

# As-Run Operating Test

FOR THE QUAD CITIES INITIAL EXAM - AUG 2001

JPM A.1.a  
JPM A.1.b  
JPM A.2  
JPM A.3  
JPM A.4(RO)  
JPM A.4(SRO)

JPM B.1.a  
JPM B.1.b  
JPM B.1.c  
JPM B.1.d  
JPM B.1.e  
JPM B.1.f  
JPM B.1.g  
JPM B.2.a  
JPM B.2.b  
JPM B.2.c

D-1 Scenario 1 w/D-2 sheets  
D-1 Scenario 2 w/D-2 sheets

Facility: Quad CitiesDate of Examination: 08/06/01Exam Level (circle one): RO / SRO(I) / SRO(U)Operating Test No.: 2001301

## B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. Startup the standby gas treatment system, recognize & report low system flow	M, S, A	9. Radioactive Release
b. Perform Weekly Turbine-Generator Test	D, S	3. Reactor Pressure Control
c. Initiate Standby Liquid Control With Failure To Inject	M, S, A, L	1. Reactivity Control
d. Transfer Aux Power XFMR 11 to XFMR 12	D, S, L	6. Electrical
e. Post Accident Venting Of The Primary Containment	D, S, L	5. Containment Integrity
f. Shutdown cooling is on and a recirc pump trips.	N, S, A	4. Heat Removal
g. HPCI started for pressure control turbine exhaust line vacuum breaker fails	N, S, A, L	2. Rx Water Inventory Control

## B.2 Facility Walk-Through

a. Locally Start-up the safe shutdown makeup pump	D, R, L	2. Rx Water Inventory Control
b. Locally emergency start of the 1(2) SBO diesel generator	D, L	6. Electrical
c. Perform local actions to cool Unit 1 fuel pool by feed and bleed	N, R	9. Radioactive Release

\* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

Facility: <u>Quad Cities</u>		Date of Examination: <u>08/06/01</u>
Examination Level (circle one): RO <u>(SRO)</u>		Operating Test Number: <u>2001301</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Conduct of operation / Ability to apply Tech. Specs	Use Tech. Specs to find required action given a combination of ECCS equipment out of service. (2.1.12)
	Conduct of operation / Ability to use plant computer	Perform a core limits surveillance. (2.1.19)
A.2	Equipment Control / familiarity with P&IDs	Using plant drawings verify that an Out Of Service has been correctly prepared. (2.2.13)
A.3	Radiation Control / action level	Dress out in anti contamination clothing (2.3.10)
A.4	Emergency Plan / action level classification	Classify a GESP emergency, and prepare the NARS form for offsite notification. (2.4.41)

Facility: <u>Quad Cities</u>		Date of Examination: <u>08/06/01</u>
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A.1	Conduct of operation / Ability to apply Tech. Specs	Use Tech. Specs to find required action given a combination of ECCS equipment out of service. (2.1.12)
	Conduct of operation / Ability to use plant computer	Perform a core limits surveillance. (2.1.19)
A.2	Equipment Control / familiarity with P&IDs	Using plant drawings verify that an Out Of Service has been correctly prepared. (2.2.13)
A.3	Radiation Control / action level	Dress out in anti contamination clothing (2.3.10)
A.4	Emergency Plan / action level classification	Use of fire in plant procedure (2.4.27)

Facility: Quad CitiesDate of Examination: 08/06/01Exam Level (circle one): RO / SRO(I) / SRO(U)Operating Test No.: 2001301

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## B.2 Facility Walk-Through

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\* Type Codes: (D)irect from bank, (M)odified from bank, (N)ew, (A)lternate path, (C)ontrol room, (S)imulator, (L)ow-Power, (R)CA

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Use of Tech SpecsJob Performance Measure No: A.1.aK/A Reference: 2.1.12 (2.9/ 4.0)

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:

Simulated Performance \_\_\_\_\_

Actual performance XClassroom X

Simulator \_\_\_\_\_ Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: Controlled Tech Spec.

General References: NA

Initiating Cue: Attached

Time Critical Task: YES/NO

Validation time:

**JPM A.1.a**

Use Tech Specs to find required action,  
given a combination of ECCS equipment out of service.

**Narrative:**

The candidate will be notified that both HPCI and the "B" Core Spray pump are inoperable. The candidate will then be asked to refer to Tech Specs to determine the required action and then make a log entry identifying the governing Tech Spec and the required action.

### **INITIAL CONDITIONS**

- Both Unit operating at full power.
- All plant equipment operable.

### **INITIATING CUE**

At 1:00pm on August 7, 2001, Engineering reported that both HPCI and the "B" Core Spray pump on Unit 1 were inoperable due to the wrong lubricating oil being used in the pumps. No other equipment is effected by the problem.

Determine the governing Technical Specifications, the Technical Specifications REQUIRED ACTION for these conditions, and write a log entry documenting the required Tech. Spec. action to be taken.

When you have completed the log entry give it to the examiner.



### INITIATING CUE (student copy)

At 1:00 pm on August 7, 2001, Engineering reported that both HPCI and the "B" Core Spray pump on Unit 1 are inoperable due to the wrong lubricating oil being used in the pumps. No other equipment is effected by the problem, and all other plant systems are operable.

Both Units are at full power.

Determine the governing Technical Specifications, the Technical Specifications REQUIRED ACTION for these conditions, and write a log entry documenting the required Tech. Spec. action to be taken.

When you have completed the log entry give it to the examiner.

\*\*\*\*\*

## Unit 2 Log

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no text or other markings on the paper.

### Job Performance Measure (JPM)

JPM Start Time: \_\_\_\_\_

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
* 1.	Refers to a current controlled copy of the Technical Specifications	The copy of the Technical Specifications referred to is a controlled copy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* 2.	Enters Tech Spec LCO 3.5.1.B for 'B' Core Spray INOPERABLE	Logs entered Tech Spec LCO 3.5.1.B for 'B' Core Spray INOP and entered 7 day clock to restore 'B' core spray per required action B.1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* 3.	Enters Tech Spec LCO 3.5.1.F, HPCI INOPERABLE	Logs verified RCIC OPERABLE immediately per LCO 3.5.1.F, Required Action F.1, and entered 14 day clock to restore HPCI per Action F.2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* 4.	Enters correct Tech Spec reference and required action in log.	Log entry refers to T. S. 3.5.1. G. and a 72 hour time period to restore operability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: When the operator has completed the log entry terminate the JPM.					

JPM Stop Time: \_\_\_\_\_

\* Critical Steps

## VERIFICATION OF COMPLETION

Job Performance Measure No: A.1.a

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Core limits surveillanceJob Performance Measure No: A.1.bK/A Reference: 2.1.19 (3.0/3.0)

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X

Actual performance \_\_\_\_\_

Classroom X

Simulator \_\_\_\_\_

Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: procedure QCOS 0005-03

General References: procedure QCOS 0005-03

Initiating Cue: attached

Time Critical Task: YES/NO

Validation time:

**JPM A.1.b**

Perform a core limits surveillance

**Narrative:**

The candidate will be directed to perform a core limits surveillance. After demonstrating how he would obtain the appropriate procedure and a Core Performance Log from the computer, a Core Performance Log will be provided by the evaluator. The candidate should find that Critical Power Ratio is out of limits.

### **INITIAL CONDITIONS**

- Both Unit operating at full power.
- All systems are operating normally.

### **INITIATING CUE**

Perform a core limits surveillance on Unit 1.

When you have completed the surveillance report the results to the Shift Manager.

## INITIATING CUE (student copy)

Perform a core limits surveillance on Unit 1.

When you have completed the surveillance report the results to the Shift Manager.

**Job Performance Measure (JPM)**

JPM Start Time: \_\_\_\_\_

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
	Obtain procedure(s)	Obtains QOS 0005-3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* F.1	Obtains a Core Performance Log	Demonstrates how to use the computer to obtain a Core Performance Log. Selects Core Performance Log program on the control room computer cabinet and initiates the program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: When the operator has demonstrated how to obtain a Core Performance Log, hand him the one included with this JPM. Tell him to assume the date and time are current and that EGC has not been on any time the current shift.					
F.3	Records thermal power	Records thermal power	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.4	Calculates FRTP	Records FRTP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.5	Records WT	Records WT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.6.a,b	Checks MFLPD $\leq 1.00$	Records MFLPD value and location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.6.d,e	Checks MFLRX $\leq 1.00$	Records MFLRX value and location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.7.a	Checks MFLPD $\leq$ FRTP AND FDLRC $\leq 1.0$	Checks MFLPD $\leq$ FRTP AND FDLRC $\leq 1.0$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.8.a,b	Checks MAPRAT $\leq 1.00$	Records MAPRAT value and location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*F.9.a, b	Checks MFLCPR $\leq 0.99$	Finds MFLCPR = 1.003	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*F.9.c	Notifies Unit Supervisor And QNE that MFLCPR $> 0.99$	Notifies Unit Supv. And QNE that MFLCPR $> 1.00$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: Acknowledge report, and conclude JPM.					

JPM Stop Time: \_\_\_\_\_

\* Critical Steps



## VERIFICATION OF COMPLETION

Job Performance Measure No: \_\_\_\_\_

Examinee's Name: \_\_\_\_\_

Examiner's Name: \_\_\_\_\_

Date performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Time to complete: \_\_\_\_\_

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

QUAD-1

WK-0126 01AUG06-08.54.22 9870 MWD/MTU TRIGR=2HR

REV=dec99

CORE PERFORMANCE LOG --- SHORT EDIT

TBLNAM : NORMAL OPERATION - DUAL LOOP - OLMCPR=1.46,1.50,1.53

CTP CALCULATION : HEAT BALANCE SYMMETRY : FULL

STATE CONDITIONS		FLOW RATES / CORE PARAMETERS		NUCLEAR LIMITS		LOCATION
GMWE	811.6	WT	95.4 MLB/HR (97.3%)	CMPF	2.640	25-10-04
GMWT	2510.2(100.0%)	WTSUB	94.9 MLB/HR	MFLCPR	1.003	41-18
EFF	32.3 %	WTFLAG	2	MAPRAT	.696	25-10-04
PR	1018.6 PSIA	WFW	9.73 MLB/HR	FDLRX	.759	25-10-04
DHS	23.0 BTU/LB	WD	32.71 MLB/HR	FDLRC	.676	25-10-04
				MFLPD	.655	21-22-10
ER	1.12	AVG VOID FRACTION	.33	P-PCS	-.90	23-16-19
ERATIO	1.01	AVG POW DENSITY	40.8 KW/L	FCL	101.6%	
TARGET	1.11					
KEFF	1.0020	PRESS DROP (MEAS)	16.1 PSIA	XE NON-EQ	.0%	
		PRESS DROP (CALC)	19.5 PSIA			

CYCLE EXPOSURE 9869.8MWD/MTU CAVEX 26961. MWD/MTU CRD .056

LOCATION	1	2	3	4	5	6	7	8
RING REL POWER	.99	1.26	1.14	1.34	1.23	1.35	.86	.28

\*\*\*\*\* CONTROL ROD DATA \*\*\*\*\*

	02	06	10	14	18	22	26	30	34	38	42	46	50	54	58	
59						--	--	--	--	--						59
55			--	--	--	--	--	--	--	--	--	--				55
51		--	--	--	--	--	--	--	--	--	--	--	--			51
47	--	--	--	--	14	--	--	--	14	--	--	--	--	--		47
43	--	--	--	--	--	--	--	--	--	--	--	--	--	--		43
39	--	--	--	10	--	--	--	00	--	--	--	10	--	--	--	39
35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	35
31	--	--	--	--	--	00	--	--	00	--	--	--	--	--	--	31
27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	27
23	--	--	--	10	--	D--	--	00	--	--	--	10	--	--	--	23
19	--	--	--	--	--	--	--	--	--	R--	--	--	--	--	--	19
15	--	--	--	--	--	14P	--	--	14	--	--	--	--	--	--	15
11		--	--	--	--	--	*	--	--	--	--	--	--			11
07			--	--	--	--	--	--	--	--	--	--				07
03						--	--	--	--	--						03
	02	06	10	14	18	22	26	30	34	38	42	46	50	54	58	

CONTROL RODS SYMMETRIC, C.R. SEQUENCE:A-2, C.R. DENSITY: .056  
SUBST. RODS:

APRM	1	2	3	4	5	6
READING	99.0	100.0	99.2	99.7	99.7	99.3
AGAF	1.010	1.000	1.008	1.003	1.003	1.007

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Verify an Out-of-ServiceJob Performance Measure No: A.2K/A Reference: 2.2.13 (3.6/3.8)

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:

Simulated Performance \_\_\_\_\_

Actual performance XClassroom X

Simulator \_\_\_\_\_ Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: Controlled drawings

General References: Controlled drawings

Initiating Cue: attached

Time Critical Task: YES/NO

Validation time:

## JPM A.2

Using plant drawings verify an Out-of-Service

### Narrative:

The candidate will be given a checklist that has been prepared for a tag out in preparation for maintenance work on the 1A Core Spray System. The candidate will then be asked to review the tag out to verify the checklist is correct prior to the tag out being performed.

## **INITIAL CONDITIONS**

- Both Unit operating at full power.

## **INITIATING CUE**

Maintenance work on the 1A Core Spray System is being planned.

You have been directed to review the tag out checklist for this work, to verify it is correct prior to the tag out being performed.

When you are complete notify the Shift Manager of the results of your review.

## INITIATING CUE

Maintenance work on the 1A Core Spray System is being planned.

You have been directed to review the tag out checklist for this work, to verify it is correct prior to the tag out being performed.

When you are complete notify the Shift Manager of the results of your review.

**Job Performance Measure (JPM)**

JPM Start Time: \_\_\_\_\_

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
1.	Obtains correct documents for tag out verification	When prints are used they must be the hand updated prints kept in the Control Room or the Control Room simulator.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Performs verification, Locates on print and checks position for:				
2.	Enters LCO for 1A Core Spray INOP	Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	1A CS Pmp (C/S) (1A Core Spray Pmp)	PTL Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	CS Pmp INBD Disch Vlv (C/S) (1A CS PP Inbd Disch Vlv)	AUT/CL Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	CS Pmp Outbd Disch Vlv (C/S) (1A CS PP Outbd Disch)	AUT/CL Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	CS Pmp Suct Vlv (C/S) (1A CS Pmp Suct Vlv)	AUT/CL Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	CS Pmp 1A Close Fuse Block	RMVD Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	CS Pmp 1A Trip Fuse Block	RMVD Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*9.	CS Pmp 1B (Breaker)	Identifies that Bkr 1-1401-B Bkr should be 1-1401-A Bkr	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	CS Pmp 1A Suction Vlv (Bkr)	OFF Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	CS Pmp 1A Inbd Disch Vlv (Bkr)	OFF Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	CS Pmp 1A Outbd Disch Vlv (Bkr)	OFF Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	1A CS Pmp Suct Vlv (HW)	CLOSED Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	1A CS CCST Suct Vlv	CLOSED Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
15.	1A CS Pmp Disch Stop Check Vlv	CLOSED Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	1A CS Pmp Min Flow SV	CLOSED Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	1A CS Pmp Inbd Drn Vlv	OPEN Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	1A CS Pmp Otbd Drn Vlv	OPEN Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	1A CS Pmp Disch Inbd Drn Vlv	OPEN Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	1A CS Pmp Disch Otbd Drn Vlv	OPEN Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	1A CS Pmp Seal Otbd Vent Vlv	OPEN Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	1A CS Pmp Seal Inbd Vent Vlv	OPEN Verified as Correct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

JPM Stop Time: \_\_\_\_\_ \* Critical Steps



## VERIFICATION OF COMPLETION

Job Performance Measure No: \_\_\_\_\_

Examinee's Name: \_\_\_\_\_

Examiner's Name: \_\_\_\_\_

Date performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Time to complete: \_\_\_\_\_

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Contamination controlJob Performance Measure No: A.3K/A Reference: 2.3.10

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:

Simulated Performance \_\_\_\_\_

Actual performance XClassroom XSimulator \_\_\_\_\_ Plant X

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: anti-contamination clothing.

General References:

Initiating Cue: attached

Time Critical Task: YES ☒ NO

Validation time:

### **JPM A.3**

Enter and leaving a contaminated area

#### **Narrative:**

The candidate will be asked to demonstrate the rad protection practices he would use if assigned to inspect the 1A RHR Room to assure the general material condition of the room is acceptable.

## **INITIAL CONDITIONS**

- Both Unit operating at full power.

## **INITIATING CUE**

The Operations Department has decided that a general walk down of the plant will be conducted to gage the material condition of the plant. (ie. cleanliness, condition of insulation, lighting, proper storage of ladders and tools, condition of plant labeling, etc.)

You have been assigned to inspect the 1A RHR Room as part of this general plant walk down.

Demonstrate the rad protection practices you would use in carrying out this assignment.

### INITIATING CUE (student copy)

The Operations Department has decided that a general walk down of the plant will be conducted to gage the material condition of the plant. (ie. cleanliness, condition of insulation, lighting, proper storage of ladders and tools, condition of plant labeling, etc.)

You have been assigned to inspect the 1A RHR Room as part of this general plant walk down.

Demonstrate the rad protection practices you would use in carrying out this assignment.

**Job Performance Measure (JPM)**

JPM Start Time: \_\_\_\_\_

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
	Reviews posted radiation survey maps.	Candidate should note that the 1A RHR room is a contaminated area and requires Zone 2 clothing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: Provide survey map enclosed with JPM and tell candidate to assume the conditions shown on this survey map are current.					
	Reviews Radiation Work Permit	Radiation Work Permit must be appropriate for operation personnel to enter a contaminated area for this work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*	Obtains protective clothing	Proceeds to protective clothing storage area and selects clothing for a ZONE 2 work area (hood, overalls, shoe covers, shoe rubbers, glove liners, gloves)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: Once the candidate has identified the clothing to be used state that the JPM will be continued in a mockup in the training building.					
*	Dresses in anti-contamination clothing.	Zone 2 clothing donned correctly, shoe covers inside coveralls, rubbers shoes, hair covered by hood or cap, glove liners, outer gloves.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*	dosimetry in pocket	TLD in coverall pocket with beta window not covered. Electronic Dosimeter next to TLD.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*	enters contaminated area	enters area across step-of pad.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: Tell candidate to assume his inspection is completed, and he should leave the contaminated area using normal practices for exiting a contaminated area.					
*	Exits contaminated area properly	Exits contaminated area in a way that prevents the spread of contamination. Treats outside of rubber shoes, outer gloves, and coveralls as contaminated.			

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
		Removes rubber shoes first, then outer gloves and places them in hamper.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Removes TLD and ED from coveralls and places in clean area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Removes cap/hood and coveralls being carefull not to touch outside of clothing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Removes cloth shoe cover and immediately places foot on SOP, then repeats with other foot.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Removes glove liners, retrieves TLD and ED and exits area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: Tell candidate the JPM is concluded.					

JPM Stop Time: \_\_\_\_\_

\* Critical Steps

## VERIFICATION OF COMPLETION

Job Performance Measure No: \_\_\_\_\_

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Response: \_\_\_\_\_

\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_



Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Use of Fire Pre-PlanJob Performance Measure No: A.4 (RO)K/A Reference: 2.4.27 (3.0/3.5)

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X

Actual performance \_\_\_\_\_

Classroom X

Simulator \_\_\_\_\_ Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: none

General References: Fire Preplan

Initiating Cue: attached

Time Critical Task: YES/NO

Validation time:

#### **JPM A.4 (RO)**

##### **Use of Fire Pre-Plan**

##### **Narrative:**

The candidate will be told that a fire has broken out in the reactor building near the "A" Standby Gas Treatment Train. The Cordova Fire Department has been called and will arrive onsite in about 20 minutes. He has been assign escort the fire fighters when they arrive on site and has been told to review the fire fighting plans for the area.

## **INITIAL CONDITIONS**

- Shutdown of both units is in progress.

## **INITIATING CUE**

A fire has broken out in the reactor building near the "A" Standby Gas Treatment Train.

The Cordova Fire Department has been called and will arrive onsite in about 20 minutes.

You have been assign to escort the fire fighters when they arrive on site and have been told to review the fire fighting plans for the area.

When you are ready review the fire fighting plan with the Shift Manager before assuming your escort duties. Be able to identify the following:

- ① Location of the command post.
- ② Hazards associated with the area.
- ③ Electrical equipment that should be deenergized.
- ④ Location of pre-staged fire equipment.

## INITIATING CUE (candidate copy)

A fire has broken out in the reactor building near the "A" Standby Gas Treatment Train.

The Cordova Fire Department has been called and will arrive onsite in about 20 minutes.

You have been assign to escort the fire fighters when they arrive on site and have been told to review the fire fighting plans for the area.

When you are ready review the fire fighting plan with the Shift Manager before assuming your escort duties. Identify the following:

- ① Location of the command post.
- ② Hazards associated with the area.
- ③ Electrical equipment that should be deenergized.
- ④ Location of pre-staged fire equipment.

Job Performance Measure (JPM)

JPM Start Time: \_\_\_\_\_

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
	Obtains Fire Pre-Plan Book	Knows Fire Pre-Plan Book is located in Control Room and Trackway One Fire Equipment Staging Area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Reviews Fire Pre-Plan	Reads Fire Pre-Plan for area RB-22.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: When the candidate is ready, tell him you are the Shift Engineer and what him to brief you on the Fire Pre-Plan with him before he assumes his escort duties.					
*	Conducts briefing on the Fire Pre-Plan	Identifies: - location of command center, (just outside fire area at primary access to area)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		- hazards associated with the area, (see pre-plan RB-22, Section 3.1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		- electrical equipment that should be deenergized (MCC 29-1 and MCC 29-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		- location of pre-staged fire equipment. (on page 2 of RB-22 - identify 3 hose reels and 2 CO <sub>2</sub> portable extinguishers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

JPM Stop Time: \_\_\_\_\_

\* Critical Steps

## VERIFICATION OF COMPLETION

Job Performance Measure No: \_\_\_\_\_

Examinee's Name: \_\_\_\_\_

Examiner's Name: \_\_\_\_\_

Date performed: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Time to complete: \_\_\_\_\_

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Classify an emergencyJob Performance Measure No: A.4 (SRO)K/A Reference: 2.4.41 (2.3/4.1)

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance \_\_\_\_\_ Actual performance XClassroom \_\_\_\_\_ Simulator X Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions:

Task Standard:

Required Materials:

General References:

Initiating Cue:

Time Critical Task ☒ YES ☐ NO

Validation time:

#### **JPM A.4 (SRO)**

Classify an emergency and prepare a NARS Form

#### **Narrative:**

The candidate will be notified that the station security has just called and reported that armed intruders have entering the site from the Mississippi River and have taken control of the Crib House. The site security force have the intruders contained in the Crib House. The candidate will be asked to do a GSEP emergency classification for this event and fill out a NARS form.



## **INITIAL CONDITIONS**

- Both Unit operating at full power.

## **INITIATING CUE**

There are two time critical steps in this JPM. You have up to 15 minutes to classify the event that will be described to you. Immediately after you classify the event a new 15 minute clock starts within which you must complete notification of state and local authorities of the event.

You are the Shift Manager.

Both units are operating at full power.

Station security has just called and reported that armed intruders have entering the site from the Mississippi River and have taken control of the Crib House. The site security force have the intruders contained in the Crib House.

For this event perform a GSEP emergency classification and fill out a NARS form.

When you have completed the NARS Form give it to me.

## **INITIATING CUE**

You are the Shift Manager.

Station security has just called and reported that armed intruders have entering the site from the Mississippi River and have taken control of the Crib House. The site security force have the intruders contained in the Crib House.

For this event perform a GSEP emergency classification and fill out a NARS form.

When you have completed the NARS Form give it to me.

**Job Performance Measure (JPM)**

JPM Start Time: \_\_\_\_\_

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
	Refers to EP-AA-111 CLASSIFICATION OF EMERGENCIES if necessary (Reference Use)	Obtains and uses EP-AA-111 if necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*	Refers to Quad Cities GSEP Annex Section 5 to determine Emergency Action Level (EAL).	Uses Initiating Condition Matrix to determine EAL. EAL determined in < 15 minutes that an ALERT exists.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Obtain NARS Form.	NARS Form Obtained.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
xmnr	Provide the following cue when requested:	wind at 65.5 degrees, 4.3 mph or 1.9 meters/sec (This will make the downwind sectors LMN for NARS)			
*	Fill out Nuclear Accident Reporting System (NARS) Form per EP-AA-114 so that State and local agencies are notified within fifteen minutes.	NARS form correctly completed < 15 minutes after EAL determined.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUE: When the operator has taken the above actions, and turns the completed NARS Form over to the evaluator, state that the JPM is concluded.					

JPM Stop Time: \_\_\_\_\_

\* Critical Steps

## VERIFICATION OF COMPLETION

Job Performance Measure No: A.4 (SRO)

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Run standby gas systemJob Performance Measure No: B.1.aK/A Reference: 261000 A4.08 (2.64/2.7)

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X

Actual performance \_\_\_\_\_

Classroom \_\_\_\_\_

Simulator X

Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: note

General References: QCOP 7500-01 &amp; 02

Initiating Cue: attached

Time Critical Task: YES/NO NO

Validation time:

JPM B.1.a

STARTUP THE STANDBY GAS TREATMENT SYSTEM,  
RECOGNIZE & REPORT HEATER FAILURE

### INITIAL CONDITIONS

- The plant is operating at 100% power.
- The SBT systems are lined up for standby.
- The "A" SBT train is selected to STBY.
- The "B" SBT train is selected to PRIMARY.
- Instrument air is available to all necessary SBT components.
- Engineering personnel have requested that the SBT train "A" be operated for approximately 30 minutes so that they can verify filter differential pressures.
- Radiation Protection has been notified that SBT will be started.

### INITIATING CUE

Manually start the "A" SBT Train.

JPM Start Time: \_\_\_\_\_

	PERFORMANCE	OBJECTIVE STANDARDS	SAT	UNSAT	N/A
	Obtain procedure to use.	Obtains procedure QCOP 7500-01.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.2.a.	Verify open U-1 and/or U-2 RB inlet dmpr to SBGTS.	Verifies 1-7503 and/or 2-7503 damper open light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*G.2.b.	Start "A" SBGTS.	Positions "A" train mode switch to start.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.2.d.(1)	Verify closed turb bldg clg air damper.	Verifies 1/2-7504A closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.2.d.(2)	Verify open inlet damper.	Verifies 1/2-7505A open light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.2.d.(3)	Verify on SBGTS air htr.	Verifies 1/2-7503A on light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.2.d.(4)	Verify on 1/2A SBGTS fan.	Verifies 1/2-7506A on light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.2.d.(5)	Verify open SBGTS fan disch dmpr.	Verifies 1/2-7507A open light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.2.d.(6)	Verify proper SBGTS flow.	Verifies 1/2-7540-13A indicates 3600-4400 scfm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CUE: Engineering has called and said they have successfully completed testing. Secure "A" SBGTS train.</b>					
	Obtain procedure to use. (QCOP 7500-02)	Obtain procedure QCOP 7500-02.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
*G.1.	Stop "A" SBGTS.	Positions "A" train mode switch to off.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.1.a.(1)	Verify closed inlet damper.	Verifies 1/2-7505A closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.1.a.(2)	Verify open turb bldg clg air dmpr.	Verifies 1/2-7504A open light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.1.a.(3)	Verify closed SBGTS fan disch dwpr.	Verifies 1/2-7507A closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.1.a.(4)	Verify off 1/2A SBGTS fan.	Verifies 1/2-7506A off light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G.1.a.(5)	Verify off SBGTS air htr.	Verifies 1/2-7503A off light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* <b>CAUTION</b>	Recognize failure of htr to turn off.	Recognizes "A" train air htr ON light lit for > 10 seconds  THEN Restarts train by positioning "A" train mode selector switch to START.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Inform US.	Tells the US that the htr did not stop after shutting down the train and the train was restarted.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CUE:</b> I understand the heater failed to trip following train shutdown. Leave the "A" train operating. I will prepare a work request and call maintenance to trouble shoot and inform the SM.					
<b>EVALUATOR:</b> Inform the candidate that the JPM is complete.					

JPM Stop Time: \_\_\_\_\_

\* Critical Step

## VERIFICATION OF COMPLETION

Job Performance Measure No: B.1.a

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Weekly turbine TestJob Performance Measure No: B.1.bK/A Reference: 241000 A4.16 (3.3/3.2)

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X

Actual performance \_\_\_\_\_

Classroom \_\_\_\_\_

Simulator X

Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: note

General References: QOS 5600-04

Initiating Cue: attached

Time Critical Task: YES NO

Validation time:

**JPM B.1.b**

**Perform The Weekly Turbine-Generator Test**

## INITIAL CONDITIONS

- Unit 1 is operating at 100% power.
- The Recircs are in Individual Manual Flow control.
- The Weekly Turbine-Generator test was started earlier in the shift. (BPO has been notified.) Steps F.8 through F.19 have been completed.
- An NLO is available in the Aux. Electric room to assist in the test.
- MFLCPR is  $< .95$ .

## INITIATING CUE

Complete steps F.1 through F.7 of the weekly Turbine-Generator Test IAW QOS 5600-04.

JPM Start Time:     

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
D.2.	If deviating from the order of steps, obtains US's permission and does not test the 901-31 panel and the 901-7 panel at the same time.	Obtains US's permission for deviating from procedure order and does not perform steps F5, F6, or F7 simultaneously with F1, F2, F3, F4, F8, or F9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.1.a	Record generator load.	Generator load recorded.	<input type="checkbox"/>	<input type="checkbox"/>	
*F.1.b.1.	Depress test Gen PB and verify light and annun. alarms.	Depress test Gen PB.	<input type="checkbox"/>	<input type="checkbox"/>	
*F.1.b.2.	Release test PB when meter indicates ~ 5 mils and verify meter returns to ~ 0.	Release test PB at ~ 5 mils.	<input type="checkbox"/>	<input type="checkbox"/>	
F.1.b.3.	Verify test light out and annun alarm reset.	Test light out and annun reset.	<input type="checkbox"/>	<input type="checkbox"/>	
*F.1.b.4.	Depress test Turb PB and verify light and annun alarms.	Depress test turb PB.	<input type="checkbox"/>	<input type="checkbox"/>	
*F.1.b.5.	Release test PB when meter indicates ~ 5 mils and verify meter returns to ~ 0.	Release test PB at ~ 5 mils.	<input type="checkbox"/>	<input type="checkbox"/>	
F.1.b.6.	Verify test light out and annun alarm reset.	Test light out and annun reset.	<input type="checkbox"/>	<input type="checkbox"/>	
*F.1.c.1.(a)	Check the thrust bearing wear detector turbine end.  Release pushbutton and record readings for turbine end trip point.	Depress the turbine end trip test button and <u>HOLD</u> until thrust bearing wear-mils indicator stops moving.  Record "Thrust Bearing Wear Mils" indicator reading when the pointer stops moving.  Release Turbine end trip point test button.	<input type="checkbox"/>	<input type="checkbox"/>	
F.1.c.1.(b).	Verify alarm and testing light clear.	- Alarm clears and testing light goes out.	<input type="checkbox"/>	<input type="checkbox"/>	

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u> <u>UNSAT</u> <u>N/A</u>
*F.1.c.2.a.	Check the thrust bearing wear detector, Gen end.  Release pushbutton and record readings for generator end trip point.	Depress the generator end trip test button and <u>HOLD</u> until thrust bearing wear miles indicator stops moving.  Record "Thrust Bearing Wear Mils" indicator reading when the pointer stops moving.  Release Generator end trip point test button.	[ ] [ ]  + 34 mils
F.1.c.2.b.	Verify alarm and testing light clear.	- Alarm clears and testing light goes out.	[ ] [ ]
F.2.a.	Depress upper and lower "Lamp Test" buttons.	Depress "Upper Lamp Test" and "Lower Lamp Test" buttons on EHC panel.  - All lights on EHC panel lit.	[ ] [ ]
*F.2.b.	Push the "Test" button for lockout valve on EHC panel.	Depress Overspeed Trip System Status (OTSS) test button.	[ ] [ ]
F.2.c.	Observe "Locked Out" light and alarm.	Verify:  OTSS "Locked Out" button backlit.  - 901-7 annunciator A-3 "Overspeed Trip Blocked" lit.	[ ] [ ]
*F.2.d.	Push and hold "Oil Trip" button until overspeed trip status lights indicate tripped.	Depress and <u>HOLD</u> OTSS "Oil Trip" button until OTSS "Tripped" button backlit.	[ ] [ ]
*F.2.e.	Wait at least 25 seconds before proceeding.	Waits 25 seconds before proceeding.	[ ] [ ]
*F.2.f.	Push "Reset" button for emergency governor and hold until "Reset" light is lit.	Depress and <u>HOLD</u> OTSS "Reset" button until OTSS "Reset" button backlit and locked out light is extinguished.  - OTSS "Tripped" button not backlit.  - Locked out light extinguished.	[ ] [ ]

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
F.2.g.	Verify gov. status returns to normal.	Verify OTSS "Normal" button lit after 25 seconds.  Verify OTSS "Reset" button remains backlit.	[]	[]	[]
*F.3.	Test the back-up overspeed trip (BU02)	Direct operator to perform step F.3.	[]	[]	
<b>CUE: Step F.3. is complete.</b>					
*F.4.	Test the Power/Load unbalance trip.	Directs operator to perform step F.4.	[]	[]	
<b>EVALUATOR: Request the simulator operator to override annun. 901-7 D-15 "On" for several seconds and then "OFF".</b>					
<b>CUE: Step F.4. is complete.</b>					
*F.5.	Test the Back-up speed governor.	Direct operator to perform step F.5.	[]	[]	
<b>CUE: Step F.5. is complete.</b>					
F.6.a.	Select vacuum trip pressure switches "A".	Verify SS switch in "PS A".	[]	[]	
F.6.b.	Verify that no lights are lit.	Verify: PS-104A light out. PS-105A light out. PS-106A light out.	[]	[]	
*F.6.c.	Select vacuum trip pressure switches "B".	Position VTSS switch to "PS B".	[]	[]	
F.6.d.	Verify that no lights are lit.	Verify: PS-104B light out. PS-105B light out. PS-106B light out.	[]	[]	
F.7.a.	Verify that both MTSV (Master Trip Solenoid Valve) lights are lit.	Verify Master Trip Solenoid Test (MTST): MTST Test "A" light lit. MTST Test "B" light lit.	[]	[]	
*F.7.b.	Place the MTSV test switch to "Trip A" position.	Position MTSV test switch to "Trip A" and <u>HOLD</u> .	[]	[]	
*F.7.c.	When the light goes off release the switch.	When MTST "Test A" light out releases MTSV test switch.	[]	[]	
*F.7.d.	Place the MTSV test switch to "Trip B" position.	Position MTSV test switch to "Trip B" and <u>HOLD</u> .	[]	[]	



	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
*F.7.e.	When the light goes off release the switch.	When MTST "Test B" light out releases MTSV test switch.	[ ]	[ ]	
F.7.f.	Verify both lights are on.	Verify: MTST "Trip B" light lit. MTST "Trip A" light lit.	[ ]	[ ]	
<b>EVALUATOR:</b> The candidate should inform you that the task is complete.					

JPM Stop Time: \_\_\_\_\_

\* Critical Step

.....

## VERIFICATION OF COMPLETION

Job Performance Measure No: B.1.b

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

ERIC 1

Appendix C

Job Performance Measure  
Worksheet

Form ES-C-1

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Initiate SBLC

Job Performance Measure No: B.1.c

K/A Reference: 211000 A.4

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:

Simulated Performance X

Actual performance \_\_\_\_\_

Classroom \_\_\_\_\_

Simulator X

Plant \_\_\_\_\_

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: note

General References: QCOP 1100-02

Initiating Cue: attached

Time Critical Task: YES/NO

Validation time:

## **JPM B.1.c**

### **Initiate Standby Liquid Control With Failure To Inject**

**Narrative:** An ATWS is in progress, the RO is ordered to start the Standby Liquid Control System. When the SBLC switch is taken the 1&2 position it does not inject. When the SBLC switch is taken the 1&2 position it does inject.

## INITIAL CONDITIONS

- U-1 has experienced an ATWS. The following conditions exist:
  - Reactor power > 3%.
  - Both Recirc pumps were tripped per QGA 101.
  - The Shift Manager anticipates reaching 110°F in the Torus approximately 3 minutes.
- The SBLC system is in standby operation.
- The Unit Supervisor has determined that SBLC must be initiated per QGA 101.
- Hard card use has been authorized.

## INITIATING CUE

Inject the Standby Liquid Control System.

JPM Start Time: \_\_\_\_\_

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
	Obtain procedure to be used.	Obtains procedure QCOP 1100-2 or hard card for injecting SBLC.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*F.1.	Select System 1 & 2. <b>OR</b> Select System 2 & 1, with keylock switch A and B SELECT.	Positions SBLC keylock switch to System 1 & 2 <b>OR</b> Positions SBLC keylock switch to System 2 & 1.	<input type="checkbox"/>	<input type="checkbox"/>	
*F.2.	Determines SBLC <b>NOT</b> injecting.	Determines SBLC <b>NOT</b> injecting by anyone of the following indications:  SBLC flow light NOT lit.  SBLC tank level is NOT decreasing. (LI-1-1140-2)  Pump discharge press < Rx press. (PI-1-1140-1)  Verify neutron flux NOT decreasing.(APRM recorders)	<input type="checkbox"/>	<input type="checkbox"/>	
<b>EVALUATOR:</b> If the operator informs the US that SBLC is not injecting, tell him to take corrective action.  <b>CUE:</b> Cue simulator operator when candidate attempts opposite switch position.					
*F.3.	Attempt to inject SBLC with the opposite switch position.	Repositions SBLC keylock switch to the opposite position that was initially selected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT UNSAT N/A</u>
*F.2.	Verify SLC system injection	<p>Determines SBLC IS injecting from following indications:</p> <p>SBLC flow light lit.</p> <p>SBLC tank level is decreasing. (LI-1-1140-2)</p> <p>Pump discharge press &gt; Rx pressure (PI-1-1140-1)</p> <p>Verify neutron flux decreasing.(APRM recorders)</p>	
	Determines SBLC IS injecting.	<p>Informs US that SBLC is injecting.</p>	<p>[ ] [ ]</p>
EVALUATOR: The candidate should inform you that the task is complete.			

JPM Stop Time:\_\_\_\_\_

\* Critical Step

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## VERIFICATION OF COMPLETION

Job Performance Measure No: B.1.c

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_



Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Transfer Aux. PowerJob Performance Measure No: B.1.dK/A Reference: 263000 A4.04 (3.6/3.7)

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X

Actual performance \_\_\_\_\_

Classroom \_\_\_\_\_

Simulator X

Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: note

General References: QOS 6500-09

Initiating Cue: attached

Time Critical Task: YES/NO

Validation time:

**JPM B.1.d**

Transfer Aux. Power From XFMR 11 to XFMR 12

### INITIAL CONDITIONS

- Unit 1 is operating at 100% power.
- Unit Supervisor has directed Aux. Power transferred for scheduled testing of T11.
- Bulk Power has given permission to transfer auxiliary power from XFMR 11 to XFMR 12.

### INITIATING CUE

The Unit Supervisor has directed you to transfer Aux. Power from Transformer 11 to Transformer 12 per QCOP 6500-09.

Prerequisites C1, C2, and C3 are complete.

JPM Start Time: \_\_\_\_\_

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
	Obtain procedure to be used.	Obtains procedure QOS 6500-09	[]	[]	
<b>EVALUATOR:</b> <b>The order in which the buses are transferred is insignificant. The examinee may do steps F.3.b.(1) through F.3.b.(5) or step F.3.b.(6) through F.3.b.(10) first.</b>					
*F.8.b.(1)	Turn on synchroscope switch for XFMR 12 to Bus 11.	Insert synch key and rotate to on.	[]	[]	
F.8.b.(1)(a)	Verify: XFMR 11 and XFMR 12 are in phase.	Verify: Synch scope at 12 o'clock and synch lights out.	[]	[]	[]
	Voltages are equal.	Running/incoming voltage equal.	[]	[]	[]
*F.8.b.(2)	Close XFMR 12 to Bus 11 ACB.	Positions bkr control switch to close.	[]	[]	
	Verify breaker close indication.	Closed light lit.	[]	[]	[]
F.8.b.(2)(a)	Verify alarm 901-8 D-1 Bus 11 Main & reserve ACB parallel lit.	901-8 D-1 "Bus 11 Main and Reserve ACB Parallel" alarm lit.	[]	[]	[]
	Verify Amp indicaiton XFMER 12 to Bus 11.	Amps indicated on the XFMER 12 to Bus 11 breaker ammeter on 901-8 panel.	[]	[]	
*F.8.b.(3)	Open XFMR 11 to Bus 11 breaker.	Position bkr control switch to trip.	[]	[]	
	Verify breaker open indication.	Open light lit.	[]	[]	[]
F.8.b.(3)(a)	Verify alarm 901-8 D-1 Bus 11 Main & Reserve ACB parallel resets.	Reset 901-8 D-1 "Bus 11 Main and Reserve ACB parallel" alarm.	[]	[]	[]
F.8.b.(4)	Turn synchroscope switch off for XFMR 12 to Bus 11.	Rotate synch switch to off remove synch key.	[]	[]	
*F.8.e.(1)	Turn synchroscope switch on for XFMR 12 to Bus 14.	Insert synch key and rotate to on.	[]	[]	
F.8.e.(1)(a)	Verify: XFMR 11 and XFRM 12 are in phase.	Verify: Synch scope at 12 o'clock and synch lights out.	[]	[]	[]

	<b>PERFORMANCE</b>	<b>OBJECTIVE STANDARDS</b>	<b>SAT</b>	<b>UNSAT</b>	<b>N/A</b>
	Verify voltage equal.	Checks running and incoming voltmeters are approximately equal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*F.8.e.(2)	Close XFMR 12 to Bus 14 ACB.	Positions bkr control switch to close.	<input type="checkbox"/>	<input type="checkbox"/>	
	Verify breaker close indication.	- Closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.8.e.(2)(a)	Verify alarm 901-8 B-5 Bus 14 Main and Reserve GCB parallel lit.	901-8 B-5 "Bus 14 Main and Reserve ACB Parallel" alarm lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Verify amps indicated on XFMR 12 to Bus 14.	Amps indicated on the XFMR 12 to Bus 14 breaker ammeter on the 901-8 Panel.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*F.8.e.(3)	OPEN XFMR 11 to Bus 14 breaker.	Positions bkr control switch to trip.	<input type="checkbox"/>	<input type="checkbox"/>	
	Verify breaker open indication.	- Open light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.8.e.(3)(a)	Verify alarm 901-8 B-5 Bus 14 Main & Reserve	Reset 901-8 B-5 "Bus 14 Main and Reserve ACB Parallel" alarm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.8.e.(4)	Turn synchroscope switch off for XFMR 12 to Bus 14.	Rotate synch switch to off remove synch key.	<input type="checkbox"/>	<input type="checkbox"/>	
F.8.f.	<u>NOTIFY</u> the Bulk Power Office that transfer of auxiliary power from XFRM 11 to XFRM 12 is completed	Bulk Power notified.	<input type="checkbox"/>	<input type="checkbox"/>	
<b>CUE: Acting as the Bulk Power Office, respond you understand that the power transfer is complete.</b>					
<b>EVALUATOR: The candidate should inform you that the task is complete.</b>					

\* indicates critical item

JPM Stop Time: \_\_\_\_\_

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## VERIFICATION OF COMPLETION

Job Performance Measure No: B.1.d

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Venting primary containment Hi H2 Job Performance Measure No: B.1.eK/A Reference: 500000 EA1.03 (3.4/3.2)

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X

Actual performance \_\_\_\_\_

Classroom \_\_\_\_\_

Simulator X

Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: note

General References: QCOP 1600-13

Initiating Cue: attached

Time Critical Task: YES (NO)

Validation time:

JPM B.1.e

Post Accident Venting of The Primary Containment



### INITIAL CONDITIONS

- A transient has occurred resulting in hydrogen generation.
- The US has entered the Hydrogen control procedure, QGA 200-5.
- Chemistry has sampled the containment atmosphere, calculated the estimated release rate, and has determined that the offsite release rate will stay below the LCO when venting has commenced.
- There are as many fans as possible operating.
- SBGT is operating.
- The Essential Service bus and both RPS busses are energized.
- The Station Director has given his permission to vent.

### INITIATING CUE

Line-up and vent the Torus through SBGT in accordance with QCOP 1600-13 to reduce hydrogen concentration in the containment.

JPM Start Time: \_\_\_\_\_

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
	Obtain the procedure to be used.	Procedure QCOP 1600-13 obtained.	<input type="checkbox"/>	<input type="checkbox"/>	
F.2.	Verify closed the following Primary Containment valves:				
	a. Torus 2" Vent vlv.	AO 1-1601-61, closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	
	b. DW 2" Vent vlv.	AO 1-1601-62, closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	
	c. Vent to SBGTS.	AO-1-1601-63, closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	
	d. Torus 18" Vent vlv.	AO-1-1601-60, closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	
	e. DW 18" Vent vlv.	AO 1-1601-23, closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	
	f. Vent to RX Bldg Exh Sys.	AO 1-1601-24, closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	
F.3.a.	Verify "B" SBGTS train is running.	"B" train of SBGTS verified running.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.3.b.	Announce evacuation of SBT area and that plant radiological conditions may change as containment is vented.	Announcement made.	<input type="checkbox"/>	<input type="checkbox"/>	
F.3.c.	Verify MASTER VENT MODE switch in NORM.	Switch in NORM.	<input type="checkbox"/>	<input type="checkbox"/>	
*F.3.d. (1)	Place the VENT ISOL SIG BYP key switch to TORUS position.	Switch is momentarily placed in TORUS position, AND alarm 901-3 A-15 verified on.	<input type="checkbox"/>	<input type="checkbox"/>	
*F.3.d. (2)	Open Vent to SBGTS.	Positions AO 1-1601-63 CS to open - open light lit.	<input type="checkbox"/>	<input type="checkbox"/>	

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT UNSAT N/A</u>
*F.3.d.(3)	<u>Open</u> Torus 2" Vent vlv.	Positions AO 1-1601-61 CS to open - open light lit.	<input type="checkbox"/> <input type="checkbox"/>
F.3.d.(5)	<u>Monitor</u> Release Rate.	Monitors, 1/2-1704-19, CHIMNEY GAS ACTIVITY recorder on Panel 912-4 <u>AND</u> 1/2-1740-202, MN CHIMNEY GAS ACTIVITY recorder 912-1.	<input type="checkbox"/> <input type="checkbox"/>
* F.3.d.(5)(a)	<u>Verify</u> Technical Specification LCO release rate limit is <u>NOT</u> being exceeded.	Contacts Chemistry or verifies absence of alarms E-9 and F-9 On 912-1 panel to ensure T.S. LCO release rate limit is NOT being exceeded.	<input type="checkbox"/> <input type="checkbox"/>
F.3.d.(6)	<u>Log</u> the following information in the Unit Log Book: (a) Time of venting start & stop. (b) Drywell and Torus pressure at time of vent start & stop.	Data logged.	<input type="checkbox"/> <input type="checkbox"/>
<b>EVALUATOR: The candidate should inform you that the task is completed.</b>			

JPM Stop Time: \_\_\_\_\_

\* Critical Step

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## VERIFICATION OF COMPLETION

Job Performance Measure No: B.1.e

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Shutdown cooling/ recirc pump tripsJob Performance Measure No: B.1.fK/A Reference: 205000 A.2.11 (2.5/2.7)

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X

Actual performance \_\_\_\_\_

Classroom \_\_\_\_\_

Simulator X

Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: note

General References: QCOP 1000-05

Initiating Cue: attached

Time Critical Task: YES NO

Validation time:

## JPM B.1. f.

Shutdown cooling is on and a recirc pump trips.

### Narrative:

The candidate will assume the shift as the BOP. The off going BOP will inform him that the plant has just been placed on Shutdown Cooling, with one recirc pump off. The candidate will be informed that QCOP 1000-17 SHUTDOWN COOLING, REACTOR TEMPERATURE TRENDING needs to be performed.

After the candidate has walked down the Shutdown Cooling status of the plant and has begun QCOP 1000-17, the operating recirc pump will be tripped.

The candidate should take action to raise Reactor Water Level to  $> 90$ " and to close recirc pump suction or discharge valve.

## INITIAL CONDITIONS

- The plant has been shutdown and placed on Shutdown Cooling last shift after a 150 day run at full power.
- The "A" loop of Shutdown Cooling is in operation.
- The "B" recirc pump is off and out of service for MG set maintenance.
- The "A" recirc pump is running.
- Shutdown cooling is discharging to recirc loop "A".

## INITIATING CUE

You are just coming on shift as BOP.

Your turn over was that:

- The plant has recently been placed on Shutdown Cooling after a 150 day run at full power.
- The "A" loop of Shutdown Cooling is in operation.
- The "B" recirc pump is off and out-of-service.
- The "A" recirc pump is running.
- Shutdown cooling is discharging to recirc loop "A".
- Level is being controlled on the FEEDWATER LO FLOW CONTLR 1-640-20 in auto at 30 inches.
- Reject from the Reactor Water Cleanup System is in progress.

The Unit Supervisor assigns you to monitor the cool down and operation of Shutdown Cooling:

- Walk down the panels to verify proper Shutdown cooling line up and operation.
- Then perform QCOP 1000-17 SHUTDOWN COOLING, REACTOR TEMPERATURE TRENDING.

## **INITIATING CUE (candidate copy)**

You are just coming on shift as BOP.

Your turn over was that:

- The plant has recently been placed on Shutdown Cooling after a 150 day run at full power.
- The "A" loop of Shutdown Cooling is in operation.
- The "B" recirc pump is off and out-of-service.
- The "A" recirc pump is running.
- Shutdown cooling is discharging to recirc loop "A".
- Level is being controlled on the FEEDWATER LO FLOW CONTLR 1-640-20 in auto at 30 inches.
- Reject from the Reactor Water Cleanup System is in progress.

The Unit Supervisor assigns you to monitor the cool down and operation of Shutdown Cooling:

- Walk down the panels to verify proper Shutdown cooling line up and operation.
- Then perform QCOP 1000-17 SHUTDOWN COOLING, REACTOR TEMPERATURE TRENDING.



### Job Performance Measure (JPM)

JPM Start Time: \_\_\_\_\_

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
	Obtain procedure(s)	Obtains QCOP 1000-05 and QCOP 1000-17	[]	[]	[]
	Walks down Shutdown cooling system.	Verifies lineup per QCOP 1000-05	[]	[]	[]
	Operator reviews QCOP 1000-17	QCOP 1000-17 in hand and being read	[]	[]	[]
SIM OPERATOR: While the candidate is reviewing QCOP 1000-17 trip the "A" Recirc Pump on RECIRC MG A LUBE OIL LOW PRESSURE					
	Operator responds to the Recirc Pump trip	Refers to annunciator procedure	[]	[]	[]
EVALUATOR: If the operator informs the US of the Recirc Pump trip, respond by telling him to follow annunciator procedure, and then verify the Shutdown Cooling System is still running properly.					
QCOP 1000-05 *E.17	Operator takes action to raise reactor water level to > 90"	Takes Manual control of FEEDWATER LO FLOW CONTRL 1-640-20 and opens valve to raise level. And/Or closes FCV 1238 to stop reactor water reject.	[]	[]	[]
EVALUATOR: If the candidate asks the US for direction, ask for options to raise level then direct "take manual control of the LO FLOW feedwater control valve and raise level to between 90 and 100 inches". Once level is rising tell the candidates that you will monitor the level increase and that he should perform any other required actions.					
QCOP 1000-05 *E.18	Operator takes action to close "A" Recirc Pump suction or discharge valve.	Closes MO 1-202-5A RECIRC PMP DISCH VLV or Closes MO-202-4A RECIRC PMP SUCTION VLV	[]	[]	[]
CUE: When the operator has taken the above 2 actions, state that the JPM is concluded.					

JPM Stop Time: \_\_\_\_\_

\* Critical Steps

## VERIFICATION OF COMPLETION

Job Performance Measure No: B.1.f

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Use HPCI for pressure controlJob Performance Measure No: B.1.gK/A Reference: 206000 A.4.1 (3.8/3.7)

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X

Actual performance \_\_\_\_\_

Classroom \_\_\_\_\_

Simulator X

Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: note

General References: QCOP 2300-06

Initiating Cue: attached

Time Critical Task: YES/NO

Validation time:

**JPM B.1.g**

HPCI started for pressure control,  
turbine exhaust line vacuum breaker fails

**Narrative:**

The candidate will be directed to perform a manual start up of HPCI for reactor pressure control with suction from the CCST per QCOP 2300-06 HPCI SYSTEM MANUAL START-UP (INJECTION/PRESSURE CONTROL). The HPCI Turbine Exhaust Vacuum Breakers will be failed in the open position. After HPCI start-up the candidate should note an increasing torus pressure. In response to the increase in torus pressure the candidate should isolate the vacuum breaker line and shutdown HPCI.

## **INITIAL CONDITIONS**

- A normal shutdown is in progress on Unit 1.
- The reactor is at ~800 psig pressure.
- All plant systems are normal for an in progress shutdown with reactor pressure at ~800 psig
- HPCI is in standby lineup per QCOP 2300-01

## **INITIATING CUE**

You are the Unit 1 BOP.

A normal shutdown is in progress.

The unit is being shutdown due to a relief valve operability concern.

The Shift Manager is concerned that he may need another means of reactor pressure control other than relief valves.

You are instructed to start HPCI for reactor pressure control per QCOP 2300-06 HPCI SYSTEM MANUAL START-UP (INJECTION/PRESSURE CONTROL).

## INITIATING CUE

You are the Unit 1 BOP.

A normal shutdown is in progress.

The unit is being shutdown due to a relief valve operability concern.

The Shift Manager is concerned that he may need another means of reactor pressure control other than relief valves.

You are instructed to start HPCI for reactor pressure control per QCOP 2300-06  
HPCI SYSTEM MANUAL START-UP (INJECTION/PRESSURE CONTROL).

**Job Performance Measure (JPM)**

JPM Start Time: \_\_\_\_\_

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
	Obtain procedure(s)	Obtains QCOP 2300-06	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Operator reviews QCOP 2300-06	QCOP 2300-06 in hand and being read.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.1*	Verify DG Cooling Water pump on	Starts DG Cooling Water pump	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.5	Performs a manual start-up of HPCI as follows.				
F.5.a	(1) <b>Verify open</b> MO 1(2)-2301-6, CCST SUCT VLV. (2) <b>Verify close</b> MO 1(2)-2301-35, TORUS SUCT VLV. (3) <b>Verify close</b> MO 1(2)-2301-36, TORUS SUCT VLV.	(1) valve position light indicates open  (2) valve position light indicates closed  (3) valve position light indicates closed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.5.c*	<b>Start</b> GLAND SEAL LEAKOFF BLOWER.	Motor light indicates on	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.5.d*	<b>Start</b> AUX OIL PMP.	Motor light indicates on	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.5.e	<b>Close</b> AO 1(2)-2301-29, DRAIN VLV TO MN CNDSR <b>AND</b> AO 1(2)-2301-30, DRAIN VLV TO MN CNDSR.	Control switch moved to close position valve position lights indicates closed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.5.f	<b>Open</b> AO 1(2)-2301-28, DRAIN TRAP TO DRAIN POT VLV.	Control switch moved to open position valve position light indicates open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F.5.g*	<b>Open</b> MO 1(2)-2301-3, HPCI TURB STM SPLY VLV.	Control switch moved to open position valve position light indicates open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

F.5.h	<b>Verify open</b> MO 1(2)-2301-14, MIN FLOW BYP VLV.	Valve position light indicates open	[]	[]	[]
F.5.i	<b>Close</b> AO 1(2)-2301-64, DRAIN VLV TO SUMP <b>AND</b> AO 1(2)-2301-65, DRAIN VLV TO SUMP.	Control switch moved to close position valve position lights indicates closed	[]	[]	[]
F.5.j*	<b>Depress</b> HPCI TURB TRIP RESET pushbutton <b>AND verify</b> HPCI TURB STOP VLV opens.	Pushbutton depressed valve position lights indicates open	[]	[]	[]
F.7	Places HPCI in Reactor Pressure Control mode as follows.				
F.7.a*	<b>Open</b> MO 1(2)-2301-15, TEST RTN VLV.	Control switch moved to open position valve position light indicates open	[]	[]	[]
F.7.b*	<b>Open</b> MO 1(2)-2301-10, TEST RETURN VLV.	Control switch moved to open position valve position light indicates open	[]	[]	[]
F.7.c*	<b>Increase</b> Turbine speed by adjusting MOTOR SPEED CHANGER until HPCI discharge flow is approximately 5000 gpm and the motor speed changer is at the high speed stop.	HPCI flow >5000gpm <5600 rpm	[]	[]	[]
F.7.c(1)*	<b>IF</b> additional adjustments required <b>THEN</b> throttle MO 1(2)-2301-10, TEST RETURN VLV.	HPCI flow >5000gpm <5600 rpm	[]	[]	[]
F.7.d	<b>Verify close</b> MO 1(2)-2301-14, MIN FLOW BYP VLV as system flow is increased.	Valve position light indicates closed	[]	[]	[]
F.7.e	<b>Stop</b> AUX OIL PMP.	Motor light indicates off	[]	[]	[]



F.7.f	<b>Verify</b> EMERG OIL PMP is off.	Motor light indicates off	[]	[]	[]
F.7.g*	<b>Throttle</b> MO 1(2)-2301-10, TEST RETURN VLV as needed to maintain HPCI discharge pressure <b>AND</b> HPCI discharge flow	HPCI discharge pressure 100 psig over Reactor pressure but less than 1250 psig, HPCI discharge flow equal to or less than 5600 gpm.	[]	[]	[]
F.7.h*	<b>IF</b> HPCI discharge flow adjustment is required, <b>THEN adjust</b> flow using one of the following methods: (1) <b>Adjust</b> FIC 1(2)-2340-1, HPCI FLOW  (2) <b>Place</b> FIC 1(2)-2340-1, HPCI FLOW CONTROLLER to MANUAL position and <b>Adjust</b> manual adjustment lever  (3) <b>Adjust</b> HPCI flow using the MOTOR SPEED CHANGER	HPCI flow > 5000 gpm < 5600 gpm  HPCI speed > 2200 rpm <4000 rpm	[]	[]	[]
F.7.i	<b>Monitor</b> HPCI Turbine for proper operation	- Turbine Speed $\leq$ 4000 rpm, - Discharge pressure $\leq$ 1250 psig - HPCI Pump suction pressure 0 to 35 psig - HPCI flow 5000 to 5600 gpm - HPCI exhaust pressure 1 to 50 psig	[]	[]	[]
SIM Operator: on examiner signal, alarm 901-3 G-11 and C-13 (Torus to Drywell Vacuum breakers open).					
	Operator responds to alarmed opening of the torus to drywell vacuum breakers	Refers to annunciator procedure	[]	[]	[]

	Operator responds to alarmed opening of the torus to drywell vacuum breakers	Refers to annunciator procedure	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
CUE: Torus Pressure reads 3 psig on recorder 1-1602-7 (red mark on recorder)			
D.6*	Operator identifies the torus pressure increase as indicative of exhaust line vacuum breakers open.	Operator closes MO-2399-40 and MO-2399-41.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
D.6*	Operator confirms vacuum breaker failure, and recommends HPCI shutdown.	Operator notifies Unit Supv. Or refers to QCOP 2300-04 for HPCI shutdown	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>CUE: When the operator has taken the either or the above 2 actions to terminate the release through vacuum breaker failure, state that the JPM is concluded.</p> <p>NOTE: If the operator takes only one of the above 2 actions the Critical Step is considered completed (i.e. the release is terminated).</p>			

JPM Stop Time: \_\_\_\_\_

\* Critical Steps

## VERIFICATION OF COMPLETION

Job Performance Measure No: B.1.g

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Locally start Safe Shutdown PumpJob Performance Measure No: B.2.aK/A Reference: 217000

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X

Actual performance \_\_\_\_\_

Classroom \_\_\_\_\_

Simulator X

Plant \_\_\_\_\_

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: note

General References: QOS 6500-09

Initiating Cue: attached

Time Critical Task: YES/NO

Validation time:

JPM B.2.a

## Locally Start-up of The Safe Shutdown Makeup Pump System

### INITIAL CONDITIONS

- Unit 2 has suffered a loss of normal feedwater and a failure of HPCI.
- The unit has scrammed however, water level is decreasing and the Unit Supervisor has ordered the Safe Shutdown System to be injected into the vessel as directed by QGA 100.
- The Control Room Safe Shutdown Pump controls did not respond when the attempt was made to put the Safe Shutdown System on.
- The System is in its normal standby line-up, with suction from the CCST's, in accordance with QCOP 2900-01.
- The HPCI MO-2-2301-8 valve is closed and its breaker open.
- Service water is available to the Safe Shutdown Room Cooler.

### INITIATING CUE

Locally, line-up and inject the Safe Shutdown Pump into the Unit 2 Reactor in accordance with QCOP 2900-02 until reactor level is increasing.

JPM Start Time: \_\_

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
*F.1.	Places selector switches in LOCAL.	Places all 11 MCB/LOCAL switches into LOCAL on the 1/2 2251-104 pnl. At a minimum, the following selector switches must be placed in LOCAL: -MO-1/2-2901-07 -MO-2-2901-08 -FCV-1/2-2901-06 -SSMP CS.	[]	[]	
<b>CUE: Pointing to the LOCAL position on the switches that were repositioned, state "These switches are in this position."</b>					
F.5.a.	Verify suction pressure.	Verifies suction press. on local press. ind. (PI 1/2-2941-01 on west wall.) or asks the Control Room.	[]	[]	[]
<b>CUE: After showing you the suction pressure gauge, state that the indication is as shown. If they ask for Control Room indication, report 5 psig.</b>					
*F.5.b.	OPEN MOV 1/2-2901-7, THROTTLED TEST VALVE	Positions MO 1/2-2901-7 to open. Verifies open light lit and closed light off.	[]	[]	
<b>CUE: Point to the red indicating light above the 1/2 2901-7 valve control switch and state, "This light is lit."</b>					
*F.5.c.	Start the 1/2-2901-SAFE SHUTDOWN PUMP and verify pressure increase.	Positions SSMP CS 1/2-2901 to start.  Locates disch PI 1/2-2941-08 and verifies press increase or ask the Control Room for Disch Press on 1/2-2940-05.	[]	[]	
<b>CUE: If they ask, point to the red indicating light above the 1/2 2901 pump control switch and state, "This light is lit."</b>					
<b>CUE: After showing you the discharge pressure indicator, point to 1200 psig and state "The indicator points here." If they ask for Control Room indication, report it at 1200 psig.</b>					
<b>EVALUATOR: If flow can NOT be maintained &gt; 150 gpm, the pump must be tripped.</b>					

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT UNSAT N/A</u>
*F.5.d.	Place 1/2-2901-6 SAFE SHUTDOWN MU PMP FCV in auto and slowly increase controller setpoint to 400 gpm.	Pushes the auto pushbutton and verifies it backlights.  Rotates the thumbwheel to 400 gpm.	<input type="checkbox"/> <input type="checkbox"/>
<b>CUE: Point to the auto pushbutton and state, "This button is lit." Point to 400 on the flow indicator and state, "The indicator is here."</b>			
*F.5.f.	OPEN MOV 2-2901-8 U2 REACTOR SUPPLY VLV.	Positions MO 2-2901-8 CS to open. Verifies open light lit.	<input type="checkbox"/> <input type="checkbox"/>
<b>CUE: Point to the red indicating light above the MO 2-2901-8 valve control switch and state, "This light is lit."</b>			
*F.5.g.	Close MOV 1/2-2901-7 THROTTLED TEST VALVE.	Positions MO 1/2-2901-7 to closed and holds. Verifies closed light lit and open light off.	<input type="checkbox"/> <input type="checkbox"/>
<b>CUE: Point to the green indicating light above the MO 1/2-2901-7 valve control switch and state, "This light is lit."</b>			
<b>CUE: CR reports Rx level is slowly increasing.</b>			
<b>EVALUATOR: Candidate should inform you that the task is complete.</b>			

JPM Stop Time: \_\_\_\_\_

\* Critical Step

.....

## VERIFICATION OF COMPLETION

Job Performance Measure No: B.2.a.

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_



Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Locally start of SBO dieselJob Performance Measure No: B.2.bK/A Reference: 264000

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X

Actual performance \_\_\_\_\_

Classroom \_\_\_\_\_

Simulator \_\_\_\_\_

Plant X

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: note

General References: QOS 6620-11

Initiating Cue: attached

Time Critical Task: YES/NO

Validation time:

JPM B.2.b

## Local Emergency Start Of The Unit 2 SBO Diesel Generator

### INITIAL CONDITIONS

- Unit Two has just scrambled and has experienced a complete loss of power.
- The 23-1 and 24-1 crossties are inoperable due to an outage on Unit One. Backfeeding operations are in progress but will take considerable time to complete.
- The Unit One EDG is OOS undergoing cylinder rebuild.
- The Unit Two and ½ Emergency Diesel Generators both failed to start locally and from the Control Room.
- The Control Room cannot start the SBO DG's from the Control Room because the PLC is inoperable and DCS panel 902-74 is not available. 2202-105 F-3 Alarm is up and silenced. The SBO DG Two Diesel is in it's normal standby lineup.
- An operator is standing by in the SBO building at Bus 71 for loading and breaker operation.

### INITIATING CUE

- Locally start the Unit Two SBO DG in accordance with QCOP 6620-11 and load onto Bus 71 observing the radiator fan and jacket cooling water booster pumps are operating.

JPM Start Time: \_

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT UNSAT</u> <u>N/A</u>
F.1.a	Verifies or places the DROOP/ISOCH switch in ISOCH.	On the 2202-105 panel, verifies or places the DROOP/ISOCH switch in the ISOCH position.	[ ] [ ] [ ]
<b>CUE: On the 2202-105 panel, point to the ISOCH position for the DROOP/ISOCH switch and state, "This switch is in this position."</b>			
F.1.b.	Verifies or places the Voltage Regulator OFF/AUTO switch in the AUTO position.	On the 2202-105 panel, verifies or places the voltage regulator switch in the AUTO position.	[ ] [ ] [ ]
<b>CUE: On the 2202-105 panel, point to the AUTO position for the Voltage Regulator and state, "This switch in in this position."</b>			
F.1.c.	Verifies starting meter is reset to "0" or presses the reset button.	On the 2202-105 panel, verifies the meter is reset to "0" or presses the reset button on the starting time meter.	[ ] [ ] [ ]
<b>CUE: On the 2202-105 panel, point to the starting time meter and state, "This meter indicates "0"."</b>			
*F.1.e.(1)	Places PLC switch in PLC BYPASS.	On the 2202-105 panel, places the LOCKOUT/REMOTE/ LOCAL/PLC BYPASS switch to PLC BYPASS.	[ ] [ ] [ ]
<b>CUE: On the 2202-105 panel, point to the PLC Bypass position for the Lockout/Remote/Local/PLC Bypass selector switch and state, "This switch is in this position." Point to PLC Bypass indicator lamp on the 2202-105 panel and state, "This lamp is lit."</b>			
*F.1.e.(2)	Press and hold the EMERGENCY START button.	On the 2202-105 panel, press AND hold red EMERGENCY START button UNTIL ENGINE RPM increases to greater than 200 rpm.	[ ] [ ] [ ]
<b>CUE: State, "The engine is starting. Engine rpm is increasing and the ventilation fans are blowing air through the room."</b>			

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u> <u>UNSAT</u> <u>N/A</u>
F.1.e.(3).	Verifies ENGINE RPM at 900 rpm.	On the 2202-105 panel, AFTER approximately 50 second time delay expires, THEN verify ENGINE RPM increases to approximately 900 rpm.	[[ ] [ ] [ ]
<b>CUE: Point to 900 rpm on the ENGINE RPM gage located on the 2202-105 panel and state, "This meter indicates here."</b>			
F.1.f.	Verifies the amber DG IN ISOCH light is lit.	On the 2202-105 panel, verifies the amber DG IN ISOCH light is lit.	[[ ] [ ] [ ]
<b>CUE: Point to the DG IN ISOCH light located on the 2202-105 panel and state, "This light is lit."</b>			
F.1.g.	Verifies the amber DG RUNNING NOT LOADED light is lit.	On the 2202-105 panel, verifies the amber DG RUNNING NOT LOADED light is lit.	[[ ] [ ] [ ]
<b>CUE: Point to the DG RUNNING NOT LOADED light located on the 2202-105 panel and state, "This light is lit."</b>			
F.1.h.	Verifies the GENERATOR FREQUENCY at 60 hz.	On the 2202-105 panel, verifies the frequency at 60 hz.	[[ ] [ ] [ ]
<b>CUE: Point to 56 hz on the GENERATOR FREQUENCY meter located on the 2202-105 panel and state, "This meter indicates here."</b>			
*F.1.h.	Adjusts generator frequency with the governor control switch.	On the 2202-105 panel, rotates the governor control switch clockwise until the generator frequency indicates 60 hz.	[[ ] [ ] [ ]
<b>CUE: Point to the 60 hz on the Generator Frequency meter located on the 2202-105 panel and state, "This meter indicates here."</b>			
F.1.i.	Adjusts or verifies the GENERATOR VOLTAGE is at 4160 volts.	On the 2202-105 panel, adjusts or verifies the GENERATOR VOLTAGE is at 4160 volts.	[[ ] [ ] [ ]
<b>CUE: Point to the 4160 volts on the GENERATOR VOLTAGE meter located on the 2202-105 panel and state, "This meter indicates here."</b>			

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT UNSAT</u> <u>N/A</u>
F.2.	Informs the operator to load the SBO DG to Bus 71.	Contacts the operator at Bus 71 to locally load the SBO DG to Bus 71.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>CUE: An operator reports that the electrical lineup for the SBO DG is complete and the Output Breaker is CLOSED to Bus 71. Steps F.2.a. through F.2.d. are complete in accordance with QCOP 6620-11.</b>			
F.2.e.(1).	Verifies the DG RUNNING LOADED light is lit.	At the 2202-105 panel, verifies the DG RUNNING LOADED light is lit.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>CUE: Point to the DG RUNNING LOADED light on the 2202-105 panel and state, "This light is lit."</b>			
F.2.f.	Verify the following equipment is on by light indication or looking at the components:  Jacket water booster pump.  Radiator fan #1.  Radiator fan #2.	At the 2202-104 panel, verify the following equipment is on:  Jacket water booster pump.  Radiator fan #1.  Radiator fan #2.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>CUE: Point to the Red lamps on each of the following pieces of equipment located on the 2202-104 panel and state, "This lamp is lit." Or provide them with indication that the following are running:</b>  <b>Jacket Water Booster Pump.</b>  <b>Radiator Fan #1.</b>  <b>Radiator Fan #2.</b>			
F.2.g.	Verify the following equipment is on by light indication or looking at the components:	At the 2202-106 panel, verify the following equipment is on:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
F.2.g.(1).	Jacket water booster pump.	Jacket water booster pump.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
F.2.g.(2).	Radiator fan #1.	Radiator fan #1.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
F.2.g.(3).	Radiator fan #2.	Radiator fan #2.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT UNSAT</u> <u>N/A</u>
<b>CUE:</b> Point to the Red lamps on each of the following pieces of equipment located on the 2202-106 panel and state, "This lamp is lit." Or provide them with indication that the following are running:  <b>Jacket Water Booster Pump.</b>  <b>Radiator Fan #1.</b>  <b>Radiator Fan #2.</b>			
<b>CUE:</b> Another operator is being sent out to load the SBO DG onto the safety related Bus and watch SBO DG parameters.			
<b>EVALUATOR:</b> The candidate should inform you that the task is complete.			

JPM Stop Time:\_\_\_\_\_

\* Critical Step

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## VERIFICATION OF COMPLETION

Job Performance Measure No: B.2.b.

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

Facility: Quad Cities Station

Task No: \_\_\_\_\_

Task Title: Feed and bleed to cool fuel poolJob Performance Measure No: B.2.cK/A Reference: 233000

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:Simulated Performance X

Actual performance \_\_\_\_\_

Classroom \_\_\_\_\_

Simulator \_\_\_\_\_

Plant X

## READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

Initial Conditions: attached

Task Standard: attached

Required Materials: note

General References: QCOA 1900-03

Initiating Cue: attached

Time Critical Task: YES/NO

Validation time:



JPM B.2.c

Perform local actions to cool Unit 1 fuel pool by feed and bleed

**Narrative:**

Unit 1 is operating at full power. Fuel pool cooling has been lost to the Unit 1 fuel pool. The candidate will be directed to perform the local actions to cool Unit 1 fuel pool by feed and bleed per QCOA 1900-03 LOSS OF FUEL POOL COOLING WITH UNIT SHUTDOWN FOR REFUELING.

## **INITIAL CONDITIONS**

- Unit 1 is shutdown for refueling and Unit 2 is operating at full power.
- The Fuel Pool Cooling Pumps are off and can not be started.

## **INITIATING CUE**

Unit 1 is shutdown for refueling and Unit 2 is operating at full power.

The Unit 1 Fuel Pool Cooling Pumps are off and can not be started.

You are directed to perform the local actions to cool Unit 1 fuel pool by feed and bleed per QCOA 1900-03 LOSS OF FUEL POOL COOLING WITH UNIT SHUTDOWN FOR REFUELING step D.9.

Two Mechanics and a Radiation Technician are being dispatched with you to provide any necessary assistance.

Inform me when you have completed this assignment.

## INITIATING CUE

Unit 1 is shutdown for refueling and Unit 2 is operating at full power.

The Unit 1 Fuel Pool Cooling Pumps are off and can not be started.

You are directed to perform the local actions to cool Unit 1 fuel pool by feed and bleed per QCOA 1900-03 LOSS OF FUEL POOL COOLING WITH UNIT SHUTDOWN FOR REFUELING step D.9.

Two Mechanics and a Radiation Technician are being dispatched with you to provide any necessary assistance.

Inform me when you have completed this assignment.

**Job Performance Measure (JPM)**

JPM Start Time: \_\_\_\_\_

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
	Obtain procedure(s)	Obtains QCOA 1900-03	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Obtain any necessary equipment	Shows evaluator where any necessary hoses or keys would be obtained.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D.9.a. *	Locates hose drops to be used and readies hoses.	Locates a Condensate Transfer System hose drop on the refuel floor, and explains how hoses would be connected and used to add water to fuel pool.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evaluator: Condensate Transfer System is the preferred source of water, however it is acceptable to use Clean Demineralized or Fire Water. Water should be directed to the pool, but not directly into the skimmer surge tank. Adding the water directly to the skimmer surge tank would bypass the fuel pool.					
D.9.b. (2)*	Opens Fuel Pool Cooling Pump and Heat Exchanger vents and drains to drain to RBEDT	Locates Fuel Pool Cooling Pump and Heat Exchanger vents and drains and explains how the valves would be opened.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evaluator: The pumps and heat exchanges are in a radiation area, but viewable from outside the area. Have the candidate point out the pumps and heat exchanges, and describe opening the vents and drains. THEN CUE the candidate that the valve tags indicate the correct valves and that when the valves are opened flow is observed in the sight glasses.					
D.9.b. (3)*	Opens 1-1001-157D, FUEL POOL TO RHR SYS XTIE RHR SIDE DRN VLV, and 1-1001-157F, FUEL POOL TO RHR SYS XTIE VENT & DRN SV, to drain to Reactor Building Floor Drain Sumps.	Locates 1-1001-157D and 1-1001-157F, and explains how the valves would be opened.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*	Starts adding water to Fuel Pool to maintain level, if not done in the step D.9.a. above.	Explains where he would direct water.	[] [] []
CUE: When the operator has taken the above actions, and reports that bleed and feed is in progress, state that the JPM is concluded.			

JPM Stop Time: \_\_\_\_\_

\* Critical Steps

## VERIFICATION OF COMPLETION

Job Performance Measure No: B.2.c

Examinee's Name:

Examiner's Name:

Date performed:

Facility Evaluator:

Time to complete:

Question Documentation:

Question: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Result SAT or UNSAT

Examiner's signature and date: \_\_\_\_\_

Facility: Quad Cities Scenario No. 1 Op-Test No. 2001301

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Initial Conditions: 100% power. The Unit 1 DG has recently been returned to service after a 2 day OOS for maintenance.

Turnover: Run Unit 1 DG load test for PMT personnel standing by at DG. Also this shift drop Rx power to 700 MWe at 150 Mwe per Hr.

Event No.	Malf. No.	Event Type*	Event Description
1		N	Unit 1 DG load test (BOP)
2		R	Drop Rx power with recirc flow (RO)
3		C	DG Room High Temperature, shutdown/trip DG (BOP)
4		I	LPRM fails High (RO)
5		C	One recirc pump experiences a speed control failure recirc speed drops to minimum flow (RO)
6		M	Small steam line break outside containment
7			MSIVs 1A and 2A fail to isolate
8		C	HPCI spurious initiation and steam isolation valve failure
9			Break in HPCI room

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

## Operator Actions

## NARRATIVE SUMMARY

Events	Description
1	Once the crew has accepted the unit, the SRO should direct the BOP to perform the Unit 1 DG load test IAW QCOS 6600-41 UNIT 1 DIESEL GENERATOR LOAD TEST.
2	The SRO should direct the RO to commence the power drop to 700 MWE power at 150 MWe/Hr IAW QCGP 3-1 REACTOR POWER OPERATIONS.
3	DG Room High Temperature alarm, BOP should refer to QCAN 901(2)-8 H-8, and shutdown DG per QCOP 6600-03 DIESEL GENERATOR 1(2) SHUTDOWN
4	LPRM fails High, RO should refer to QCAN 901(2)-5 D-7, and bypass the failed LPRM using QCOP 0700-03 LOCAL POWER RANGE MONITORING (LPRM) OPERATION
5	Recirc MG set tachometer fails, signal fails Hi, causing the control system to run down recirc speed. Operator enters QCOA 0202-03 REACTOR RECIRCULATION SYSTEM FAILURE, FLOW CONTROLLER FAILS LOW.
6	A small steam line break outside containment occurs, followed by a Group I isolation due to high steamline temperature. Operator enters QCOA 0201-05 PRIMARY SYSTEM LEAKS (SLOW LEAK) OUTSIDE PRIMARY CONTAINMENT
7	The reactor scrams due to the Group I isolation signal, but one steam line fails to isolate. Operator enters QCOA 0250-02 MSIV FAILURE.
8	HPCI spurious initiation. Operator enters QCOA 2300-01 HPCI AUTOMATIC INITIATION
9.	Break in HPCI leads to two areas (MSIV room and HPCI room) reaching max safe temperature requiring a reactor blowdown.



Operator Actions

SHIFT TURNOVER

- It is a Friday night shift.
- There is no adverse weather expected.
- Both Units are at 100% power.
- There is no equipment out of service.
- Work scheduled for this shift:

The Unit 1 DG was returned to service last shift after a 2 day OOS for quarterly predefined maintenance. This shift, perform a 2 hour load test on the Unit 1 DG per QCOS 6600-41 UNIT 1 DIESEL GENERATOR LOAD TEST. Personnel are standing by at the Unit 1 DG for the performance of the test, so start the test as soon as possible.

The BPO is expected to request a load drop to 700 Mwe later this shift.

- Pre-shift briefing.

Brief and provide a copy of QCOS 6600-41 UNIT 1 DIESEL GENERATOR LOAD TEST with Prerequisites sighted off except for D.8. Also state that the Engine Circulating Oil Pump, and Turbocharger Circulating Oil Pump have been running for an hour for step F.6.

Brief and provide a REMA for a load drop to 700 Mwe at 150 Mwe per hour.



## Operator Actions

Event No. 2	Page 1 of 1	
<b>Description:</b> Drop Rx power with recirc flow.		
<b>Initiation:</b> At the direction of the SRO.		
<b>Cues:</b> Directed by SRO		
Time	Position	Applicant's Action or Behavior
	RO	Per QCGP 3-1 REACTOR POWER OPERATIONS (continuous Use) <ul style="list-style-type: none"> <li>● Reviews QCGP 3-1</li> <li>● Obtains QCGP 3-1 Attachment B from SRO</li> <li>● Reviews REMA form</li> <li>● Reduce reactor recirc flow in INDIVIDUAL MANUAL</li> <li>● Monitors APRMs and other Rx parameters.</li> <li>● Monitors recirc pump speeds.</li> <li>● Maintain LOAD SET approximately 10% above Max Generator load.</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>● Monitors unit to ensure operations remain within established bands.</li> <li>● Monitors control room panels and notifies SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>● Complete QCGP 3-1 Attachment B.</li> <li>● Authorizes and directs start of load drop.</li> <li>● Ensures operations are conducted IAW Tech Spec, Operation standards, and approved procedures.</li> </ul>
<b>Terminus:</b> Power drop of ~ 10 MWe		

NOTES:

[illegible]

## Operator Actions

Event No. 3		Page 1 of 1
Description: DG Room High Temperature, shutdown/trip DG		
Initiation: On signal of lead examiner		
Cues: Annunciator 901-8 H-8 DIESEL ROOM 1 HIGH TEMP		
Time	Position	Applicant's Action or Behavior
	RO	<ul style="list-style-type: none"> <li>Monitors reactor to ensure operations remain within established bands.</li> <li>Monitors control room panels and notifies SRO of any unusual or unexpected conditions.</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>Acknowledges alarm and refers to QCAN 901(2)-8 H-8 (continuous Use)</li> <li>Shutdown DG per QCOP 6600-03 DIESEL GENERATOR 1(2) SHUTDOWN (continuous Use) per either F.1 emergency shutdown or F.4 normal shutdown.</li> <li>Place DIESEL GEN CONTROL SWITCH to STOP (continued operation may damage DG)</li> <li>Using 3 part communications, directs Equipment Operator to perform local steps of QCOP 6600-03.</li> <li>"Independently verify" <ul style="list-style-type: none"> <li>DIESEL GEN CONTROL SWITCH in AUTO,</li> <li>BUSSES 14 and 14-1 TIE ACB closed,</li> <li>DIESEL GEN TO BUS 14-1 ACB CONTROL SWITCH is in the NORMAL after-trip position.</li> </ul> (Failure to do this alignment will leave the DG unavailable on a loss of offsite power) </li> <li>Notify SRO to consider classifying event as a possible GSEP (Failure to do this may result in GSEP classification being missed)</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Evaluates problem and initiate investigation into cause of alarm.</li> <li>Consider the need for a GSEP classification.</li> <li>Ensures operations are conducted IAW Tech Spec, Operation standards, and approved procedures.</li> </ul> (T.S. 3.8.1 B. requires B.1 verify offsite power, B.2 declare DG supported systems inop, B.3.1 determine not a common cause problem, B.4 restore DG in 7 days)
Terminus: OPERATOR ACTIONS of QCAN 901(2)-8 H-8 completed		

## NOTES:


## Operator Actions

<b>Event No. 4</b>		<b>Page 1 of 1</b>
<b>Description:</b> LPRM fails High		
<b>Initiation:</b> On signal of lead examiner		
<b>Cues:</b> Annunciator 901-5 D-7 LPRM HIGH		
Time	Position	Applicant's Action or Behavior
	RO	<ul style="list-style-type: none"> <li>• Acknowledges alarm and refers to QCAN 901(2)-5 D-7 (continuous Use)</li> <li>• Stops all control rod motion and holds reactor power constant. (Power changes with high local peaking could lead to fuel damage)</li> <li>• Notify Qualified Nuclear Engineer.</li> <li>• Determine cause of high LPRM condition.</li> <li>• Bypass failed LPRM using QCOP 0700-03 LOCAL POWER RANGE MONITORING (LPRM) OPERATION (continuous Use)</li> <li>• Verify sufficient inputs to APRM. (Insufficient input will cause the APRM to be inop.)</li> <li>• Bypass LPRM</li> <li>• Check that effected APRM is readin between + 2% and -1% of Thermal Power (an APRM not calibrated properly will not provide conservative reactor protection)</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>• Monitors unit to ensure operations remain within established bands.</li> <li>• Monitors control room panels and notifies SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• Evaluates problem and initiate investigation into cause of alarm.</li> <li>• Authorize bypassing of failed LPRM.</li> <li>• Ensures operations are conducted IAW Tech Spec, Operation standards, and approved procedures. ( T.S. 3.3.1.1 RPS and 3.2.4 APRM provide number of input and gain requirements they are within limits.)</li> </ul>
<b>Terminus:</b> LPRM bypassed and APRM checked for accuracy.		

## NOTES:




## Operator Actions

Event No. 6 & 7		Page 1 of 3
<b>Description:</b> Small steam line break outside containment. MSIVs 1A and <del>1B</del> fail to isolate. <span style="float: right;">aA BB PG-6-01</span>		
<b>Initiation:</b> On signal of lead examiner		
<b>Cues:</b> High steam tunnel temperature, Group I isolation Signal, Reactor scram.		
Time	Position	Applicant's Action or Behavior
	RO	<p>When RO/BOP recognize event: Per QCGP 2-3 REACTOR SCRAM (continuous Use) ATTACHMENT A</p> <ul style="list-style-type: none"> <li>● Place mode switch in SHUTDOWN</li> <li>● Verify <ul style="list-style-type: none"> <li>● all rods in to 04 or beyond</li> <li>● SDV vents and drains closed</li> <li>● SRMs/IRMs auto insert</li> <li>● Recirc pumps run back</li> </ul> </li> <li>● Range IRMs</li> <li>● Set Recirc pump controllers to 15%</li> <li>● Maintains Rx water level +8" to +48"</li> </ul> <p>● Provide Reactor Parameters to SRO for entry into correct QGAs</p> <p>Performs EOP actions as directed by SRO</p> <ul style="list-style-type: none"> <li>● Coordinates with BOP to maintain/restore RPV level</li> <li>● Monitors and reports Reactor Parameters to SRO</li> </ul> <p>Per QGA 100 RPV CONTROL</p> <ul style="list-style-type: none"> <li>● Coordinates with BOP and stabilizes RPV level +8" to +48"</li> </ul>

## NOTES:






## Operator Actions

Event No. 6 & 7		Page 3 of 3
Time	Position	Applicant's Action or Behavior
	SRO	<p>Directs entry into EOPs and EOP actions</p> <p><del>Per QGA 400 RADIOACTIVE RELEASE CONTROL</del></p> <p>• <del>Enter QGA 100 RPV CONTROL</del> <i>BOP 8-6-01</i></p> <p>Per QGA 100 RPV CONTROL</p> <p>• Direct RO and BOP to control RPV level +8" to +48"</p> <p>Per QGA 300 SECONDARY CONTAINMENT CONTROL</p> <p>• Monitor for Max Safe Temps and Rad Levels</p> <p>General:</p> <ul style="list-style-type: none"> <li>• Demonstrates command and control of control room during event.</li> <li>• Acknowledges operator actions and directs subsequent actions.</li> <li>• Enforces OPS expectations and standards.</li> </ul>

**NOTES:**

[illegible]

## Operator Actions

Event No. 8 & 9		Page 1 of 1
<b>Description:</b> HPCI spurious initiation and steam isolation valve failure, with a steam leak in HPCI room.		
<b>Initiation:</b> On signal of lead examiner		
<b>Cues:</b> BOP notes HPCI Start		
Time	Position	Applicant's Action or Behavior
	RO	<ul style="list-style-type: none"> <li>Monitors reactor to ensure operations remain within established bands.</li> <li>Monitors control room panels and notifies SRO of any unusual or unexpected conditions.</li> </ul>
	BOP	Per QCOA 2300-01 HPCI AUTOMATIC <ul style="list-style-type: none"> <li><b>IMMEDIATE OPERATOR ACTIONS</b> for HPCI not desired.               <ul style="list-style-type: none"> <li>Trip HPCI Turbine</li> </ul> </li> <li>Report to SRO that HPCI failed to isolate.</li> <li>Continue to monitor and report Area temperatures.</li> </ul> Per QGA 500 BLOW DOWN <ul style="list-style-type: none"> <li><b>CRITICAL STEP</b> when directed by SRO opens all 5 ADS valves.</li> <li>When directed by SRO and Rx pressure &lt;100 psig starts Shutdown cooling</li> </ul>
<b>CUE:</b> Cue Simulator staff or surrogate when second max safe temp should be reported.		
	SRO	Per QGA 300 SECONDARY CONTAINMENT CONTROL When two areas reach Max Safe Temperature enter QGA 500 BLOW DOWN. <ul style="list-style-type: none"> <li><b>CRITICAL STEP</b> Per QGA 500 BLOW DOWN, order BOP to opens all 5 ADS valves.</li> </ul>
<b>Terminus:</b> <ul style="list-style-type: none"> <li>RPV level stable and under control in required band</li> <li>Blowdown initiated and RPV pressure lowering</li> <li>Upon approval of lead examiner</li> </ul>		

## NOTES:


Facility: Quad Cities Nuclear Power Station Scenario No.: 2 Op-Test No.: 2001301

Examiners: D. McNeil  
P. Young  
B. Palagi (Certification Exam)

Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Initial Conditions: ~90% power. RCIC OOS (3<sup>rd</sup> day OOS). "A" loop of Suppression Pool Cooling is running, a HPCI surveillance was run yesterday.

Turnover: Suppression pool now <90°F Suppression Pool Cooling should be terminated. Pull rods to 100% flow control line, and ramp to full power at 150 Mwe/hr. Also on this shift perform flow test on "A" Core Spray pump.

Event No.	Malf. No.	Event Type*	Event Description
1		R	Pull rods to 100% flow control line.
2		N	Terminate Suppression Pool Cooling. <i>ju</i>
3		G	When testing "A" CS pump min flow valve fails open. <i>ju</i>
4		C	A control rod drifts in.
5		I	APRM 5 fails Upscale.
6		C	Low flow to recirc pump seal on "A" recirc pump.
7		M	Intermediate LOCA (Liquid)
8		C	Drywell Spray fails

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

## Operator Actions

## NARRATIVE SUMMARY

Events	Description
1	Once the crew has accepted the unit, the SRO should direct the RO to commence control rod withdrawal to increase the flow control line to the 100% flow control line in preparation for a flow ramp to 100% power.
2	The SRO should direct the BOP to terminate torus cooling Per QCOP 1000-09 TORUS COOLING START-UP AND OPERATION (continuous Use).
3	At the SROs direction the BOP performs QCOS 1400-04 CORE SPRAY OPERABILITY TEST on the "A" Core Spray Pump. After the test the minimum flow valve fails in the open position.
4	A control rod drifts in 3 notches. With no nuclear engineer available, the RO must insert the rod to position 00 and have it electrically disarmed.
5	An APRM fails Upscale. The RO must bypass the APRM and reset the ½ scram.
6	A low flow to the recirc pump seal on "A" recirc pump is received. When seal temperature reaches 170 deg F the RO must insert the CRAM Rods to 00 and the BOP must trip the "A" Recirc MG Set.
7&8	An intermediate LOCA occurs. A High Drywell pressure signal causes a reactor scram, and an ECCS initiation. Drywell spray fails therefor Blowdown must be performed due to drywell temperature greater than 280 deg F or before the torus pressure exceeding Pressure Suppression Pressure.

Operator Actions

SHIFT TURNOVER

- It is a Sunday day shift.
- There is no adverse weather expected.
- Unit 1 is at ~90 % power, the unit power was decreased last shift for a control rod pattern adjustment.
- Unit 1 RCIC is out of service (it was tagout last shift for inspection of the breaker cubical for valves 1301-16 & 17).
- Unit 2 is at 100% power. There is no equipment out of service on Unit 2.
- Work scheduled for this shift:

Pull rods to the 100% flow control line and then ramp to 100% power. The Load Dispatcher has been notified that the load increase will begin as soon as shift turnover is completed and you are ready to begin.

Suppression Pool Cooling is running on Unit 1 due to a HPCI test run last shift. Suppression pool temperature is now < 90 deg F. Shutdown Suppression Pool Cooling after the control rod withdrawals to reach 100% power are completed.

Also this shift perform QCOS 1400-04 CORE SPRAY OPERABILITY TEST on the "A" Core Spray Pump.

- Pre-shift briefing:

Brief the reactivity change and provide a REMA and Load Movement Sheet

Brief the Core Spray test, provide a copy of QCOS 1400-04 with section D completed and the IST attachment acceptance criteria.

## Operator Actions

<b>Event No. 1</b>		<b>Page 1 of 1</b>
<b>Description:</b> Pull rods to 100% flow control line.		
<b>Initiation:</b> At the direction of the SRO.		
<b>Cues:</b> Directed by SRO		
<b>Time</b>	<b>Position</b>	<b>Applicant's Action or Behavior</b>
	RO	Per QCGP 3-1 REACTOR POWER OPERATIONS (continuous Use) and QCGP 4-1 CONTROL ROD MOVEMENTS AND CONTROL ROD SEQUENCE <ul style="list-style-type: none"> <li>• Reviews QCGP 3-1 and QCGP 4-1</li> <li>• Obtains QCGP 3-1 Attachment B from SRO</li> <li>• Reviews REMA form</li> <li>• Monitors APRMs and other Rx parameters.</li> <li>• for any Control Rod withdrawal to position 48 perform a coupling check.</li> <li>• Maintain LOAD SET approximately 10% above Max Generator load.</li> </ul>
<b>Note:</b> After 100% flow control line is reached the QNE goes home.		
	BOP	<ul style="list-style-type: none"> <li>• Monitors unit to ensure operations remain within established bands.</li> <li>• Monitors control room panels and notifies SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• Complete QCGP 3-1 Attachment B.</li> <li>• Authorizes and directs start of load drop.</li> <li>• Ensures operations are conducted IAW Tech Spec, Operation standards, and approved procedures.</li> </ul>
<b>Terminus:</b> Power increase of ~ 10 MWe		

## NOTES:


## Operator Actions

Event No. 2		Page 1 of 1
Description: Terminate torus cooling.		
Initiation: At the direction of the SRO.		
Cues: Directed by SRO		
Time	Position	Applicant's Action or Behavior
	RO	<ul style="list-style-type: none"> <li>Monitors reactor to ensure operations remain within established bands.</li> <li>Monitors control room panels and notifies SRO of any unusual or unexpected conditions.</li> </ul>
	BOP	<p>Per QCOP 1000-09 TORUS COOLING START-UP AND OPERATION (continuous Use) shutdown RHR Loop A.</p> <ul style="list-style-type: none"> <li>Verifies PREREQUISITES, reviews PRECAUTIONS, and LIMITATIONS AND ACTIONS.</li> <li>Stop one of the running RHR pumps             <ul style="list-style-type: none"> <li>Throttle MO 1-1001-36A, TORUS H2O TEST VLV to establish a discharge pressure &gt;230 psig on PI 1-1040-2a, RHR PMP DISCH PRESS.</li> <li>Stop pump A or B                 <ul style="list-style-type: none"> <li>Maintain RHR discharge pressure at least 15 to 20 psig less than RHR Service Water pressure. (This prevents any leakage of torus water to the environment)</li> </ul> </li> </ul> </li> <li>Stop the other running RHR pump             <ul style="list-style-type: none"> <li>Throttle close MO 1-1001-36A</li> <li><b>WHEN</b> RHR Pump discharge pressure increases to within 25 psig of RHR Service Water pressure, <b>THEN stop</b> running RHR Pump on RHR Loop A and <b>fully close</b> MO 1-1001-36A                 <ul style="list-style-type: none"> <li>Close MO 1-1001-34A</li> <li>Close MO 1-1001-16A</li> </ul> </li> </ul> </li> <li>Verify RHR Loop A in standby line-up per QCOP 1000-02.</li> <li>Shutdown RHR Service Water per QCOP 1000-04.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Authorizes and directs shutdown of Suppression Pool Cooling.</li> <li>Ensures operations are conducted IAW Tech Spec, Operation standards, and approved procedures.</li> </ul>
Terminus: Suppression Pool Cooling terminated, RHR in standby		

## NOTES:


## Operator Actions

<b>Event No. 3</b>		<b>Page 1 of 1</b>
<b>Description:</b> After testing "A" CS pump min flow valve fails open.		
<b>Initiation:</b> At the direction of the SRO.		
<b>Cues:</b> Directed by SRO		
Time	Position	Applicant's Action or Behavior
	RO	<ul style="list-style-type: none"> <li>• Monitors reactor to ensure operations remain within established bands.</li> <li>• Monitors control room panels and notifies SRO of any unusual or unexpected conditions.</li> </ul>
	BOP	Per QCOS 1400-04 CORE SPRAY OPERABILITY TEST <ul style="list-style-type: none"> <li>• Verifies PREREQUISITES, reviews PRECAUTIONS, and LIMITATIONS AND ACTIONS.</li> <li>• Test Core Spray Subsystem A               <ul style="list-style-type: none"> <li>• Start 1A CS Pump</li> <li>• Verifies MO 1-1402-38A, CS PMP MIN FLOW VLV, opens</li> <li>• Opens MO 1-1402-4A, CS BYP AND TEST VLV to establish a flow rate of &gt;4500 gpm at <math>\geq</math> 216 psig.</li> <li>• Verify suction pressure <math>\geq</math> 3 psig.</li> <li>• Shutdown system</li> <li>• Notes MO 1-1402-38A does <u>NOT</u> close</li> </ul> </li> <li>• Reports failure to SRO</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• Authorizes and directs testing of Core Spray Pump.</li> <li>• Ensures operations are conducted IAW Tech Spec, Operation standards, and approved procedures.</li> <li>• When failure is reported addresses T.S. operability. (refers to TS 3.5.1 B. ; TS 3.3.5.1 E and Table 3.3.5.1-1 d. Requires restoration of Core Spray to operable in 7 days)</li> <li>• Refers to QCAP 0230-19 EQUIPMENT OPERABILITY</li> </ul>
<b>Terminus:</b> A Core Spray Pump shutdown, T.S. operability addressed		

## NOTES:




## Operator Actions

<b>Event No. 4</b>		<b>Page 1 of 1</b>
<b>Description:</b> A control rod drifts in 3 NOTCHES.		
<b>Initiation:</b> On signal of lead examiner		
<b>Cues:</b> Annunciator 901-5 A-3 "ROD DRIFT"		
<b>Time</b>	<b>Position</b>	<b>Applicant's Action or Behavior</b>
	RO	<ul style="list-style-type: none"> <li>• Acknowledges alarm and refers to QCAN 901(2)-5 A-3 (continuous Use) <ul style="list-style-type: none"> <li>• Determine which Control Rod has drifted.</li> <li>• Enter QCOA 0300-04 MISPOSITIONED CONTROL ROD and QCOA 0300-11 CONTROL ROD DRIFT concurrently.</li> </ul> </li> <li>• Per QCOA 0300-04 MISPOSITIONED CONTROL ROD (continuous Use) <ul style="list-style-type: none"> <li>• Attempt to contact Qualified Nuclear Engineer (one will not be available)</li> <li>• Insert drifted rod to position 00.</li> </ul> </li> <li>• Per QCOA 0300-11 CONTROL ROD DRIFT (continuous Use) <ul style="list-style-type: none"> <li>• Attempt to determine cause of drift. (CUE AO 1-305127, CRD SCRAM OUTLET VLV discharge line will be hot)</li> <li>• Recommend Electrically disarming the drifted CRD per QCOP 0300-07, CRD DIRECTIONAL CONTROL VALVE DISARMAMENT/ARMAMENT</li> </ul> </li> </ul>
	BOP	<ul style="list-style-type: none"> <li>• Assists OR in determining cause of rod drift.</li> <li>• Monitors unit to ensure operations remain within established bands.</li> <li>• Monitors control room panels and notifies SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• Evaluates problem and initiate investigation into cause of alarm.</li> <li>• Ensures operations are conducted IAW Tech Spec, Operation standards, and approved procedures. (TS 3.1.3 C. requires the rod to be fully inserted and disarmed)</li> <li>• Order the drifted rod to be Electrically disarm per QCOP 0300-07</li> </ul>
<b>Terminus:</b> Drifted rod at position 00 and ordered to be electrically disarm		

## NOTES:


## Operator Actions

Event No. 5	Page 1 of 1	
<b>Description:</b> APRM fails upscale		
<b>Initiation:</b> On signal of lead examiner		
<b>Cues:</b> Annunciator 901-5 B-11 CHANNEL A/B NEUTRON MONITOR, Annunciator 901-5 A-6 "APRM UPSCALE/HIGH, Annunciator 901-5 D-15 CHANNEL B REACTOR SCRAM.		
Time	Position	Applicant's Action or Behavior
	RO	<ul style="list-style-type: none"> <li>Refers to QCAN 901-5 B-11 and QCAN 901-5 A-6</li> <li>Verifies only one APRM is inop and therefore a half scram was the correct response</li> <li>Refer to QCOA 0700-03 LOSS OF NEUTRON FLUX INDICATION (continuous Use)</li> <li>Bypass APRM channel per QCOP 0700-04 AVERAGE POWER RANGE MONITORING SYSTEM OPERATION (APRM), (continuous Use)</li> <li>Reset ½ scram.</li> <li>Reset Alarm 901-5 H-1 OPRM TROUBLE/INOP on back pannel</li> <li>Refer to QCAP 0230-19 EQUIPMENT OPERABILITY</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>Monitors unit to ensure operations remain within established bands.</li> <li>Monitors control room panels and notifies SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Evaluates problem and initiate investigation into cause of alarm.</li> <li>Ensures operations are conducted IAW Tech Spec, Operation standards, and approved procedures.</li> <li>Refers to Tech Spec for APRM operability. (TS table 3.3.1.1-1 2.c. only requires 2 channels per trip system)</li> </ul>
<b>Terminus:</b> Failed APRM Bypassed and half scram reset.		

NOTES:


Event No. 6		Page 1 of 1
<b>Description:</b> Low flow to recirc pump seal on "A" recirc pump.		
<b>Initiation:</b> On signal of lead examiner		
<b>Cues:</b> Annunciator 901-4 G-3 "RECIRC PUMP A SEAL CLG WTR LOW FLOW"		
Time	Position	Applicant's Action or Behavior
	RO	<ul style="list-style-type: none"> <li>• Monitors reactor to ensure operations remain within established bands.</li> <li>• Monitors control room panels and notifies SRO of any unusual or unexpected conditions.</li> <li>• When MG Set A to be tripped Refers to QCOA 0202-04 LOSS OF FLOW- SINGLE PUMP.:               <ul style="list-style-type: none"> <li>• Monitors for power oscillations</li> <li>• Inserts CRAM Rods to position 00 (failure to insert rods can lead to power oscillations)</li> </ul> </li> </ul>
	BOP	<ul style="list-style-type: none"> <li>• Refers to QCAN 901-4 G-3               <ul style="list-style-type: none"> <li>• Verify RBCCW &gt; 43 psig.</li> <li>• Monitor Recirc Pump seal cooling water temperature.</li> <li>• As seal temperature continues to increase                   <ul style="list-style-type: none"> <li>• Reduce pump speed</li> <li>• Trip MG Set A then temperature exceeds 170 deg F (failure to trip the pump could lead to seal damage)</li> </ul> </li> </ul> </li> <li>• Refers to QCOA 0202-04 LOSS OF FLOW-SINGLE PUMP.               <ul style="list-style-type: none"> <li>• Verify closed MO 1-202-5A PMP DISCH VLV.</li> <li>• Monitor recirc and bottom head temperatures.</li> <li>• Monitor off-gas</li> </ul> </li> <li>• Refers to QCOP 0202-07 to determine flow control line from core plate dp.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• Evaluates problem and initiate investigation into cause of alarm.</li> <li>• Ensures operations are conducted IAW Tech Spec, Operation standards, and approved procedures.</li> <li>• Refers to T.S. for single loop operation.(TS 3.4.1 requires different APLHGR and MCPR limits and lower settings on APRM scram/rod block)</li> </ul>
Terminus: CRAM Rods Inserted, MO 1-202-5A closed.		

**NOTES:**


## Operator Actions

Event No. 7&8		Page 1 of 3
<b>Description:</b> Intermediate LOCA (Liquid).		
<b>Initiation:</b> On signal of lead examiner		
<b>Cues:</b> Reactor scram, High Drywell pressure, Group II isolation, ECCS initiation		
Time	Position	Applicant's Action or Behavior
	RO	<p>When RO/BOP recognize event: Per QCGP 2-3 REACTOR SCRAM (continuous Use) ATTACHMENT A</p> <ul style="list-style-type: none"> <li>• Place mode switch in SHUTDOWN</li> <li>• Verify <ul style="list-style-type: none"> <li>• all rods in to 04 or beyond</li> <li>• SDV vents and drains closed</li> <li>• SRMs/IRMs auto insert</li> <li>• Recirc pumps run back</li> </ul> </li> <li>• Range IRMs</li> <li>• Set Recirc pump controllers to 15%</li> <li>• Maintains Rx water level +8" to +48"</li> </ul> <p>• Provide Reactor Parameters to SRO for entry into correct QGAs</p> <p>Performs EOP actions as directed by SRO</p> <ul style="list-style-type: none"> <li>• Coordinates with BOP to maintain/restore RPV level</li> <li>• Monitors and reports Reactor Parameters to SRO</li> </ul> <p>Per QGA 100 RPV CONTROL</p> <ul style="list-style-type: none"> <li>• Coordinates with RO and stabilizes RPV level +8" to +48"</li> </ul>

## NOTES:


## Operator Actions

Event No. 7&8		Page 2 of 3
<b>Description:</b> Intermediate LOCA (Liquid) and Drywell spray failure.		
<b>Initiation:</b> On signal of lead examiner		
<b>Cues:</b> Reactor scram, High Drywell pressure, Group II isolation, ECCS initiation		
Time	Position	Applicant's Action or Behavior
	BOP	<p>When RO/BOP recognize event: Per QCGP 2-3 REACTOR SCRAM (continuous Use) ATTACHMENT A</p> <ul style="list-style-type: none"> <li>● Verify <ul style="list-style-type: none"> <li>● Turbine and Generator trip</li> <li>● aux power transfer to TR12</li> <li>● Place Absorber Mode Switch to BYP</li> </ul> </li> <li>● Verify Group II isolation, verify ECCS operation</li> </ul> <p>Per QGA 100 RPV CONTROL</p> <ul style="list-style-type: none"> <li>● Coordinates with RO and stabilizes RPV level +8" to +48"</li> </ul> <p>Per QGA 200 Primary Containment Control</p> <ul style="list-style-type: none"> <li>● Monitor Containment parameters and when ordered. <ul style="list-style-type: none"> <li>● start available torus cooling</li> <li>● before torus pressure reaches 5 psig start torus spray</li> <li>● before drywell temp reaches 280 deg F start drywell spray</li> </ul> </li> <li>● Reports failure of drywell spray.</li> </ul> <p>Per QGA 500 BLOW DOWN</p> <ul style="list-style-type: none"> <li>● <b>CRITICAL STEP</b> when directed by SRO opens all 5 ADS valves.</li> </ul>

## NOTES:


## Operator Actions

Event No. 7&8		Page 3 of 3
<b>Description:</b> Intermediate LOCA (Liquid) and HPCI failure		
<b>Initiation:</b> On signal of lead examiner		
<b>Cues:</b> Reactor scram, High Drywell pressure, Group II isolation, ECCS initiation		
Time	Position	Applicant's Action or Behavior
	SRO	<p>Directs entry into EOPs and EOP actions</p> <p>Per QGA 100 RPV CONTROL</p> <ul style="list-style-type: none"> <li>● Direct RO and BOP to control RPV level +8" to +48" using feedwater.</li> </ul> <p>Per QGA 200 Primary Containment Control</p> <ul style="list-style-type: none"> <li>● Monitor Containment parameters. <ul style="list-style-type: none"> <li>● start available torus cooling</li> <li>● before torus pressure reaches 5 psig start torus spray</li> <li>● before drywell temp reaches 280 deg F start drywell spray (NOTE drywell spray fails)</li> </ul> </li> <li>● <b>CRITICAL STEP</b> Per QGA 500 BLOW DOWN, order BOP to opens all 5 ADS valves. <ul style="list-style-type: none"> <li>● due to drywell temp reaching 280 deg F, or Pressure Suppression Pressure limit Fig L being reached.</li> </ul> </li> </ul>
Terminus: Reactor depressurized, level stable at +8" to +48"		

NOTES:

[illegible]