si exceeded in ise in radia	eak in Is unciated as eving process of water P (seventrol EO) 6 (high P are: in the doment Core, ED) water in the doment Core, end in the doment Core,	solation or and hodenced dures will level for eral ARI offgas andication offsite offsi	igh by the ill be illowing Vis in eations and ons of dose uired
			down, but th		TWS EOP do				ormal
		the N	ucing RPV p Main Steam when greate	Lime Ra	will reduce the	tors shall be	e isolat	ed IAW	ABN-

	are not	available. Ar								
References provided du		Radioacti Control E		ase						
Learning Objective	Using probasis for	2621.845.0.0058 LO 2483 Using procedure Radioactivity Release Control, evaluate the tec basis for each step and apply this evaluation to determine the cocourse of action under emergency conditions.								
Question So	ource	Bank		Modifie Bank	d	X		New		
Level:		Memory or Fundamen Knowledge	ıtal			Compr or Ana			X 3:SPR	
10 CFR Part 55 Content:		55.41		55.43	į	5				
Time to Con	nplete: 1-2	minutes			-					

Question 19 1 Point

The plant is in a refuel outage and fuel movements are in-progress on the refuel floor.

IAW procedure 205.0, Reactor Refueling, which of the following is/are the responsibilities of the Fuel Handling Director (SRO) on the Bridge?

- 1. Signing for completion of each move on the Fuel Move Sheet.
- 2. Turning off the Bridge power supply if the Bridge controls fail.
- 3. Directly supervising the manual movement of fuel and controls in the core.
- 4. Ensuring all license requirements for refueling are satisfied.
- A. 1 ONLY
- B. 4 ONLY
- **C.** 1 and 3
- D. 2 and 4

Question #	19 C	Question Developer Initials/Date: NTP 1/14/09	
Answer			

Knowle	dge ar	nd Ability	Referen	ice Info	ormation		RO	SRO
2.1.40 Knowled	dge of i	refueling a	administr	ative re	quirements	Importance Rating	2.8	3.9
Level	SRO		Tier#	3	Group #			
Referer	ices	20	)5.0		TS 1.21			
Explana		concurred community proper of bundle of fuel poor distract refuel end of those required alteration core.  Selection incorrect selection answer.	ent duties ove on the nication vexecution orientation	s during the fuel r with the the of core the operate the operate the dure a the dure a the dure a the dure a	g core alteration ove sheet; 4) control room e alterations I/6) ensuring notify during refeators or create (7) notify the Slass the FHD research manual move (sibility of the F	ons; 2) having no ons; 3) signing fo ons; 3) signing fo o maintaining pro licensed operato AW procedures a o other activities uel operations the any physical int M and RE of any election 1 and 3 of sponsibility. IAW ment of fuel and uel Move Spotte hift Manager and	r completer; 5) assumed the function of the fu	uring uel id the e with rrors. C) is , core in the
Referen provide		be ng exam:	None					
Learnin Objecti			respons	ibilities	of the followin	g personnel duri Handling Directo		ling

Question Source	Bank	Modified Bank	New	X
Question Cognitive Level:	Memory or Fundamental Knowledge	1:P	Comprehension or Analysis	
10 CFR Part 55 Content:	55.41	55.43	7	
Time to Complete: 1-2	2 minutes			

Question 20 1 Point

Attached are 2 pages from surveillance test 610.4.002, Core Spray Pump Operability Test. Four (4) proposed procedure changes are annotated on the test (each change is circled and labeled for easy identification).

IAW AD-AA-101, Processing of Procedures and T&RMs, which of the changes will require that the procedure undergo a full review and revision **PRIOR** to implementing the change?

Change #1: Added V-20-27

Change #2: Changed 2F/2F to 1F/2F

Change #3: Changed NZ01B to NZ01D

Change #4: Changed 2700 to 2500

- A. Change #1
- B. Change #2
- C. Change #3
- D. Change #4

-	AmerGen.  An Exelon Company				ER CREEK GENERATING TATION PROCEDURE	Number 610.4.002		
Title		re Spray	/ Pump Op	erabilit	ty Test	Revision No. 48		
6.0	SYS	TEM 1 8	<u>SURVEILLA</u>	<u>ANCE</u>				
	6.1				requisites are satisfied and <b>S</b> . <b>RECORD</b> the date of the Su			
	6.2	<u>IF</u>	Core Spra		m operation is required during	g this		
		THEN	CONFIR is closed		EST FLOW RETURN valve,(	V-20-27), ◀	Change #	
			<u>AND</u>					
			CONFIRM valve is op		re Spray PUMP DISCHARGE	=		
	6.3				em 1 ( <b>RECORD</b> all data entrie unless directed otherwise).	es on		
		6.3.1	<u> </u>	reac	tor pressure is < 350 psig,			
			<u>THEN</u>	PER	RFORM the following:			
				a.	UNLOCK V-20-12, System DISCHARGE Valve, supply (MCC1A21A).			
				b.	<b>TURN ON</b> V-20-12, System Discharge Valve, supply breaker (MC			
				C.	CLOSE V-20-12 from the c switch on 2F/2F) 1F/2F.	ontrol -	Change #2	
				d.	TURN OFF breaker for V-2	0-12		

(MCC1A21A).

AmerGen .  An Exelon Company	OYSTER CREEK GENERATING STATION PROCEDURE	Number 610.4.002
Title  Core Spray Pump Op		Revision No. 48

### 8.0 ACCEPTANCE CRITERIA

- 8.1 The Components tested by this procedure meet Technical Specifications for operability if the follow criteria are met:
  - The Core Spray System Pumps Operate as specified in the procedure:

### System 1

Core Spray Main Pump (NZ01A)

Core Spray Booster Pump (NZ03A)

Core Spray Main Pump (NZ01C)

Core Spray Booster Pump (NZ03C)

### System 2

Change #3

Change #4

Core Spray Main Pump (NZ01B)

Core Spray Booster Pump (NZ03B)

Core Spray Main Pump (NZ01B) (NZ01D)

Core Spray Booster Pump (NZ03D)

Core Spray System flow rate:

System 1 ≥ 3400 gpm (Main and Booster Pumps Running)

System 1 2700 2500 gpm (Main Pump Running only)

System 2 ≥ 3640 gpm (Main and Booster Pumps Running)

System 2 ≥ 2900 gpm (Main Pump Running only)

Answer	# 20	Daniel de la constant	Q	uestio	n Developer I	Initials/Date: NT	P 1/14/0	9
Knowledg	e and Al	bility Re	feren	ce Info	ormation		RO	SRC
2.2.6 Knowledge procedures	of the p					Importance Rating	3.0	3.6
Level	SRO	Tie	er#	3	Group #			
Reference	S	AD-AA	<b>\</b> -101					
Explanatio	Ch spr the cha pro Cha 2F/ pro Ans Cha	Procedure AD-AA-101, Processing of Procedures and T&RMs, allows changes to procedures prior to a full review and approval. The procedure allows editorial changes and temporary changes to procedures, both of which can be implemented prior to a full review and approval.  Change #1 can be classified as an editorial change since the core spray system 1 test flow return valve is V-20-27, and the addition of the valve number enhances the proper identification of the valve. This change can be implemented prior to a full review and revision process. Answer A is incorrect.  Change #2 is typographical error since there is no control room panel 2F/2F, but the control switch is located on panel 1F/2F. This procedure change can also be controlled as an editorial change. Answer B is incorrect.  Change #3 can also seen to be an editorial change since pump NZ01B is already listed and NZ01D is the correct pump identifier. Answer C is incorrect.  Change #4 appears as it could be controlled as a temporary change, which can be implemented prior to a full review/revision, except that AD-AA-101 specifically prohibits a temporary change which alter technical specification or other regulatory related acceptance criteria, which this clearly is. Therefore, change #4 must proceed with a full						

Learning

Question Source	Bank	Modified Bank	New	X
Question Cognitive Level:	Memory or Fundamental Knowledge	1:P	Comprehension or Analysis	
10 CFR Part 55 Content:	55.41	55.43	3	

Question 21 1 Point

The plant is at rated power with CRD Pump B tagged out of service to replace the pump oil.

The work order requires running surveillance test 617.4.001, CRD Pump Operability Test as a Post Maintenance test (PMT) following work completion.

Which of the following states an additional requirement for the PMT of this pump, if any?

- A. The surveillance test is NOT adequate by itself. Motor current should also be monitored and documented.
- **B.** The surveillance test is adequate as a PMT and **NO** other actions outside of the surveillance are required.
- C. The surveillance test is **NOT** adequate by itself. Bearing temperatures should also be monitored and documented.
- **D.** The surveillance test is **NOT** adequate by itself. A VT-2 leakage inspection should be performed and documented.

Question #	21 C	Question Developer Initials/Date: NTP 1/14/09
Answer		
L		

	dge an	d Abilit	y Referen	ice innor	mation			RO	SRC
2.2.21 Knowledge of pre- and post-maintenance operability requirements.						Importance Rating		2.9	4.1
Level	SRO		Tier#	3	Group #				
References MA			1A-AA-716	AA-716-012 617.4.001					
Explan	ation:	Generi pump I and lub verify a	c Post Ma ubricant c prication le any of thes aswer C sp	intenanc hangeou evel chec se recom	st Maintenan e Test Matrix t: bearing ter ks. The surve mended actic one of the li	k, there are nperature eillance te ons. Of the	e 3 types , external est does no ose action	of test leaka ot test is list	sts for age, st or ed,
Referer provide		be ng exam		Q-716 <b>-</b> 01	2 Attachmer	it 617.4.	001 Attac	hmer	nts 1-3
Learning 2621.828.0 Objective Identify and System, inc			and interp	ret the te	1 st and surve el and equipi	illance pro	ocedures t	for th	e CRD
	Question Source E		CONTROL OF THE PARTY OF THE PAR	AT THE REAL PROPERTY OF THE PARTY OF THE PAR	A ANGENIA PER STATUTE AND		- Company of the second second		9-X4
Questic	n Soui	ce	Bank		Modifie Bank	d	New	<b>,</b>	Х
Questic Questic Level:	To all the property of the		Bank Memory Fundan Knowle	nental			rehensio		X X 2:DR
Questic	n Cogi	nitive	Memory Fundan	nental		Comp	rehensio		Х

Question 22 1 Point

As the Shift SRO, you have 3 jobs to assign to 3 EOs on your crew. Below are the estimated dose exposures from each job and the current TEDE for the EOs:

• JOB 1: 200 mrem

JOB 2: 300 mrem

JOB 3: 400 mrem

EO A: 1250 mrem

EO B: 1650 mrem

EO C\*: 225 mrem

\*EO C is a declared pregnant worker

IAW RP-AA-203, Exposure Control and Authorization, and without exceeding the annual dose control level or any federal limits for TEDE, determine who can be assigned which task.

<u>JOB 1</u>	<u>JOB 2</u>	JOB 3
<b>A.</b> EO A	ЕО В	EO C
B. EOC	EO A	EO B
C. EOB	EO C	EOA
D. EOC	ЕОВ	EOA

Question #   22 D	Question Developer Initials/Date: NTP 1/15/09
Answer	

	uge ai	ia Abilit	y Referen	ce im	ormation		R	U	SRO
		adiation condition		rposure limits under normal			e 3.	3.2	34
Level	SRO		Tier#	3	Group #				
Referer	ıces	R	P-AA-203						
Explanation:		federal Candid assigne Since E Since E level, the perform perform	TEDE limate does led to any led t	it for a know e EO. hited to ly 350 can pe nen EC but sin	DE for a radiation declared pregenther of these length of 500 mrem, E0 mrem away from JOB 1 or D B can only pender JOBs 1 & 2 mswer D is corrected.	nant person imits, then all O C can only om the annuar JOB 2. But erform JOB 2 are already	is 500 mr I of the jo perform a al dose co since EC	em bs JO onti onti	. If the can be B 1. rol must
Referen provide			None:						
Learnin	g								

		Managarish palagarisa manar		
1:D	THE RESERVE OF STREET		nension sis	
55.43	4			
The second of th			, u.u.	

Question 23 1 Point

Which of the following EOP actions may cause a rise in the internal dose to workers inside the Reactor Building?

Directing an Operator to ....

- A. manually insert control rods using RMCS during an ATWS.
- B. insert control rods with the Scram Test Switches during an electric ATWS.
- C. perform SP-50, Reactor Building Ventilation Restart, during a refuel floor accident.
- **D.** vent the Drywell IAW SP-36, Venting the Drywell Via The Hardened Vent, during a LOCA.

Question #	* 23 R	Question	Developer Initials	s/Date: NTP 1/16/09
Answer				
Company of the Compan	······································		HOST CONTROL OF THE PROPERTY O	

	dge ar	id Abii	lity	Referen	ce Info	rmation			RO	SRO
2.3.14 Knowledge of radiation or may arise during normal, a conditions or activities.						Importance Rating		3.4	3.8	
Level	SRO	į		Tier#	3	Group #				
Referen	ices		EM	IG-SP21						
Explanation:		person is to pane open over-in the Steam enter levels Movim movim airbo	onne indivi I. Du . WI piste RE m ge the s, le mg c rne vers de o	el. During vidually suring an one on volum B. This was eneration RB atmostrol rocontrol rocontamin C and D of the RB.	g an AT cram electric dividual electric dividual electric flow atternism a rise in de any mation lecan re	sponsible for the IVS, one met each control rocal all control rod is to the SDV areactor water equipment drawing an ATWS other time and levels. Answeresult in a rise is inside the RI	hod used od from the DV vents is scrammand to an eart the tem ain tank come and the acceptance of the company o	to inserted Control and draged, the equipment occurring the sis control ally the street.	t contro of Room ains rem control ent drain e of the ur which contam rrect. same as e in RB	n back nain rod n tank RPV. will nination
References to be provided during exam:			None							
Control – With A step or conditional statement, including perform each step as required					ntrol – With AT nent, including	WS, desc technical	ribe in o	detail ea	ach 7 to	

Question Source	Bank	Χ	Modified Bank		New	
Question Cognitive Level:	Memory of Fundame Knowledo	ntal	1:P	Compi or Ana	rehension	
10 CFR Part 55 Content:	55.41		55.43	4		
Time to Complete: 1-2	2 minutes	THE PARTY OF THE P	The state of the s			

Question 24 1 Point

The plant was at rated power when an event occurred as shown in the timeline below:

O800 The reactor was manually scrammed due to rising turbine vibrations
O802 The Operator reports the following:

- All control rods indicate full-in
- RPV water level indicates 150" and rising slowly
- RPV pressure indicates 970 psig and rising slowly
- Primary Containment parameters are normal

0805 The following annunciators alarm:

- S1A BRKR TRIP
- S1B BRKR TRIP

Which of the following actions shall the SRO direct NEXT (the current time is 0806)?

- A. Declare an Unusual Event emergency classification MU1 now, IAW EP-AA-1010
- B. Control RPV pressure with the Isolation Condensers IAW ABN-36, Loss of Offsite Power
- C. Control RPV pressure with the Turbine Bypass Valves IAW the RPV Control -No ATWS EOP
- D. Lineup for injection Fire Water via Core Spray IAW Support Procedure 5, Fire Water Injection for RPV Water Level Control

ſ									1
	Question#	24 B	∣ Q	uestion	Develope	er Initials	s/Date: N	TP 1/20/09	1
	Answer								1
L	/11.01101								

2.4.46 Ability to		Ability Referer		istent with the	Importance Rating	4.2	4.2
Level	SRO	Tier#	3	Group #			
References		RAP-S1f RAP-T1d		ABN-36	RPV( EOP	C – No A	ATWS

The plant was at power when a manual scram was inserted. All control rods inserted and RPV water level and pressure are in an expected band. The annunciators provided show a loss power from Startup Transformers SA and SB. This results in a loss of offsite power. When this occurs, EDG 1 and EDG 2 fast start and load onto 4160 VAC Busses C & D. If alarms for Breaker 1C/1D 86 Lockout were also received, this would have resulted in the loss of the EDGs supplying the emergency busses and a station blackout would result.

ABN-36 directs that the Isolation Condensers be used to control RPV pressure (since the loss of power closed all MSIVs). Answer B is correct.

## Explanation:

IAW EP-AA-1010, the loss of both startup transformers would require an unusual event classification after 15 minutes of the loss of power. Since answer A says to declare now, it is incorrect and answer A is incorrect.

When the offsite power sources are lost, both RPS Busses are lost which results in the isolation of the MSIVs. Thus the turbine bypass valves cannot be used for RPV pressure control. Answer C is incorrect.

Water level is given in the question as 150" and rising slowly prior to the loss of offsite power and the loss of Feedwater/Condensate. There are no indications of leaks or breaks in the primary system. If RPV water level did lower substantially, the EOP directs starting CRD and SLC first. Also, fire water would only be used if Core Spray were unavailable and there are no indications that it is not available. Answer D is incorrect.

to be ring exam:	San Control	-1010 Hot	: Matrix					
Given spe (ABNs), d	ecific plan	cific plant conditions and appropriate abnormal procedu iscuss the actions which should be taken to implement t						
Question Source  Question Cognitive Level:			Modified Bank	Modified Bank		New	Х	
		Memory or Fundamental Knowledge		The State of the State of			3:SPF	
55	55.41		55.43	5				
	2621.801 Given spe (ABNs), o selected	2621.801.0.0001 L Given specific plan (ABNs), discuss the selected procedure  Bank  Memory Fundam Knowled	2621.801.0.0001 LO 1407 Given specific plant condition (ABNs), discuss the actions selected procedures.  Bank  Memory or Fundamental Knowledge	2621.801.0.0001 LO 1407 Given specific plant conditions and appr (ABNs), discuss the actions which should selected procedures.  Bank  Memory or Fundamental Knowledge	2621.801.0.0001 LO 1407  Given specific plant conditions and appropriate (ABNs), discuss the actions which should be to selected procedures.  Modified Bank  Genitive  Memory or Fundamental Knowledge  Corporate Corpor	2621.801.0.0001 LO 1407  Given specific plant conditions and appropriate abn (ABNs), discuss the actions which should be taken selected procedures.  Modified Bank  Memory or Fundamental Knowledge  Compre	2621.801.0.0001 LO 1407  Given specific plant conditions and appropriate abnormal prod (ABNs), discuss the actions which should be taken to impleme selected procedures.  Modified Bank New  Ognitive Memory or Fundamental Knowledge Comprehension or Analysis	

Question 25 1 Point

The plant was at rated power when a main transformer fire began, which was extinguished in 16 minutes. The SM declared an **Unusual Event** emergency classification due to the fire.

IAW EP-AA-112-100-F-01, Shift Emergency Director Checklist, which of the following actions is **REQUIRED** of the Shift Emergency Director?

- A. Notification to Lacey Township within 60 minutes of the event.
- B. Activation of the Emergency Response Facilities (ERF) (TSC, OSC, JNC).
- **C.** Determination of Protective Action Recommendations (PARs) (shelter, evacuate).
- **D.** Activation of Emergency Exposure Controls, if necessary (authorize emergency exposure, and/or potassium iodide).

Question # 25 D Question Developer Initials/Date: NTP 1/20/09
Answer

Knowle	edge an	d Abilit	y Referen	ce Infor	mation			RO	SRO
2.4.40 Knowledge of the SRO's re emergency plan implemen			's respons			Importance Rating		2.7	4.5
Level	vel SRO T		Tier#						
References EP-/		EP-AA-112 )1	-100-F-	EP-AA-101	0	OC L	ER 200	8-001	
Explanation:		and was Event of IAW th Exposit iodide) Because Towns Answe Because not reco	as extinguinemergency are reference are Controlor, if require se the emerical hip is not reaching is not reaching is a secondary.	shed in a classifice, the SI Is (authorder Answergency required anon-sective rect.	class is not a	The SM do the fire. I be Activation of the fire of the	eclared n this con of Er sure, an ification SE class tion of t	an Unu ondition nergend d/or pot to Lace sificatio	sual i, and cy tassium ey n).
References to be provided during exam:		None							
Objective List the res Classificat Organizati Activating evacuatior		responsible cation of the cation; 3) Ping ERDS; tion of non-	ilities of the event; AR dete 6) Perso essentiated	the Shift Eme 2) Activating rmination; 4) annel assemb al personnel; Alert classific I activities.	g the Eme Required bly, accou 7) Deterr	rgency I notifica ntability nination	Resporations; 5 , and i if the C	nse 5) DSC is	

Question Source	Bank	Modified Bank		New	X
Question Cognitive Level:	Memory or Fundamental Knowledge	1:F	Compreh or Analys		
10 CFR Part 55 Content:	55.41	55.43	5		