A.1-1 RO & SRO Calculation of values required to raise RWST level.

EVALUATION QUEET

				EVALUA	TION SHEET				
<u>Task:</u>		Calcu	ulation of	values requir	ed to raise RWS	ST level.			
Alternate Pa	<u>ath:</u>	None	;						
Facility JPN	<u>1 #:</u>	Modi	fied				•		
Safety Fund	tion:	n/a	<u>Title:</u>	Conduct	of Operations				
<u>K/A</u>	2.1.23	•	Ability to all mode	perform speces of plant ope	cific system and eration.	integrated	plant proce	dures	during
Rating(s):	4.3/4.4	1	<u>CFR:</u>	41.10/43.5/4	5.2/45.6				
Evaluation I	<u>Method</u>	: Si	mulator		n-Plant		Classroon	n	Х
<u>References</u>	:	SOI-6	62.02, "B	oron Concent	ration Control," F	Rev. 50			
Task Numbe	<u>er:</u> F	RO-062	2-SOI-62	2-018 <u>Titl</u>	e: Makeup to	the RWS	T using the	blende	r.
<u>Task Standa</u>	ard:	The a "Blen	pplicant ding Grea	performs SOI ater Than 250	-62.02, "Boron C 0 ppm," and cal	Concentrati culates:	on Control,'	' Apper	ndix B,
		1.) 2.)	The am 1637 ± : The am be 1363	ount of primar 5 gallons. ount of boric a 3 ± 5 gallons.	ry water to be er acid solution to b	ntered into be entered	the PW inte into the BA	grator integra	to be itor to
Validation T	<u>ime:</u>	1	l0 min	utes	Time Critica	<u> :</u> ```	Yes	No	X
Applicant:			NAME		Docket	 No.	Time Start: Time Finisł	===== n:	
<u>Performance</u>	e Rating	<u>1</u> : SA	T (UNSAT			Performanc	ce Time	9
Examiner:								1	
		NA	AME			BIGNATUF	RE	_/D	ATE
						=========	==========	====:	====
				COM	MENTS				
				COMI	MENTS				
		****		COMI	MENTS				
				СОМІ	MENTS				
				СОМІ	MENTS				
				СОМІ	MENTS				

Tools/Equipment/Procedures Needed:

The latest revision of SOI-62.02, "Boron Concentration Control." Calculator

NOTE: This JPM is designed to be performed in a classroom with procedures available to the applicant.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provide you.

INITIAL CONDITIONS:

- 1. RWST level has been reported to be at 371,000 gallons.
- 2. RWST boron concentration is currently 3100 ppm.
- 3. A problem in the makeup control circuit is currently limiting the maximum boric acid flow rate to 30 gpm.
- 4. You are an extra operator assigned to the shift.

INITIATING CUES:

- 1. The Unit Supervisor directs you to determine the amount of primary water and the amount of boric acid needed to raise RWST level to 374,000 gallons while maintaining the current boron concentration.
- 2. You are to notify Unit Supervisor when you have completed your determination of the amount of primary water and the amount of boric acid needed.

WATTS BAR NUCLEAR PLANT JOB PERFORMANCE MEASURE

A.1-1 RO & SRO

2010-08 NRC Exam

STEP/STANDARD

SAT/UNSAT

START TIME: _____

STEP 1: Obtain a copy of the procedure.	SAT
STANDARD: A copy of SOI-62.02, Boron Concentration Control," Section 8.1 is located by the applicant.	UNSAT
EXAMINER'S CUE: After the applicant has demonstrated the method of obtaining the correct instruction, the examiner will provide a copy of the instruction.	
NOTE	
NOTE	
Performance of this Section should be coordinated with performance of Boric Acid Flow Paths: Valve Position Verification.	of 1-TRI-62-3,
<u>STEP 2</u> : [1] REFER TO one of the following methods to determine amount of Primary Water (PW) & Boric Acid (BA) needed: (N/A method NOT used) [1.1] IF blending at less than 2500 ppm, THEN USE TI-59.	SAT UNSAT
[1.2] IF blending at 2500 ppm or greater, THEN USE Appendix B.	
STANDARD:	
Applicant determines from the INITIAL CONDITIONS that the blended solution is greater than 2500 ppm, and enters an N/A in Step 1.1.	
Applicant locates Appendix B to continue the calculation.	
COMMENTS:	

WATTS BAR NUCLEAR PLANT JOB PERFORMANCE MEASURE

A.1-1 RO & SRO

2010-08 NRC Exam

STEP/STANDARD	SAT/UNSAT			
NOTE				
This Appendix should only be used in conjunction with Sections 6.5 or 8.1. Primary water flow must be varied to blend at concentrations greater than 2500 ppm; therefore, blending is only possible when 1-HS-62-140B, VCT MAKEUP MODE is in MANUAL.				
STEP 3: From the Table on Page 2 of 2, the applicant locates the row which contains the Desired Blend Concentration of 3100 ppm, and determines Primary Water flow rate to be 48 gpm.	SAT UNSAT			
STANDARD:				
Applicant reads the primary flow rate to be 48 gpm from the row for 3100 ppm.				
COMMENTS:				

STEP/STANDARD	SAT/UNSAT
STEP 4: Calculates Required PW flow rate using the formula provided at the bottom of Page 2 of 2 of Appendix B.	
STANDARD:	
Applicant performs the calculation at the bottom of Page 2 of 2, and determines that the Required PW Flow Rate to be used with 30 gpm of Boric Acid Flow rate is 36 gpm.	
Actual BA flow rate = Required PW flow rate	
40 PW flow rate from Table	
Actual BA flow rate X PW flow rate from Table = Required PW flow rate 40	
30 X 48 = 36 gpm	
<u>COMMENTS:</u>	

STEP/STANDARD	SAT/UNSAT
<u>STEP 5</u> : Calculates the amount of primary water to be entered into the PW integrator, by using the ratio of the primary water flow rate to the total flow rate.	CRITICAL STEP
STANDARD:	SAT
Applicant determines the Total Flow rate to be 66 gpm by adding the primary water and boric acid flow rates together.	UNSAT
Applicant determines the total amount of primary water to be added by first calculating the percentage of flow due to primary water by dividing the primary water flow by the total flow, then multiplying the 3000 gallon change by that percentage. This results in 1637 gallons of primary water to be placed in the PW integrator.	
Acceptable value: 1637 ± 5 gallons.	
Total Flow Rate = 36 gpm + 30 gpm = 66 gpm	
<u> </u>	
Could also perform calculation:	
3000 gal./66 gpm = 45.45 minutes	
36 gpm x 45.45 min. = 1636 gal. of PW	
Step is critical since the proper adjustment in primary flow rate is required to ensure proper blended solution is delivered to the RWST.	
COMMENTS:	

WATTS BAR NUCLEAR PLANT JOB PERFORMANCE MEASURE A.1-1 RO & SRO

2010-08 NRC Exam	
STEP/STANDARD	SAT/UNSAT
<u>STEP 6</u> : Calculates the amount of boric acid to be entered into the BA integrator, by using the ratio of the boric acid rate to the total flow rate.	CRITICAL STEP
STANDARD:	SAT
Applicant determines the total amount of boric acid to be added by first calculating the percentage of flow due to boric acid by dividing the boric acid flow by the total flow, then multiplying the 3000 gallon change by that percentage. This results in 1363 gallons of boric acid to be placed in the BA integrator.	UNSAT
Acceptable values: 1363 ± 5 gallons.	
Total Flow Rate = 36 gpm + 30 gpm = 66 gpm	
$\frac{30 \text{ gpm}}{66 \text{ gpm}} = 0.45455$ $0.45455 \times 3000 = 1363 \text{ gal. BA}$	
Could also perform calculation:	
3000 gal./66 gpm= 45.45 minutes	
30 gpm x 45.45 min. = 1364 gal. of PW	
Step is critical since the proper adjustment in boric acid flow rate is required to ensure proper blended solution is delivered to the RWST.	
COMMENTS:	

WATTS BAR NUCLEAR PLANT JOB PERFORMANCE MEASURE A.1-1 RO & SRO

2010-08 NRC Exam			
STEP/STANDARD	SAT/UNSAT		
STEP 10: Notify the Unit Supervisor that the primary water flow rate, amount of boric acid and primary water have been determined.	SAT UNSAT		
STANDARD:			
Applicant informs the Unit Supervisor of the results of the calculations.			
COMMENTS:			
END OF TASK			

STOP TIME _____

.

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- 1. RWST level has been reported to be at 371,000 gallons.
- 2. RWST boron concentration is currently 3100 ppm.
- 3. A problem in the makeup control circuit is currently limiting the maximum boric acid flow rate to 30 gpm.
- 4. You are an extra operator assigned to the shift.

INITIATING CUES:

- 1. The Unit Supervisor directs you to determine the amount of primary water and the amount of boric acid needed to raise RWST level to 374,000 gallons while maintaining the current boron concentration.
- 2. You are to notify Unit Supervisor when you have completed your determination.

Appendix B (Page 1 of 2)

Blending Greater Than 2500 ppm

NOTE

This Appendix should only be used in conjunction with Sections 6.5 or 8.1. Primary water flow must be varied to blend at concentrations greater than 2500 ppm., therefore, blending is only possible when 1-HS-62-140B, VCT MAKEUP MODE is in MANUAL.

(Table is continued on next page)

Desired Blend Concentration ppm.	Boric Acid flow rate gpm*	1-FC-62-139 BA to Blender [1-M-6] %	Primary Water Flow rate gpm
2500	. 40	100	69
2550	40	100	67
2600	40	100	65
2650	40	100	63
2700	40	100	61
2750	40	100	59
2800	40	100	57

* For Boric Acid flow rates other than 40 gpm the following formula may be used:

Actual BA flow rate = Required PW flow rate

Actual BA flow rate 40 X PW flow rate from Table =

Required PW flow rate

WBN	Boron Concentration Control	SOI-62.02
Unit 1		Rev. 0050
		Page 50 of 62

Appendix B (Page 2 of 2)

(Table is continued from previous page)

Desired Blend Concentration ppm.	Boric Acid flow rate gpm*	1-FC-62-139 BA to Blender [1-M-6] %	Primary Water Flow rate gpm	
2850	40	100	56	
2900	40	100	54	
2950	40	100	52	general and a second
3000	40	100	51	
3050	40	100	49	
 3100	40	100	48	
3150	40	100	47	
3200	40	100	45	
3300	40	100	43	

For Boric Acid flow rates other than 40 gpm the following formula may be used:

Actual BA flow rate = Required PW flow rate

PW flow rate from Table

 $\frac{\text{Actual BA flow rate}}{40}$ X PW flow rate from Table = Required PW flow rate

Required PW flow rate = (30 / 40) X 48 = 36 gpm

40

Total flow rate = 30 gpm + 36 gpm = 66 gpm

Primary Water integrator setting = (36 gpm / 66 gpm) = 0.54545

= 0.54545 x 3000 gallons = 1637 gallons of primary water

Acceptable value: 1637 +/- 5 gallons.

Boric Acid integrator setting = (30 gpm / 66 gpm) = 0.45455

= 0.45455 x 3000 gallons = 1364 gallons of boric acid solution

Acceptable value: 1364 +/- 5 gallons.

A.1-2 RO/SRO Determine RCP Start Requirements

EVALUATION SHEET					
<u>Task:</u>	Determine RCP Start Requirements.				
Alternate Path:	Alternate Path: n/a				
Facility JPM #:	New				
Safety Function:	n/a <u>Title:</u> Conduct o	f Operations.			
<u>K/A</u> 2.1.32	Ability to explain and ap	oply system limits and p	recautions.		
Rating(s): 2.7/3.5	5 <u>CFR:</u> 41.10/43.2/45	.12 "			
Evaluation Method:	Simulator In	-Plant	Classroom X		
References:	SOI-68.02, "Reactor Coolant	Pumps," Rev. 33.			
Task Number: RC	0-068-SOI-68-007 <u>Title</u>	: Start a Reactor Co	olant Pump.		
Task Standard:	The applicant determines tha time to start the pump is 1742	_ t RCP #2 should be sta 2.	rted first, and the earliest		
Validation Time: 10 minutes Time Critical: Yes No X					
Applicant:	NAME	Docket No.	Time Start:		
Applicant:	NAME <u>a:</u> SAT UNSAT	Docket No.	Time Start: Time Finish: Performance Time		
Applicant:	NAME <u>a:</u> SAT UNSAT NAME	Docket No.	Time Start: Time Finish: Performance Time / JRE DATE		
Applicant: Performance Rating Examiner:	NAME SAT UNSAT NAME	Docket No.	Time Start: Time Finish: Performance Time / JRE DATE		
Applicant:	NAME SAT UNSAT NAME COMM	Docket No. SIGNATI	Time Start: Time Finish: Performance Time / JRE DATE		
Applicant:		Docket No. SIGNATI	Time Start: Time Finish: Performance Time / JRE DATE		
Applicant: Performance Rating Examiner:		Docket No. SIGNATI	Time Start: Time Finish: Performance Time / JRE DATE		
Applicant:		Docket No. SIGNATU	Time Start: Time Finish: Performance Time / JRE DATE		

DIRECTIONS TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provide you.

INITIAL CONDITIONS:

Reactor Coolant System "sweeps and vents" is in progress per GO-10," Reactor Coolant System Drain and Fill Operations," Section 5.4.2, "RCP Sweeps and Vents."

Pump	Start Time	Shutdown Time	Run Time
1	1456	1456	30 seconds
	1535	1536	1 minute
	1650	1659	9 minutes
2	1502	1502	30 seconds
	1602	1603	1 minute
	1704	1712	8 minutes

The following is the "run" history for RCP #1 and RCP #2:

Current time is 1725.

INITIATING CUE:

You have been assigned to determine which of these pumps can be started first, and the earliest time that the selected pump may be started.

STEP/STANDARD

SAT/UNSAT

START TIME: _____

STEP 1: Applicant determines the number of starts for each of the RCPs in the previous two hours.	CRITICAL STEP
STANDARD:	SAT
The applicant determines that RCP #1 has been started 3 times in the previous two hours, and RCP #2 has been started two times in the past two hours.	UNSAT
Step is critical to evaluate the starting duty limits for the RCPs.	
<u>COMMENTS:</u>	

STEP/STANDARD SAT/UNSAT STEP 2: Applicant determines how much idle time is required prior to CRITICAL each pumps restart. STEP STANDARD: SAT From SOI-68.02, "Reactor Coolant Pumps," PRECAUTIONS AND UNSAT LIMITATIONS: E. RCP Maximum Starting Duty limits: 1. For Restart after any period running or attempted start where motor failed to achieve full speed before it is stopped: Motor must be idle at least 30 min before restart. 2. Consecutive Starts: In any 2 hr period: Maximum of 3 starts with minimum 30 min idle period before each restart. When 3 starts (or attempted starts) are made in 2 hrs, then a fourth start should NOT be made until motor is idle at least 1 hr. The applicant determines that RCP #1 must be idle for 1 hour, and that RCP #2 must be idle for 30 minutes. Step is critical to determine the required idle period for each RCP. COMMENTS:

STEP/STANDARD	SAT/UNSAT
STEP 3: Applicant calculates the earliest start time for each pump.	CRITICAL STEP
Applicant determines the earliest start time for RCP #1 is 1659 plus 1 hour, or 1759. Applicant determines the earliest start time for RCP #2 is 1712 plus 30 minutes, or 1742. Step is critical to ensure the correct RCP is started without	SAT UNSAT
violating starting duty limits.	
COMMENTS:	
END OF TASK	

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Reactor Coolant System "sweeps and vents" is in progress per GO-10," Reactor Coolant System Drain and Fill Operations," Section 5.4.2, "RCP Sweeps and Vents."

The following is the "run" history for RCP #1 and RCP #2:

Pump	Start Time	Shutdown Time	Run Time
1	1456	1456	30 seconds
	1535	1536	1 minute
	1650	1659	9 minutes
2	1502	1502	30 seconds
	1602	1603	1 minute
	1704	1712	8 minutes

Current time is 1725.

INITIATING CUE:

You have been assigned to determine which of these pumps can be started first, and the earliest time that the selected pump may be started.

A.2 RO Review 1-SI-0-4, "Monthly Surveillances."

4

WATTS BAR NUCLEAR PLANT JOB PERFORMANCE MEASURE A.2 RO

2010-08 NRC Exam

	EVALUA	TION SHEET		
<u>Task:</u>	Review 1-SI-0-4, "Monthly	Surveillances."		
Alternate Path:	N/A			
Facility JPM #:	Modified			
Safety Function:	<u>Title:</u>			
<u>K/A</u> 2.2.1	2 Knowledge of surveill	ance procedures.		
Rating(s): 3.7/4	l.1 <u>CFR:</u> 45.10/45.13			
Evaluation Metho	<u>d:</u> Simulator	n-Plant	Classroom	X
<u>References</u> :	1-SI-0-4, "Monthly Surveilla	nces," Rev. 24.		
Task Number:	RO-113-GEN-004 <u>Tit</u>	e: Perform surveilla	nce tests.	
	 determines that the followir AFW PMP B-B SG4 LE check MCD value, requ Order (or Service Requ 1-PI-68-336C PZR PRE requiring the SM/Unit S Request to be initiated. 1-PI-68-70 LOOP 4 HL requiring the SM/Unit S Request to be initiated. 1-PI-68-70 LOOP 4 HL requiring the SM/Unit S Request to be initiated. 1-FI-62-93C CHARGING 20 gpm limit of NOTE (3 notified and a Work Ord requires calibration of th 1-PI-62-81C LP LETDO the requiring the SM/Unit Request to be initiated. 	g 5 items require the in VEL instrument loop is iring the SM/Unit SRO t est to be initiated. SS is exceeding its MC RO to be notified and a PRESS is exceeding its RO to be notified and a Also requires MIG not G FLOW is within its MC 2) requiring the requirin er (or Service Request e flow instrumentation. WN PRESS is exceeding it SRO to be notified an	dicated actions: reading outside th to be notified and a CD value, requiring Work Order (or S MCD value, requ Work Order (or S ification to perform CD value, but exce ng the SM/Unit SR to be initiated. A ng its MCD value, ad a Work Order (or	e channel a Work the ervice iring the ervice n 1-SI-68- eeding the CO to be lso requiring or Service
Validation Time:	10 minutes	Time Critical:	Yes N	o <u>X</u>
Applicant:	NAME ng: SAT UNSAT	Docket No.	Time Start: Time Finish: Performance	
<u>Examiner:</u>	Review 1-SI-0-4, "Monthly Surveillances." N/A Modified <u>Title:</u> Knowledge of surveillance procedures. <u>CFR:</u> 45.10/45.13 Simulator			

DIRECTIONS TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

- 1. The Unit is in Mode 1, with no LCO entries at this time.
- 2. You are the Unit Operator responsible for the review of a partial performance of 1-SI-0-4, "Monthly Surveillances," Appendix D, "Remote Shutdown and PAM Channel Check Data Sheet," pages 42 through 44, 47 and 54.

INITIATING CUES:

You are to review the data entered on pages provided to you from Appendix D, list the actions required to be taken to address any deviations found, and notify the Unit Supervisor that you have completed your task.

STEP/STANDARD

SAT/UNSAT

START TIME:

EXAMINERS CUE: 1-SI-0-4, Appendix D, pages 42 through 44, 47 and 54 are attached as the key to this JPM. Values which fall outside the MCD are circled on the key, and actions to be taken for each item are listed

STEP 1: Item 3 (Page 44) values for AFW PMP B-B SG 4 LEVEL.	CRITICAL
STANDARD:	STEP
Applicant evaluates data provided and determines that the readings in the Main Control Room (1-M-3) and the Auxiliary Control Room (1-L-10) for 1-LI-3-171 and 1-LI-3-171C are outside the channel check MCD of 6%.	SAT UNSAT
The applicant indicates that the following actions are required (in no particular order):	
1. SM/Unit SRO must be notified.	
2. A Work Order (WO) must be prepared for SG 4 LEVEL loop.	
COMMENTS:	

WATTS BAR NUCLEAR PLANT JOB PERFORMANCE MEASURE A.2 RO

2010-08 NRC Exam

STEP/STANDARD	SAT/UNSAT
STEP 2. Item 7 (Page 47) value for 1-PI-68-336C PZR PRESS.	CRITICAL STEP
Applicant evaluates data provided and determines that the reading for 1-PI- 68-336C in the Auxiliary Control Room (1-L-10) is outside the channel check MCD of 50 psig.	SAT UNSAT
The applicant indicates that the following actions are required (in no particular order):	
 SM/Unit SRO must be notified of 1-PI-68-336C exceeding its MCD limit. 	
 A Work Order (WO) or Service Request (SR) must be prepared for 1-PI-68-336C. 	
COMMENTS:	

STEP/STANDARD	SAT/UNSAT
STEP 3. Item 7 (Page 47) values for 1-PI-68-70 LOOP 4 HL PRESS.	CRITICAL STEP
	SAT
Applicant evaluates data provided and determines that the reading for 1-PI- 68-70 in the Main Control Room (1-L-10) is outside the channel check MCD of 50 psig.	UNSAT
The applicant indicates that the following actions are required (in no particular order):	
 SM/Unit SRO must be notified of 1-PI-68-70 exceeding its MCD limits. 	
 A Work Order (WO) or Service Request (SR) must be prepared for 1-PI-68-70 LOOP 4 HL PRESS. 	
 Per Note (10), MIG must be notified to perform 1-SI-68-88 since 1-PI-68-70 is out-of-tolerance. 	
COMMENTS:	

.

WATTS BAR NUCLEAR PLANT JOB PERFORMANCE MEASURE A.2 RO

2010-08 NRC Exam

STEP/STANDARD	SAT/UNSAT
<u>STEP 4</u> : Item 25 (Page 54) value for 1-FI-62-93A CHARGING FLOW. <u>STANDARD</u> :	CRITICAL STEP
Applicant evaluates data provided and determines that the reading for 1-FI- 62-93C in the Auxiliary Control Room (1-L-10) is within the channel check MCD of 40 psig, but exceeds the 20 gpm value given in NOTE (32).	SAT UNSAT
The applicant indicates that the following actions are required (in no particular order):	
1. SM/Unit SRO must be notified.	
The Work Order (WO) or Service Request (SR) number must be included in REMARKS.	
Per Note (32) If channel deviation is greater than 20 gpm, action shall be initiated to calibrate the flow instrumentation W.O. number shall be recorded in REMARKS.	
COMMENTS:	

STEP/STAN	DARD	SAT/UNSAT
STEP 5: Item 29 (Page 54) value fo PRESS.	or 1-PI-62-81C LP LETDOWN	CRITICAL STEP
STANDARD:		SAT
Applicant evaluates data provided and de 62-81C in the Auxiliary Control Room (1- value.	etermines that the reading for 1-PI- L-10) exceeds the 30 gpm MCD	UNSAT
The applicant indicates that the following particular order):	actions are required (in no	
1. SM/Unit SRO must be notified.		
2. A Work Order (WO) or Service Re 1-PI-62-81C.	quest (SR) must be prepared for	
COMMENTS:		

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- 1. The Unit is in Mode 1, with no LCO entries at this time.
- 2. You are the Unit Operator responsible for the review of a partial performance of 1-SI-0-4, "Monthly Surveillances," Appendix D, "Remote Shutdown and PAM Channel Check Data Sheet," pages 42 through 44, 47 and 54.

INITIATING CUES:

You are to review the data entered on pages provided to you from Appendix D, list the actions required to be taken to address any deviations found, and notify the Unit Supervisor that you have completed your task.



Appendix D (Page 1 of 15)

Remote Shutdown and PAM Channel Check Data Sheet

Data Package: Page ¹ of ____

Date TODAY Mode 1

1.0 REMOTE SHUTDOWN AND PAM CHANNEL CHECKLIST

NING DATA MCD UNITS	gpm 60 gpm				4	4		Ā	0 psid 99 psid		
IO READ	33C 0	55C 0	47C 0	70C 0	Ń	Ž	Ž	Ň	122C 120	132C 1200	DAI
INST N	0 1-FI-3-1(1-FI-3-1	1-FI-3-1	1-FI-3-1	N/A	N/A	N/A	N/A	1-PDIC-3-	1-PDIC-3-	narator's Initial
Γος	1-1-1(•		Č
READING	0	0	0	0	0	0	10	0	1200	1200	DAH
INST NO	1-FI-3-163A	1-FI-3-155B	1-FI-3-147A	1-FI-3-170B	1-FI-3-163B	1-FI-3-155A	1-FI-3-147B	1-FI-3-170A	1-PDIC-3-122A	1-PDIC-3-132A	trator's Initials
LOC	1-M-3	1-M-4	1-M-4	One							
DESCRIPTION	AFW TO SG 1 FLOW	AFW TO SG 2 FLOW	AFW TO SG 3 FLOW	AFW TO SG 4 FLOW	AFW TO SG 1 FLOW	AFW TO SG 2 FLOW	AFW TO SG 3 FLOW	AFW TO SG 4 FLOW	AFW PUMP A DIFF PRESSURE	AFW PUMP B DIFF PRESSURE	
NOTES	(1)										
REQUIRED MODE	1, 2, 3										
REFERENCE NUMBER	SR 3.3.3.1-22	SK p3.3.4.1-4.d									
NO.	~										



	1
-0-4 - 0024 e 43 of 74	
1-SI Rev. Page	
llances	
Survei	
Monthly	
N S	
N	

Appendix D (Page 2 of 15)

Remote Shutdown and PAM Channel Check Data Sheet

Data Package: Page ² of ___

Date TODAY

REMOTE SHUTDOWN AND PAM CHANNEL CHECKLIST (continued) 1.0

Mode

、

MCD		N/A								
DATA	UNITS	N/A								
READING		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	V 1 V
INST NO		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
LOC		VIV	A N		AW		AW		NA	
READING					CLOSED Z			CLOSED I	CLOSED I	
INST NO		1-FCV-3-116A	1-FCV-3-116B	1-FCV-3-126A	1-FCV-3-126B	1-FCV-3-136A	1-FCV-3-136B	1-FCV-3-179A	1-FCV-3-179B	
LOC			1-M-3 1-M-3 1-M-3		C 14	?-INI-				
DESCRIPTION		ERCW TO AFWP A-A SUCT FRM HDR A	- FCV-3-116A & B	ERCW TO AFWP B-B SUCT FRM HDR B	- FCV-3-126A & B	ERCW TO T-D AFWP SUCT FRM HDR A -	FCV-3-136A & B	ERCW TO T-D AFWP SUCT FRM HDR B	- FCV-3-179A & B	
NOTES		A/N								
REQUIRED		1, 2, 3		<u></u>						
REFERENCE		SR 3.3.3.1-17								
ITEM NO.		N								



		Γ	buj															
			op is read	nave the		MCD	6.0%									lance		
			d that the lo ICD value.	initiated to h		DATA UNITS	%									/ the surveil		
			to be notifie mel check M	VO) is to be alibrated.		READING	N/A	N/A	N/A	N/A	60	61	59	63	DAH	her to satisfy		
		r 6 1 G	//Unit SRO is tside the char	Work Order (V spect loops <i>c</i> ;		IST NO	N/A	N/A	N/A /	NVÁ	1/3-164C	I-3-156C	l-3-148C	I-3-171C	Initials	gainst each ot		
f 74		set _{Pe}	no Sono	A N Su:							1-[74	1-1-1		erator's	ecked aç		
-0-4 -024 e 44 o		ita She	ΑΥ			ГОС			A/N		1-L-10	1-L-10	1-L-10	1-L-10	g	annel ch		
Pag		Check Da	Date TOD	(pər	Mode 1	READING	57	60	58	60	60	58	59	<u> </u>	DAH	NOT to be ch		
illances	oendix D e 3 of 15)	AM Channel		IST (continu		INST NO	1-LI-3-174	1-LI-3-173	1-LI-3-172	1-LI-3-175	1-LI-3-164	1-LI-3-156	1-LI-3-148	1-LI-3-171	tor's Initials	me loop and are		
Surve	App (Pag	and P/		IECKL		LOC	1-M-3	1-M-3	1-M-3	1-M-3	1-M-3	1-M-3	1-M-3	1-M-3	Opera	in the sa	6	
Monthly		Shutdown		ANNEL CH		RIPTION	FW PMP LEVEL	FW PMP LEVEL	-W PMP LEVEL	=W PMP LEVEL	PMP A-A LEVEL	PMP A-A	MP B-B	MP B-B LEVEL		-A and B-B are		
		Remote		PAM CH		DESC	T-D AI SG 1	T-D AI SG 2	T-D AI SG 3	T-D AI SG 4	AFW F SG 1	AFW F SG 2	AFW F SG 3	AFW F SG 4		FW PMP A		
Z Z		ш.	ol 3	N AND I		NOTES					(2)					isted for A		
Unit			age: Page	SHUTDOWN		REQUIRED MODE	1, 2, 3									4-3 and 1-L-10 [
			Data Pack	REMOTE :		REFERENCE NUMBER	SR 3.3.3.1-16 SR 3.3.4.1-4.	σ								indicators on 1-N	ו כוויל מין פוס	
				1.0		ITEM NO.	ო									(2) The Traduit	Remarks:	

					1																
		alue has	the							<u>D</u>						7			<u></u>]
		MCD v	o have ed.		MCE		6.0%			50 ps									10)		
		ed that an	e initiated 1 s)) calibrat		DATA UNITS		%			psig			ภิอก						per Note (
	imit.	to be notifi	/O) is to be (s (loops(:		EADING	58	60	N/A	2170		2235	2250	N/A	N/A	N/A	DAH			8 by MIG,	ų	
	xceeds MCD L	M/Unit SRO is een exceeded.	. Work Order (V uspect indicato		IST NO R	-68-325C	-68-326C	N/A	-68-336C (-68-337C	-68-342C	N/A	N/A	N/A	Initials	.4.1-2.a.		ce of 1-SI-68-8	is to be initiate	Street Street
f 74	et et	<u>م</u>	<u> </u>]		1-LI	1-L		1-P		<u> </u>	1-PI				èrator's l	SR 3.3.		iu Limit rforman is to b	ar (WO)	
1-0-4 /. 0024 /e 47 o	ata She	ЭАΥ			Гос] 1-L-10					1-L-10		N/A		O O	satisfy ;		ceeds MC quires pe	Nork Orde	
Paç	el Check Dá	Date TOL	ued)	Mode 1	READING	60	59	62	2235	2225	2240	2250	2000	2250	2300	ран	DT required to		<u>а 8 с</u>	A A	
illances	oendix D e 6 of 15) ∆M Channe		IST (contin		INST NO	1-LI-68-339A	1-LI-68-335A	1-LI-68-320	1-PI-68-340A	1-PI-68-323	1-PI-68-322	1-PI-68-342A	1-PI-68-70	1-PI-68-64	1-PI-68-63	or's Initials	ut both are No	88. 88.			
y Surve	App (Pag and P/		НЕСКГ		гос]	1-M-4 4-			1-M-5		1-M-5		1-M-6	[Operato	PRESS, b WR RAN	1-SI-68-			
Monthl	shutdowr		ANNEL C		PTION		EVEL			RESS		_D CAL SS	- PRESS	- PRESS	- PRESS		R RANGE F	d to perform			
	Remote S		PAM CH/		DESCRI		PZR LI			PZR PI		PZR-COI PRE	LOOP 4 HI	гоор 3 ні	LOOP 1 HI		s or RCS W	o be notified			
N L		4	N AND		NOTES	N/A			(8)			(6)	(10)				R PRESS	e, MIG is 1			
N N N N N N N N N N N N N N N N N N N		age: Page	SHUTDOW		REQUIRED MODE	1, 2, 3			1, 2, 3		k					· .	n requires PZ PRESS is to b	ut-of-tolerance			ţ,
		Data Pack	REMOTE		REFERENCE NUMBER	SR 3.3.3.1-14 R 3.3.4.1-3.a			SR 3.3.3.1-5 R 3.3.4.1-2.a								note Shutdow	PI-68-70 is or			
			1.0		ITEM NO.	9 0 0			Solution								(8) Ren (9) PZF	(10) If 1-			

		Γ		ġ.																1
			tified.	be initiate		MCD	4.8 in WC	40 gpm	150 nsid	7.5 gpm	6°F	30 psig	6%		1000 ap	ε	-		tion shall	
		l imit	s to be not	(WO) is to			in./	mdg	psig	dbm	ų.	psig	%			udb			20 gpm, act	
		aads MCD	/Unit SRO i	Vork Order		READING	N/A N/A	120	2450	0	93 /	370	61	2000	1250	8000	9250	DAH	greater than	
		L L L	WS WS	A A		INST NO F	N/A N/A	1-FI-62-93C	1-PI-62-92C	I-FI-62-137C	1-TI-62-80C	1-PI-62-81C	I-LI-62-129C	1-FI-67-61C	1-FI-67-62C	2-FI-67-61C	2-FI-67-62C	's Initials	hannel deviation is used to be a supported of the second s	
-0-4 -0024 - 0024		ita Sheet	JAY			LOC	N/A	1-L-10	1-L-10	1-L-10	1-L-10	1-L-10	1-F-10	1-L-10	1-L-10	2-L-10	2-L-10	Operator	ow) ONLY: If c 2-TI-67-62C, S	
Pag		el Check Da	Date TOD	(pən	Mode 1	READING	12.5 12.5	85	2475	0	91	330	62	2500	1000	8500	9500	DAH	n 25 (Charging Flu R A FLOW. D.	ter than 20 the flow corded in
oillances	oendix D e 13 of 15)	AM Channe		IST (contin		INST NO	0-LI-77-134 0-LI-77-135	1-FI-62-93A	1-PI-62-92A	1-FI-62-137A	1-TI-62-78/	1-PI-62-81 4	1-LI-62-129A	1-FI/67-61	1- <u></u> +1-67-62	2-FI-67-61	2-FI-67-62	litials	applicable to Iten 57-61C, SUP HDF	leviation is grea ted to calibrate mber-shall be re
Ily Surve	Api (Pag	n and P		CHECKL		ГОС	1-M-15	1-M-5	1-M-5	1-M-5	1-M-6	1-M-6	1-M-6	0-M-27A	0-M-27A	0-M-27A	0-M-27A	Operator's Ir	equirement is REMARKS. C. 2-TI-	If channel o hall be initia on W.O. nu
Month		mote Shutdow	1	M CHANNEL (DESCRIPTION	B PASSIVE UMP LEVEL	HARGING FLOW	HARGING DR PRESS	MERG BORATE LOW	UTLET TEMP	P LETDOWN RESS	CT LEVEL	A ERCW SUP DR FLOW	B ERCW SUP DR FLOW	A ERCW SUP DR FLOW	3 ERCW SUP DR FLOW		s only. The following n to, shall be recorded in ints, 2C, SUP HDR B FLOW	Per Note (32) gpm, action sl instrumentatic REMARKS.
t 1		Re	5 of _	N AND P/		NOTES	N/A S	(32) C	(32) C	(32) E	(32)	(32)	(32) V	(32) 1/ (33) H	= 1	Ξ	<u> </u>		arison purpose entation, WO. board instrume B. 1-TI-67-62	
C Miles			age: Page	SHUTDOW		REQUIRED MODE	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3					scorded for comp the flow instrum smote Shutdown HDR A FLOW.	
			Data Pack	REMOTE S		REFERENCE NUMBER	SR 3.3.3.1-26	SR p3.3.4.1-3.b	LCO 3.3.4	LCO 3.3.4	SR p3.3.4.1-3.b	LCO 3.3.4	LCO 3.3.4	LCO 3.3.4					CR indications are re s initiated to calibrate escriptions for the Re 1-TI-67-61C, SUP F	
				1.0		ITEM NO.	24	25	26	27	28	29	30	31					(32) M b€ (33) D(A. A. Remarks:	

A.2 SRO Determine a Technical Specification Completion Time Extension

EVALUATION SHEET

<u>Task:</u>		Detern	nine a T	echnical Sp	ecification Con	pletion Tim	e Extension.		
Alternate Pa	<u>th:</u>	n/a							
Facility JPM	#:	New							
Safety Funct	tion:	n/a	<u>Title:</u>	Equipm	ent Control				
<u>K/A</u>	2.2.42	. A	Ability to	track Tech	nical Specificat	ion limiting a	conditions for a	operations.	
Rating(s):	3.1/4.6	3 <u>(</u>	CFR:	41.10 / 43.	2 / 45.13				
Evaluation N	lethod	: Sim	nulator		In-Plant		_ Classroom	X	_
<u>References</u> :		Watts Amenc	Bar Nuc Iment 8 ⁻	lear Plant T 1. 1.3, "Corr	echnical Speci pletion Times.	fications, All ' LCO 3.5.2	l Amendments , "ECCS - Ope	through rating."	
<u>Task Numbe</u>	<u>r:</u> SF	{O-119-	SSP-12	.56-005 <u>1</u>	Fitle: Evaluat equipm stateme	e status cha ent to deter ent entry is r	anges for Tech mine if LCO ac required.	a. Spec. ction	
<u>Task Standa</u>	<u>rd:</u>	The ap in Mod STATU	oplicant o le 4 if the JS to be	determines e 1B-B Safe 1900 on 7/	the LATEST da ty Injection pui 6/2010.	ate and time np cannot b	e that Unit mus be restored to (t be placed DPERABLE	=
Validation Ti	me:	10) minu	utes	Time Crit	cal:	Yes	No <u>X</u>	
Validation Ti ====================================	<u>me:</u> 	1() minı 	utes =======	Time Crit	<u>cal:</u>	Yes Time Start:	No <u>X</u>	:
Validation Ti ========= Applicant:	<u>me:</u> 	1() minu ====== NAME	utes ========	Time Criti	<u>cal:</u>	Yes Time Start: Time Finish:	No <u>X</u>	
Validation Ti ========== Applicant: Performance	me:	1(0 minu NAME נ	utes JNSAT	Time Crit	<u>cal:</u> ======== et No.	Yes Time Start: Time Finish: Performance	No _ X	
Validation Ti =========== Applicant: Performance Examiner:	<u>me:</u>	10 	0 minu NAME נ	utes ======= JNSAT	<u>Time Crit</u>	<u>cal:</u>	Yes Time Start: Time Finish: Performance	No <u>X</u>	
Validation Ti ========== Applicant: <u>Performance</u> Examiner:	me:	10 	0 minu NAME ۱	utes JNSAT	Time Crit	cal:	Yes Time Start: Time Finish: Performance	No <u>X</u>	 -
Validation Ti Applicant: Performance Examiner:	me: Rating	10 g: SAT	D minu NAME	utes JNSAT CO	Time Crit	cal:	Yes Time Start: Time Finish: Performance	No <u>X</u>	

DIRECTIONS TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provided you.

INITIAL CONDITIONS:

- 1. The unit is at 100% power.
- 2. Today's date is July 4, 2010. The time is 0700.
- 3. On July 2, 2010 at 0700, the 1A-A Safety Injection pump was declared INOPERABLE.
- 4. LCO Action Statement 3.5.2.A, "One or more trains inoperable AND at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available," was entered at that time.
- 5. The 1B-B Safety Injection pump was declared INOPERABLE today at 0700, and LCO 3.0.3 was entered.
- 6. At 0900 on July 4, 2010, the 1A-A Safety Injection pump was declared OPERABLE.

INITIATING CUE:

You are to determine the LATEST date and time that Unit must be placed in Mode 4 if the 1B-B Safety Injection pump cannot be restored to OPERABLE STATUS.

STEP/STANDARD

SAT/UNSAT

START TIME: _____

<u>STEP 1</u> :	Application of Technical Specifications 1.3, Completion Times, to the return of the 1A-A Safety Injection pump to service at 0900 on July 4, 2010.Application of Technical Specifications 3.5.2.B, Required Action and Completion Time not met, and determination of time to place the Unit in Mode 4.	CRITICAL STEP SAT UNSAT
STANDARD	<u>)</u> :	
Applica 7/4/20 ⁻	ant determines that LCO 3.0.3 can be exited at 0900 on 10.	
Applica condition have b	ant determines from the second INITIATING CUE that the ons described in Tech Spec Section 1.3,"Completion Times" een met.	
Applica to the i at 0700 before	ant determines that the total Completion Time is 24 hours added nitial entry into LCO 3.5.2 Condition A. Initial entry July 2, 2010). The1B-B SI pump must be restored to OPERABLE status 0700 on 7/6/2010.	
Applica the Uni time sta 4 by 19	Int determines LCO 3.5.2 Condition B cannot be met, and that t must be placed in Mode 4 within the next 12 hours, with the arting at 0700 on 7/6/2010. Therefore, the Unit must be in Mode 200 on 7/6/2010.	
Step is the time	critical to ensure equipment is returned to service within les allowed in Technical Specifications.	
	END OF TASK	

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- 1. The unit is at 100% power.
- 2. Today's date is July 4, 2010. The time is 0700.
- 3. On July 2, 2010 at 0700, the 1A-A Safety Injection pump was declared INOPERABLE.
- 4. LCO Action Statement 3.5.2.A, "One or more trains inoperable AND at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available," was entered at that time.
- 5. The 1B-B Safety Injection pump was declared INOPERABLE today at 0700, and LCO 3.0.3 was entered.
- 6. At 0900 on July 4, 2010, the 1A-A Safety Injection pump was declared OPERABLE.

INITIATING CUE:

You to determine the LATEST date and time that Unit must be placed in Mode 4 if the 1B-B Safety Injection pump cannot be restored to OPERABLE STATUS.

A.3 RO & SRO Calculate Maximum Permissible Stay Time within Emergency Dose Limits

PAGE 1 OF 7

EVALUATION SHEET

<u>Task:</u>		Calcula	te Max	ximum Pern	nissible St	ay Time Withir	n Emergency D	ose Lin	nits
Alternate Pa	<u>th:</u>	n/a							
Facility JPM	<u>#:</u>	Modifie	d						
Safety Funct	tion:	n/a	<u>Title:</u>	Radiat	tion Contro	bl			
<u>K/A</u>	2.3.4	K	nowlec onditio	dge of radia ns.	tion expos	sure limits und	er normal or en	nergeno	су
<u>Rating(s):</u>	3.2/3.	7 <u>c</u>	FR:	41.12/43.4	4/45.10				
Evaluation M	<u>lethod</u>	: Simu	ulator		In-Plant		Classroo	m	Х
References:		EPIP-18	5, Eme	ergency Exp	oosure Gu	idelines," Rev.	13.		
Task Numbe	<u>er:</u> /	AUO-119	-SSP-	5.01-001	<u>Title:</u>	Control perso	onnel radiation	exposu	re.
 Calculates the total dose received performing the assigned tasks to be 23.3 Rem. Determines that personnel receiving emergency or accident exposures should be restricted from further occupational exposure pending the outcome of exposure evaluations and, if necessary, medical surveillance 									
Validation Ti	me:	10	min	nutes	Time	Critical	Vec	No	v
Validation Ti	<u>me:</u>	10 	min	nutes ========	<u>Time</u>	e Critical:	Yes	_ No	<u>X</u>
Validation Ti ========= Applicant:	<u>ime:</u> 	10	min NAME	nutes ======== E	<u>Time</u>	Critical:	Yes Time Star Time Finis	No ======= t: sh:	X
Validation Ti ======== Applicant: Performance	i <u>me:</u> ===== <u>-</u> e Ratin	10 	min NAME	utes ====== E UNSAT	<u></u>	Docket No.	Yes Time Star Time Finis Performa	No t: sh: nce Tin	X
Validation Ti =========== Applicant: Performance Examiner:	i <u>me:</u> 	10 	min 	utes E UNSAT	<u></u>	Docket No.	Yes Time Star Time Finis Performa	No t: sh: nce Tin	X
Validation Ti Applicant: Performance	ime: 	10 <u>g:</u> SAT NAM	min NAME ME	UNSAT	<u>Time</u>	Docket No.	Yes Time Star Time Finis Performat	No rt: sh: nce Tin /	X
Validation Ti ====== Applicant: Performance Examiner:	<u>ime:</u>	10 <u>g:</u> SAT NAM	min NAME	utes E UNSAT	<u>Time</u>	Docket No.	Yes Time Star Time Finis Performat	No sh: nce Tin /	X
Validation Ti ====================================	<u>e Ratin</u>	10 <u>g:</u> SAT NAM	min NAME ME	utes E UNSAT	<u>Time</u>	Docket No.	Yes Time Star Time Finis Performat	No t: sh: nce Tim /	X
Validation Ti ====================================	<u>e Ratin</u>	10 g: SAT	min NAME	utes E UNSAT 	<u>Time</u>	Docket No.	Yes Time Star Time Finis Performan	No t: sh: nce Tim	X
Validation Ti Applicant: Performance Examiner:	<u>e Ratin</u>	10 g: SAT	min NAME	UNSAT	<u>Time</u>	Docket No.	Yes Time Star Time Finis Performat	No sh: nce Tin	X
Validation Ti ====================================	<u>Ratin</u>	10 g: SAT	min NAME	utes E UNSAT CC	<u>Time</u>	Docket No.	Yes Time Star Time Finis Performat	No t: sh: nce Tim	X

Tools/Equipment/Procedures Needed:

EPIP-15, "EMERGENCY EXPOSURE GUIDELINES." Calculator

NOTE: This JPM is designed to be performed in a classroom with procedures available to the applicant.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provided you.

INITIAL CONDITIONS:

- 1. A loss of coolant accident is in progress.
- 2. ECA-1.1, "Loss of RHR Sump Recirculation," has been entered.
- 3. Automatic swap over to the containment sump has failed to occur.
- 4. The Auxiliary Building AUO has been dispatched to perform the following tasks:

#	TASK	TIME	DOSE BATE
1	Go to task performance area.	12 minutes	0.5 B/br
2	Remove cover from enclosure for 1-FCV-63- 72, CNTMT SUMP TO RHR PMP A SUCT.	54 minutes	9 R/hr
3	Manually open 1-FCV-63-72, CNTMT SUMP TO RHR PMP A SUCT.	45 minutes	20 R/hr
4	Return from task performance area.	12 minutes	0.5 R/hr

5. Authorization to exceed occupational dose limits to restore critical safety functions has been approved by the Shift Manager (SED) for the Auxiliary Building AUO.

INITIATING CUES:

The Auxiliary Building AUO has completed Tasks 1 and 2 in the time listed. You are to determine:

- 1. The total exposure that would be received by the AB AUO after completing Tasks 1 through 4.
- 2. What restrictions, if any, are imposed on the AB AUO based on the dose that was received?

WATTS BAR NUCLEAR PLANT JOB PERFORMANCE MEASURE A.3 RO & SRO

2010-08 NRC Exam

STEP/STANDARD

START TIME: _____

SAT/UNSAT

STEP 1: Applicant reviews EPIP-15, Emergency Exposure Guidelines," Appendix A, "Watts Bar Emergency Exposure Reference," and determines that the exposure limit to be 25 Rem.	SAT UNSAT
STANDARD: A	
STEP 2: Determine dose received performing Tasks 1through 4.	CRITICAL
STANDARD:	STEP
Applicant calculates dose to complete Task 1 as	SAT
12 min. /60 min/hr x 0.5 Rem/hr = 0.1 Rem	UNSAT
Applicant calculates dose to complete Task 2 as: 54 min. /60 min/hr. x 9 Rem/hr = 8.1Rem	
Applicant calculates dose to complete Task 3 as: 45 min./60 min/hr. X 20 Rem/hr = 15 Rem	
Applicant calculates dose to complete Task 4 as: (SAME CALCULATION AND DOSE AS Task 1, or 0.1 Rem.	
Total for Tasks 1, 2, 3 and 4 is 23.3 Rem	
Step is critical to determine the total dose for the assigned tasks, and to determine that the Emergency Dose Limit is NOT exceeded.	
COMMENTS:	

STEP/STANDARD	SAT/UNSAT
STEP 5: Determine the restrictions, if any, that are imposed on the AB AUO after receipt of the emergency exposure.	CRITICAL TASK
STANDARD:	SAT
From EPIP-15.	UNSAT
3.1.4 POST-EXPOSURE EVALUATIONS	
A. Personnel receiving emergency or accident exposures should be restricted from further occupational exposure pending the outcome of exposure evaluations and, if necessary, medical surveillance.	
Step is critical to determine the restrictions associated with the dose received, even though the Emergency Dose limit of 25 Rem is not exceeded.	
COMMENTS:	
END OF TASK	

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- 1. A loss of coolant accident is in progress.
- 2. ECA-1.1, "Loss of RHR Sump Recirculation," has been entered.
- 3. Automatic swap over to the containment sump has failed to occur.
- 4. The Auxiliary Building AUO has been dispatched to perform the following tasks:

#	TASK	TIME	DOSE RATE
1	Go to task performance area.	12 minutes	0.5 R/hr
2	Remove cover from enclosure for 1-FCV-63- 72, CNTMT SUMP TO RHR PMP A SUCT.	54 minutes	9 R/hr
3	Manually open 1-FCV-63-72, CNTMT SUMP TO RHR PMP A SUCT.	45 minutes	20 R/hr
4	Return from task performance area.	12 minutes	0.5 R/hr

5. Authorization to exceed occupational dose limits to restore critical safety functions has been approved by the Shift Manager (SED) for the Auxiliary Building AUO.

INITIATING CUES:

The Auxiliary Building AUO has completed Tasks 1 and 2 in the time listed. You are to determine:

- 1. The total exposure that would be received by the AB AUO after completing Tasks 1 through 4.
- 2. What restrictions, if any, are imposed on the AB AUO based on the dose that was received?

A.4-SRO

Determine if conditions warrant a Follow-up Report or Upgrade to General Emergency based on changing conditions.

EVALUATION SHEET

<u>Task:</u>	Determine if conditions warra Emergency based on changir	nt a Follow-up Report o ng conditions.	r Upgrade to General
Alternate Path:	n/a		
Facility JPM #:	Modified		
Safety Function:	n/a <u>Title:</u>		
<u>K/A</u> 2.4.40	Knowledge of SRO resp	oonsibilities in emergend	cy plan implementation.
Rating(s): 2.7/4.	5 <u>CFR:</u> 41.10 / 43.5 / 4	45.11	
Evaluation Method	: Simulator In-	-Plant	Classroom X
<u>References</u> :	EPIP-1 "Emergency Plan Clas EPIP-5 "GENERAL EMERGE	ssification Flowpath," Re NCY," Rev. 37.	əv. 31.
Task Number: SF	RO-113-EPIP-001 <u>Title</u>	: Classify emergency Emergency Plan Im	vevents requiring plementation.
	 Determines that an upg Emergency is required Prepares forms for em key. Initiates Protective Action 	grade from a Site Area E ergency notification as ir on Recommendations, F	mergency to a General ndicated on the attached Recommendation 2.
Validation Time:	15 minutes	Time Critical:	Yes <u>X</u> No
Applicant:	NAME	Docket No.	 Time Start: Time Finish:
Performance Rating	<u>g:</u> SAT UNSAT		Performance Time
Examiner:	NAME	SIGNATU	/ IRE DATE
	COMN	IENTS	

THIS JPM IS PERFORMED IN A CLASSROOM SETTING.

REQUIRED MATERIALS:

EPIP-1 through EPIP-5

Tools/Equipment/Procedures Needed:

Copies of the WBN EPIPs for each applicant.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provide you.

INITIAL CONDITIONS:

- 1. Unit 1 was at 100% power when a loss of reactor coolant event occurred.
- 2. A Site Area Emergency has been declared 30 minutes ago for Unit 1, based on a Loss or Potential Loss of any two barriers:
 - a. 1.1 Fuel Clad Barrier Loss (1.1.2, Primary Coolant Activity Level, RCS sample activity is Greater Than 300 μCi/gm dose equivalent iodine 131).
 - b. 1.2 RCS Barrier Loss (1.2.2, RCS Leakage/LOCA, RCS Leak results in Loss of subcooling (<65°F indicated) [85°F ADV].
- 3. EPIP-4, "SITE AREA EMERGENCY," has been performed through Step 15.
- 4. The Shift Technical Advisor now reports the following conditions exist on Unit 1:
 - a. RVLIS level is 30%, with no RCPs running.
 - b. RCS subcooling is 15°F.
 - c. Containment Radiation monitors 1-RE-90-273 and 1-RE-90-274 both indicate 90R/hr and are slowly trending up.
 - d. Initial wind direction was from 165 and has now shifted to from 180 degrees.
 - e. Wind speed has increased from 5 mph to 12 mph.

INITIATING CUES:

- 1. As the SED, you are to evaluate current plant conditions and decide the appropriate actions.
- 2. Once your decision is made, fill out the appropriate forms to make notifications to appropriate personnel.
- 3. This JPM contains time critical elements.

START TIME:

STEP 1: Refers to EPIP-1 to determine	e level of event.	CRITICAL					
STANDARD:		SIEP					
Applicant refers to EPIP-1, Section 1, and "Fi	ssion Product Barrier Matrix."	SAT					
Applicant determines that the following conditions exist:							
1.1.2 Loss, "RCS sample activity is greater equivalent I131"	than 300 μCi/gm dose	UNSAT					
1.2.2 Loss, "RCS Leakage/LOCA, RCS Lea (<65°F indicated) [85°F ADV]."	k results in Loss of subcooling						
1.3.5 Potential Loss, "Significant Radioactiv Reading increase of Greater Than 108 RE-90-272 OR 86 R/hr on 1-RE-90-27	ity in Containment, VALID 3 R/hr on 1-RE-90-271 and 1- 73 and 1-RE-90-274."						
Based on "Emergency Class Criteria", the ap to declare a General Emergency , based on potential loss of the third barrier.	plicant determines the need Loss of two barriers and						
Criteria to meet the critical step is for the lidentified and the declaration made within	EALs to be correctly 15 minutes.						
NOTE TO EXAMINER:							
RECORD time that declaration was made:							
COMMENTS:							

<u>STEP 2</u> : <u>STANDARD</u> :	Implements EPIP-5, "GENERAL EMERGENCY." EPIP-5, GENERAL EMERGENCY, is implemented.	SAT
COMMENTS:		UNSAT
· · · · · · · · · · · · · · · · · · ·		
The following	steps are from EPIP-5	
<u>STEP 3</u> :	[1] IF the onsite emergency centers are not staffed, THEN DIRECT Shift Personnel to activate the Emergency Paging System (EPS) to staff the Technical Support Center (TSC)	SAT
	 and Operations Support Center (OSC). Shift Personnel should confirm activation and provide the 20 minute printed report to the SM for review. a. IF the EPS system fails, call the ODS, ringdown or (5-751-1700) and DIRECT him to activate the EPS 	UNSAT
	 b. IF the above methods of activating the EPS fail, THEN DIRECT Shift Personnel to use the Watts Bar Nuclear Plant Emergency Response Call-List to staff the TSC and OSC. (This list is located in the EPS Manual near the terminal.) 	
<u>STANDARD</u> :	Shift Personnel are directed to activate the Emergency Paging System (EPS)	
CUE: When directed state "Emergency paging has been activated."		
COMMENTS:		

<u>STEP 4</u> :	 [2] IF the TSC has <u>not</u> been activated, THEN a. INITIATE Appendix A and B, Initial Notification Form for GENERAL EMERGENCY and Protective Action Recommendations. 	CRITICAL STEP
<u>STANDARD</u> :	Applicant completes Appendix A and Appendix B, determines Recommendation 2.	SAT
NOTE TO EVALUATOR:		
Completed copies of Appendix A and B for this JPM are included and marked EXAM MATERIAL - KEY.		UNSAT
COMMENTS:		
	End of JPM	

TIME STOP: _____

APPLICANT HANDOUT SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- 1. Unit 1 was at 100% power when a loss of reactor coolant event occurred.
- 2. A Site Area Emergency has been declared 30 minutes ago for Unit 1, based on a Loss or Potential Loss of any two barriers:

a. 1.1 Fuel Clad Barrier - Loss (1.1.2, Primary Coolant Activity Level, RCS sample activity is Greater Than 300 μ Ci/gm dose equivalent iodine - 131).

- b. 1.2 RCS Barrier Loss (1.2.2, RCS Leakage/LOCA, RCS Leak results in Loss of subcooling (<65°F indicated) [85°F ADV].
- 3. EPIP-4, "SITE AREA EMERGENCY," has been performed through Step 15.
- 4. The Shift Technical Advisor now reports the following conditions exist on Unit 1:
 - a. RVLIS level is 30%, with no RCPs running.
 - b. RCS subcooling is 15°F.
 - c. Containment Radiation monitors 1-RE-90-273 and 1-RE-90-274 both indicate 90R/hr and are slowly trending up.
 - d. Wind direction has shifted from 165 to 180 degrees.
 - e. Wind speed has increased from 5 mph to 12 mph.

INITIATING CUES:

- 1. As the SED, you are to evaluate current plant conditions and decide the appropriate actions.
- 2. Once your decision is made, fill out the appropriate forms to make notifications to appropriate personnel.
- 3. This JPM contains time critical elements.

EXAM MATERIAL - KEY

EPIP-1 Revision 31 Page 9A of 47

11 Fuel	Clad Barrier	1.2 R	CS Barrier	
		1 Critical Safaty Eu	nation Status	
1. Critical Safety Fun	ction Status		Action Status	
LOSS	Potential LOSS	LUSS	Potential LOSS	
Core Cooling Red (FR-C.1)	Core Cooling Orange (FR-C.2) Heat Sink Red (FR-H.1) (RHR Not in Service)		Pressurized Thermal Shock Red (FR-P.1) <u>OR</u> Heat Sink Red (FR-H.1) (RHR <u>Not</u> in Service)	
	OR-		-OR-	
2-Primary Coolant A	ctivity Level	2. RCS-Leakage/LC	DCA	
LOSS	Potential LOSS	LOSS	Potential LOSS	
RCS sample activity is Greater Than 300 μCi/gm dose equivalent iodine-131 /	Not applicable	RCS Leak results in Loss of subcooling (<65°F Indicated), [85°F ADV]	Non Isolatable RCS Leak Exceeding The Capacity of One Charging Pump (CCP) In the Normal Charging	
	OR-		Alignment. <u>OR</u> RCS Leakage Results In	
	Botontial LOSS		Entry Into E-1	
Greater Than 1200°F	Greater Than 727°F	1	-OR-	
	OR-	3. Steam Generator	Tube Rupture	
4. Reactor Vessel Wa	ater Level	SGTR that results in a safety injection actuation	Not Applicable	
LOSS Not Applicable	Potential LOSS VALID RVLIS level <33% (No RCP running)	OR Entry into E-3		
			-OR-	
-	OR-	4. Reactor Vessel V	Vater Level	
5 Containment Padi	ation Monitors	LOSS	Potential LOSS	
LOSS VALID reading increase of Greater Than:	Potential LOSS Not Applicable	VALID RVLIS level <33% (No RCP Running)	Not Applicable	
74 R/hr On 1-RE-90-271 and 272 <u>OR</u> 59 R/hr On 1-RE-90-273			-OR-	
and 2/4		5. Site Emergency	Director Judament	
-OR- 6. Site Emergency Director Judgment Any condition that, in the Judgment of the SM/SED, Indicates Loss or Potential Loss of the Evel Cled		Any condition that, in the Judgment of the SM/SED, Indicates Loss or Potential Loss of the RCS Barrier Comparable to the Conditions Listed Above.		
Barrier Comparable to the	Conditions Listed Above.			

EXAM MATERIAL - KEY

EPIP-1 Revision 31 Page 9B of 47

F

1.3 CNT	MT Barrier
1 Critical Safety Funct	ion Status
	Potential I OSS
Not Applicable	Containment (FR-7 1) Red
	Actions of FR-C.1 (Red Path)
	TCs trending up)
-Containment Dressu)R- roll hudronon
	Te/Hydrogen
Rapid unexplained decrease	Potential LOSS
following initial increase	Increases to >4% by volume
OR	OR
Containment pressure or Sump level Not increasing	Pressure >2.8 PSIG (Phase B) with $\leq Ope full train of$
(with LOCA in progress)	Containment spray
)R-
3. Containment Isolatio	n Status
Containment Isolation is	Potential LOSS
Incomplete (when required)	Not Applicable
AND a Release Path to the	
Environment Exists	
 Containment Bypass 	/ K -
LOSS	Potential LOSS
RUPTURED S/G is also	Unexplained VALID increase
FAULTED outside CNTMT	in area or ventilation RAD
Prolonged (>4 Hours)	CNTMT (with LOCA in
Secondary Side release	progress)
outside CNTMT from a S/G	
-0	R-
5. Significant Radioactiv	vity in Containment
LOSS	Potential LOSS
Not Applicable	VALID Reading increase of
/	108 R/hr on 1-RE-90-271 and
(1-RE-90-272
	1-RE-90-274
Napanana ka sa katuka ka manana wana ka w	(see instruction note 5)
-0	K-
6. Site Emergency Dire	ctor Judgment
Any condition that, in the Judgm	ent of the SM/SED, Indicates
Loss or Potential Loss of the CN	ITMT Barrier Comparable to
しょうえい しかいせい えんしいやく にっかいしたい 地球学校にならう いちじょうせい ない	- シャー・シート かんしょう ひとしゃ ひんがんひとう かくざい かんかがく とうない しんてい

Modes: 1, 2, 3, 4

INSTRUCTIONS

NOTE: A condition is considered to be MET if, in the judgment of the Site Emergency Director, the condition will be MET imminently (i.e., within 1 to 2 hours, in the absence of a <u>viable success path</u>). The classification shall be made a scon as this			
determination is made.		O N	
 In the matrix to the left, review the INITIATING CONDITIONS in all columns and identify which, if any, INITIATING CONDITIONS are MET. Circle these CONDITIONS. 			
2. For each of the three barriers, identify if any LOSS or Potential LOSS INITIATING CONDITIONS have been MET.			
3. If a CSF is listed as an INITIATING CONDITION ; the respective status tree criteria will be monitored and used to determine the EVENT classification for the Modes listed on the classification flowchart.			
 Compare the barrier losse losses to the EVENTS be appropriate declaration. 	4. Compare the barrier losses and potential losses to the EVENTS below and make the appropriate declaration.		
5. Containment Radiation Monitors are temperature sensitive and can be affected by temperature induced currents. Following a rapid increase or decrease in containment temperature, testing has shown rad monitors to give unreliable indication for up to 2 minutes.			
E١	/ENTS	U 1	
UNUSUAL EVENT	ALERT		
Loss <u>or</u> Potential LOSS of Containment Barrier	Any LOSS <u>or</u> Potential LOSS of Fuel Clad barrier		
	OR		
	Any LOSS <u>or</u> Potential LOSS of RCS barrier		
		-	
SITE AREA EMERGENCY	GENERAL EMERGENCY		
LOSS <u>or</u> Potential LOSS of any two barrier any two barriers third barrier			

EXAM MATERIAL - KEY

GENERAL EMERGENCY

APPENDIX A (Page 1 of 1)				
TVA INITIAL NOTIFCATION FORM FOR GENERAL EMERGENCY				
★ X This is a Drill This is an Actual Event - <u>Repeat</u> - This is an Actual Event				
This is Applicant's Name,				
Watts Bar has declared a GENERAL E	MERC	GENCY aff	fect	ing Unit 1
3.) EAL Designator(s):	2.2 L, 1.3	5.5 PL		
A. Brief Description of the Event: Loss of C containme	oolant a ent. (or v	ccident with words to this	faile effe	d fuel, and significant radiation in
S. Radiological Conditions: (Check one under both Airborne and Liquid column.) Airborne Releases Offsite Liquid Releases Offsite Minor releases within federally approved limits ¹ Minor releases within federally approved limits ¹ Releases above federally approved limits ¹ Release information not known (¹ Tech Specs) Release				
Event Declared: Time: Applicant	ENTRY	D	ate:	Today
The Meteorological Conditions are: (Use 46	meter data	fror	n the Met Tower)
Wind Direction is FROM:180	deg	rees		Wind Speed: <u>12</u> m.p.h
Provide Protective Action Recommenda	tion:	(Check eit	her	1, 2 or 3, and mark wind direction.)
Recommendation 1	*		*	X Recommendation 2
⇒EVACUATE LISTED SECTORS		(Mark)	F	⇒EVACUATE LISTED SECTORS
(2 mile Radius and 10 miles downwind)	c	(C C	(2 mile radius and 5 mile downwind)
\Rightarrow SHELTER remainder of 10 mile EPZ.			Ŭ	⇒SHELTER remainder of 10 mile EPZ.
⇒CONSIDER issuance of Potassium Iodide in	1		2	⇒CONSIDER issuance of Potassium
accordance with the State Plan.			_	lodide in accordance with the State Plan.
A-1, B-1, C-1, D-1,		26-68		A-1, B-1, C-1, D-1,
C-7, -9, D-2, -4, -5, -6, -7, -8, -9				
I A-1, B-1, C-1, D-1				C -7, D -2, -4, -5
A -3, -4, D -2, -3, -4, -5, -6, -7, -8, -9		69-110		C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5
A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1,		69-110 111-170		C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5 A-1, B-1, C-1, D-1,
A -3, -4, D -2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A -2, -3, -4, -5, -6, -7, D -2, -3, -5, -6		69-110 111-170		C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5 A-1, B-1, C-1, D-1, A-2, -3, D-2, -5
A -3, -4, D -2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A -2, -3, -4, -5, -6, -7, D -2, -3, -5, -6 A-1, B-1, C-1, D-1,		69-110 111-170 171-230		C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5 A-1, B-1, C-1, D-1, A-2, -3, D-2, -5 -A-1, B-1, C-1, D-1,
A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, -7, D-2, -3, -5, -6 A-1, B-1, C-1, D-1, A-2, -3, -5, -6, -7, B-2, -3, -4, -5, C-2		69-110 111-170 171-230	×	C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5 A-1, B-1, C-1, D-1, A-2, -3, D-2, -5 A-1, B-1, C-1, D-1, A-2, -3, B-2, -4, C-2
A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, -7, D-2, -3, -5, -6 A-1, B-1, C-1, D-1, A-2, -3, -5, -6, -7, B-2, -3, -4, -5, C-2 A-1, B-1, C-1, D-1,		69-110 111-170 171-230 231-270	×	C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5 A-1, B-1, C-1, D-1, A-2, -3, D-2, -5 A-1, B-1, C-1, D-1, A-2, -3, B-2, -4, C-2 A-1, B-1, C-1, D-1,
A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, -7, D-2, -3, -5, -6 A-1, B-1, C-1, D-1, A-2, -3, -5, -6, -7, B-2, -3, -4, -5, C-2 A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3,		69-110 111-170 171-230 231-270	×	C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5 A-1, B-1, C-1, D-1, A-2, -3, D-2, -5 A-1, B-1, C-1, D-1, A-2, -3, B-2, -4, C-2 A-1, B-1, C-1, D-1, B-2, -4, C-2
A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, -7, D-2, -3, -5, -6 A-1, B-1, C-1, D-1, A-2, -3, -5, -6, -7, B-2, -3, -4, -5, C-2 A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1,		69-110 111-170 171-230 231-270 271-325	×	C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5 A-1, B-1, C-1, D-1, A-2, -3, D-2, -5 A-1, B-1, C-1, D-1, A-2, -3, B-2, -4, C-2 A-1, B-1, C-1, D-1, B-2, -4, C-2 A-1, B-1, C-1, D-1,
A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, -7, D-2, -3, -5, -6 A-1, B-1, C-1, D-1, A-2, -3, -5, -6, -7, B-2, -3, -4, -5, C-2 A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, C-2, -3, -4, -5, -6, -11		69-110 111-170 171-230 231-270 271-325	X	C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5 A-1, B-1, C-1, D-1, A-2, -3, D-2, -5 A-1, B-1, C-1, D-1, A-2, -3, B-2, -4, C-2 A-1, B-1, C-1, D-1, B-2, -4, C-2 A-1, B-1, C-1, D-1, B-2, C-2, -4, -5,
A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, -7, D-2, -3, -5, -6 A-1, B-1, C-1, D-1, A-2, -3, -5, -6, -7, B-2, -3, -4, -5, C-2 A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, C-2, -3, -4, -5, -6, -11 A-1, B-1, C-1, D-1, C-2, -4, -5, -6, -7, B-2, -10, -11, D-4, -9		69-110 111-170 171-230 231-270 271-325 326-25	X	$\begin{array}{c} \textbf{C-7, D-2, -4, -5} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{A-3, D-2, -4, -5} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{A-2, -3, D-2, -5} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{A-2, -3, B-2, -4, C-2} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{B-2, -4, C-2} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{B-2, C-2, -4, -5,} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{C-2, -4, C-2} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{C-2, -4, C-2} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline C-2, -4, C-2, C-2, C-2, C-2, C-2, C-2, C-2, C-2$
A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, -7, D-2, -3, -5, -6 A-1, B-1, C-1, D-1, A-2, -3, -5, -6, -7, B-2, -3, -4, -5, C-2 A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, C-2, -3, -4, -5, -6, -11 A-1, B-1, C-1, D-1, C-2, -4, -5, -6, -7, -8, -9, -10, -11, D-4, -9		69-110 111-170 171-230 231-270 271-325 326-25	×	C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5 A-1, B-1, C-1, D-1, A-2, -3, D-2, -5 A-1, B-1, C-1, D-1, A-2, -3, $B-2$, -4, C-2 A-1, B-1, C-1, D-1, B-2, -4, C-2 A-1, B-1, C-1, D-1, B-2, C-2, -4, -5, A-1, B-1, C-1, D-1, C-2, -4, -5, -7, -8, D-4
A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, -7, D-2, -3, -5, -6 A-1, B-1, C-1, D-1, A-2, -3, -5, -6, -7, B-2, -3, -4, -5, C-2 A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, C-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, C-2, -3, -4, -5, -6, -11 A-1, B-1, C-1, D-1, B-2, -3, C-2, -3, -4, -5, -6, -11 A-1, B-1, C-1, D-1, B-2, -3, C-2, -3, -4, -5, -6, -11 A-1, B-1, C-1, D-1, C-2, -4, -5, -6, -7, -8, -9, -10, -11, D-4, -9		69-110 111-170 171-230 231-270 271-325 326-25	X	$\begin{array}{c} \textbf{C-7, D-2, -4, -5} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{A-3, D-2, -4, -5} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{A-2, -3, D-2, -5} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{A-2, -3, B-2, -4, C-2} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{B-2, -4, C-2} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{B-2, C-2, -4, -5,} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{B-2, C-2, -4, -5,} \\ \hline \textbf{A-1, B-1, C-1, D-1,} \\ \hline \textbf{C-2, -4, -5, -7, -8, D-4} \end{array}$
A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, -7, D-2, -3, -5, -6 A-1, B-1, C-1, D-1, A-2, -3, -5, -6, -7, B-2, -3, -4, -5, C-2 A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, C-2, -3, -4, -5, c-6, -11 A-1, B-1, C-1, D-1, C-2, -4, -5, -6, -7, -8, -9, -10, -11, D-4, -9 Recommendation 3 \Rightarrow SHELTER all sectors.	e of Pot	69-110 111-170 171-230 231-270 271-325 326-25 assium lodid	e in	C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5 A-1, B-1, C-1, D-1, A-2, -3, D-2, -5 A-1, B-1, C-1, D-1, A-2, -3, B-2, -4, C-2 A-1, B-1, C-1, D-1, B-2, -4, C-2 A-1, B-1, C-1, D-1, B-2, C-2, -4, -5, A-1, B-1, C-1, D-1, C-2, -4, -5, -7, -8, D-4 accordance with the State Plan.
A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9 A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, -7, D-2, -3, -5, -6 A-1, B-1, C-1, D-1, A-2, -3, -5, -6, -7, B-2, -3, -4, -5, C-2 A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3, A-1, B-1, C-1, D-1, B-2, -3, C-2, -3, -4, -5, -6, -11 A-1, B-1, C-1, D-1, C-2, -4, -5, -6, -7, -8, -9, -10, -11, D-4, -9 Recommendation 3 ⇒SHELTER all sectors. ⇒CONSIDER issuance 9. Please repeat the information you have recompared to the properties of the pr		69-110 111-170 171-230 231-270 271-325 326-25 assium lodid o ensure ac		C-7, D-2, -4, -5 A-1, B-1, C-1, D-1, A-3, D-2, -4, -5 A-1, B-1, C-1, D-1, A-2, -3, D-2, -5 A-1, B-1, C-1, D-1, A-2, -3, B-2, -4, C-2 A-1, B-1, C-1, D-1, B-2, -4, C-2 A-1, B-1, C-1, D-1, B-2, C-2, -4, -5, A-1, B-1, C-1, D-1, C-2, -4, -5, -7, -8, D-4 accordance with the State Plan. acy.

WBN

GENERAL EMERGENCY



APPENDIX B

(Page 1 of 1)

PROTECTIVE ACTION RECOMMENDATIONS

Note 1: If conditions are unknown utilizing the flowchart, then answer is NO. Note 2: A short term release is defined as "a release that does not exceed a 15 minute duration".



TABLE 1 Protective Action Guides (PAG)		
TYPE	LIMIT	
Measured	3.9 E-6 micro Ci/cc of lodine 131 or 1 REM per hour External Dose	
Projected	1 REM TEDE or 5 REM Thyroid CDE	