

OPERATING TEST FOR THE QUAD CITIES EXAM - AUG 2001

NRC

**As Submitted with Facility Comments**

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  
D-1 Scenario 2

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 1:00 PM on Aug 7, 2001*

Engineering reports 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.

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.



**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	[]	[]	[]
* <del>3.</del> 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.	[]	[]	[]
CUE: When the operator has completed the log entry terminate the JPM.					

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

\* Critical Steps

\* 3. Enters Tech Spec LCO 3.5.1.F. HPCI inoperable, and  
\* 2 Tech Spec LCO 3.5.1.B for "B" Core Spray 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.

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.

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: 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 \_\_\_\_\_ 

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

Classroom \_\_\_\_\_ 

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	[ ]	[ ]	[ ]
* 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.	[ ]	[ ]	[ ]
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 any time the current shift.					
F.3	Records thermal power	Records thermal power	[ ]	[ ]	[ ]
F.4	Calculates FRTP	Records FRTP	[ ]	[ ]	[ ]
F.5	Records WT	Records WT	[ ]	[ ]	[ ]
F.6.a, b	Checks MFLPD $\leq 1.00$	Records MFLPD value and location	[ ]	[ ]	[ ]
F.6.d, e	Checks MFLRX $\leq 1.00$	Records MFLRX value and location	[ ]	[ ]	[ ]
F.7.a	Checks MFLPD $\leq$ FRTP AND FDLRC $\leq 1.0$	Checks MFLPD $\leq$ FRTP AND FDLRC $\leq 1.0$	[ ]	[ ]	[ ]
F.8.a, b	Checks MAPRAT $\leq 1.00$	Records MAPRAT value and location	[ ]	[ ]	[ ]
*F.9.a, b	Checks MFLCPR $\leq 0.99$	Finds MFLCPR = <u>0.992</u>	[ ]	[ ]	[ ]
*F.9.c	Notifies Unit Supv. <u>And</u> <u>QNE</u> that MFLCPR $> 0.99$	Notifies Unit Supv. And QNE that MFLCPR $> 0.99$ / 1.00	[ ]	[ ]	[ ]
CUE: Acknowledge report, and conclude JPM.					

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

\* Critical Steps

*OK if in procedure*

*1,002*

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: \_\_\_\_\_

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 0.992	41-18					
EFF	32.3 %	WTFLAG 2	MAPRAT 0.696	25-10-04					
PR	1018.6 PSIA	WFW 9.73 MLB/HR	FDLRX 0.759	25-10-04					
DHS	23.0 BTU/LB	WD 23.71 MLB/HR	FDLRC 0.676	25-10-04					
			MFLPD 0.655	21-22-10					
ER	1.12	AVG VOID FRACTION 0.33	P-PCS 0.90	23-16-19					
ERATIO	1.01	AVG POW DENSITY 40.8 KW/L	FLC 101.6%						
TARGET	1.11								
KEFF	1.0020	PRESS DROP (MEAS) 16.1 PSIA	XENON - EQ 0.0%						
		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

*will be changed to > 1.00*

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

	02	06	10	14	18	22	26	30	34	38	42	46	50	54	58	
59						--	--	--	--	--						59
55				--	--	--	--	--	--	--						55 DISPLAY KEY
51			--	--	--	--	--	--	--	--						51 R = MFLCPR
47	--	--	--	--	14	--	--	--	14	--	--	--	--	--		47 M = MAPRAT
43	--	--	--	--	--	--	--	--	--	--	--	--	--	--		43 X = FDLRX
39	--	--	--	10	--	--	--	--	--	--	10	--	--	--		39 C = FDLRC
35	--	--	--	--	--	--	--	--	--	--	--	--	--	--		35 P = PRECOND
31	--	--	--	--	00	--	--	--	00	--	--	--	--	--		31 D = MFLPD
27	--	--	--	--	--	--	--	--	--	--	--	--	--	--		27 * = MULTPL.
23	--	--	--	10	D--	--	--	--	--	--	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-Service

Job Performance Measure No: A.2

K/A Reference: 2.2.13 (3.6/3.8)

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

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

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

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

Method of testing:

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

Actual performance X

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: Controlled drawings

General References: Controlled drawings

Initiating Cue: attached

Time Critical Task: YES (NO)

Validation time:

*Change  
to a  
Core Spray  
DOOS*

## 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 replacement of the 1A Service Water Pump Discharge Check Valve. The candidate will then be asked to review the tag out to verify the checklist is correct prior to the tag out being performed.

Change  
to CS.

**INITIAL CONDITIONS**

- Both Unit operating at full power.

**INITIATING CUE**

*Change to Core Spray*

Replacement of the 1A Service Water Pump Discharge Check Valve 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

*Cove Spray*

Replacement of the 1A Service Water Pump Discharge Check Valve 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.

Change to Core Spray

**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"/>
2.	Performs verification, Locates on print and checks position for: - 1A RHR SW PMP 1-1001-65A BUS 13/ PTL	- VERIFIED AS CORRECT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	- 1A RHR SW PUMP CLOSE FUSE BLOCK / RMVD	- VERIFIED AS CORRECT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	- 1A RHR SW PUMP TRIP FUSE BLOCK / RMVD	- VERIFIED AS CORRECT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.*	- RHR SW PUMP (BREAKER) / R/O	Identifies that Breaker 1-1001-65B is call out in error the correct Breaker would be 1-1001-65A.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	- 1A RHR SERV WTR HP PMP DSCH VLV / CLOSED	- VERIFIED AS CORRECT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	- 1A RHR SERV WTR PMP RM CLR INLET VLV / CLOSED	- VERIFIED AS CORRECT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	- 1A RHR SERV WTR PMP PM CLR OUTLET VLV / CLOSED	- VERIFIED AS CORRECT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	- 1A RHR SERV WTR HP PMP DSCH HDR DRN VLV / UC/OP	- VERIFIED AS CORRECT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	- 1A RHR SERV WTR HP PMP VENT VLV / OPEN	- VERIFIED AS CORRECT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	- 1A RHR SW HP PMP DSCH HDR DRAIN PLUG / RMVD	- 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 control

Job Performance Measure No: A.3

K/A Reference: 2.3.10

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

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

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

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

Method of testing:

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

Actual performance X

Classroom X

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: 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 ask to demonstrate the rad protection practices he would use if assign 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.	<del>Points out survey map for 1A RHR Room.</del> Candidate should note that this is a contaminated area and requires Zone 2 clothing.	[ ]	[ ]	[ ]
CUE: Provide survey map enclosed with JPM and tell candidate to assume the conditions shown on this survey map are current.					
*	<del>Signs in on an appropriate</del> <i>Reviews</i> Radiation Work Permit	Radiation Work Permit must be appropriate for operation personnel to enter a contaminated area for this work.	[ ]	[ ]	[ ]
*	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)	[ ]	[ ]	[ ]
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.	[ ]	[ ]	[ ]
*	dosimetry in pocket	TLD in coverall pocket with beta window not covered. Electronic Dosimeter next to TLD.	[ ]	[ ]	[ ]
*	enters contaminated area	enters area across step-of pad.	[ ]	[ ]	[ ]

CUE: Tell candidate to assume his inspection is completed, and he should level the contaminated area using normal practices for exiting a contaminated area.

<b>*</b>	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.			
		Removes rubber shoes first, then outer gloves and places them in hamper.	[ ]	[ ]	[ ]
		Removes TLD and ED from coveralls and places in clean area.	[ ]	[ ]	[ ]
		Removes cap/hood and coveralls being carefull not to touch outside of clothing.	[ ]	[ ]	[ ]
		Removes cloth shoe cover and immediately places foot on SOP, then repeats with other foot.	[ ]	[ ]	[ ]
		Removes glove liners, retrieves TLD and ED and exits area.	[ ]	[ ]	[ ]

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. *Identify the following*

- ① *Location of the command center 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.**

**Job Performance Measure (JPM)**

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

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
	Obtains Fire Pre-Plan Book	Knows Fire Pre-Plan Books 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 correct area. <i>Area RB-22</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>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.</p>					
*	Conducts briefing on the Fire Pre-Plan	Identifies: -location of command center, <u>Just out side fire area at Primary Access to</u> -hazards associated with the area, <u>see Pre-plan RB-22 section 3.1</u> electrical that should be deenergized, <u>MCC 29-1 and MCC 29-4</u> - location of pre-staged fire equipment. <u>on page 2 of RB-22 identify</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*3 Hose Reels and 2 CO2 Portable Extinguishers*

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 emergency

Job 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 \_\_\_\_\_

Classroom \_\_\_\_\_

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:

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 2 time critical steps to this jpm*

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.

- *You have up to 15 min.  
to classify the event  
and after you classify*
- *You have up to 15 min  
to notify state & Local authority*

## 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	[ ]	[ ]	[ ]
*	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 a <u>Site</u> <u>Emergency</u> exists.	[ ]	[ ]	[ ]
	Obtain NARS Form.	NARS Form Obtained.	[ ]	[ ]	[ ]
*	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.	[ ]	[ ]	[ ]
<p>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.</p>					

alert

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

\* Critical Steps

~~9.0~~ 65.5 degrees  
 (downwind sectors L, M, N)  
 4.3 ~~4~~ mph and  
 1.9 ~~kilometers per hour~~  
 meters/sec

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 ~~LOW SYSTEM FLOW~~

*Heater Failure*

### INITIAL CONDITIONS

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

### INITIATING CUE

Manually start the "A" SBGT Train.

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

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
	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" SGBT 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.	[ ]	[ ]	[ ]
G.1.a.(1)	Verify closed inlet damper.	Verifies 1/2-7505A closed light lit.	[ ]	[ ]	[ ]
G.1.a.(2)	Verify open turb bldg clg air dmpr.	Verifies 1/2-7504A open light lit.	[ ]	[ ]	[ ]
G.1.a.(3)	Verify closed SBGTS fan disch dwpr.	Verifies 1/2-7507A closed light lit.	[ ]	[ ]	[ ]
G.1.a.(4)	Verify off 1/2A SBGTS fan.	Verifies 1/2-7506A off light lit.	[ ]	[ ]	[ ]
G.1.a.(5)	Verify off SBGTS air htr.	Verifies 1/2-7503A off light lit.	[ ]	[ ]	[ ]
* <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.	[ ]	[ ]	[ ]
	Inform US.	Tells the US that the htr did not stop after shutting down the train and the train was restarted.	[ ]	[ ]	[ ]
<b>CUE: 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>					
<b>EVALUATOR: The candidate should inform you that the task is complete.</b>					

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

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: \_\_\_\_\_

replace because both this jpm and B.1.g were judged to be

Inventor Control JPM's

Facility: Quad Cities Station Task No: \_\_\_\_\_  
Task Title: RCIC Operability test Job Performance Measure No: B.1.b

K/A Reference: 427000 A.4  
217000  
Examinee: \_\_\_\_\_ NRC Examiner: \_\_\_\_\_

check KA

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

Method of testing:

Simulated Performance  Actual performance \_\_\_\_\_  
Classroom \_\_\_\_\_ 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: note
- General References: QCOS 1300-01
- Initiating Cue: attached
- Time Critical Task: YES/NO
- Validation time:

Replaced with Weekly Turbine Test JPM

**JPM B.1.b**

Perform Periodic RCIC Pump Operability Test

## INITIAL CONDITIONS

- A Unit 1 start-up has just been completed and the Periodic RCIC Pump Operability Test needs to be performed due to maintenance on the system.
- Low pressure testing of RCIC at 150 psig has been completed.
- RCIC is lined up IAW QCOP 1300-01 with suction from the CCST.
- Reactor power is 100% with Recircs in individual manual.
- A Rad Tech and an Equipment Operator are standing by in the RCIC room awaiting the test.
- H2 addition < 50 scfm.
- Permission has been obtained to manually position the MO 1-1301-53.
- An HLA brief has been conducted.
- Unit 2 HPCI is not operating.

EVALUATOR: Provide examinee with QCOS 1300-01.  
Ensure section D.1.a., b., c., d. through D.7. are filled in prior to giving to the candidate.

REASON = Post Maintenance

## INITIATING CUE

Perform the U-1 Periodic RCIC Pump Operability Test.

100%  
↑

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

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT UNSAT N/A</u>		
H.2.	Verifies oil temperature.	Directs local operator to check oil temperature indicating switches are set to the proper setpoints. TIS 1-1301-1, and 2 are set to 180 degrees.	[ ]	[ ]	[ ]
<b>CUE: The operator reports temperature indicating switches are set at 180 degrees.</b>					
H.3.	Record torus level.	Obtains torus level from LR 1-1602-7 and records on QCOS 1300-01.	[ ]	[ ]	[ ]
H.4.	Verify RCIC flow cont. setpt. and status.	Verifies - Flow cont. in auto. - Set at 400 gpm.	[ ]	[ ]	[ ]
*H.5.	Open vlv MO 1-2301-15 HPCI test return.	Positions CS to open. - Open light lit.	[ ]	[ ]	[ ]
H.6.	Verify open vlv MO 1-1301-48, RCIC pp disch.	Verifies open light lit.	[ ]	[ ]	[ ]
*H.7.	Throttle open vlv MO 1-1301-53, RCIC test bypass.	Directs EO to open MO 1-1301-53-17 turns.	[ ]	[ ]	[ ]
<b>EVALUATOR: Request the Simulator Operator to open the 53 valve as per the remote setup requirements.</b>					
<b>CUE: EO reports the MO-1301-53 open 17 turns.</b>					
*H.8.	Start RCIC vacuum pump.	Positions CS to start. - Run light lit.	[ ]	[ ]	[ ]
*H.9.	Open MO 1-1301-62, RCIC Clg water supply.	Positions CS to open. - Open light lit.	[ ]	[ ]	[ ]
H.10.	Begins monitoring torus temperature.	Monitors torus water temperature per QCOS 1600-31.	[ ]	[ ]	[ ]
	Candidate evacuates room prior to opening 1-1301-61.	Directs EO to ensure RCIC room evacuated prior to opening 1-1301-61.	[ ]	[ ]	[ ]
<b>CUE: EO reports room has been evacuated.</b>					
*H.11.	Open MO 1-1301-61, RCIC Steam Inlet.	Positions CS to open. - Open light lit. - Turb speed increases > 2200 rpm.	[ ]	[ ]	[ ]
H.12.	Verify MO-1301-60, MIN FLOW VALVE, opens.	MO 1-1301-60 opens.	[ ]	[ ]	[ ]

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
H.13.	Verify turbine comes up to 400 gpm.	Verifies 400 gpm on RCIC flow cont.	[]	[]	[]
H.14.a.	Record reactor pressure.	Record reactor pressure from PR 1-640-27 or 1-640-28 (901-5 panel).	[]	[]	[]
*H.14.b.	Calculate required pump discharge pressure AND independently verify result.	Calculates required pump discharge pressure AND independently verify result.  $P_d = P_r + P_i$  With PD = discharge pressure required to meet Technical Specification Pi = Reactor pressure (from step H.14.a.), and Pr = 100 psig (constant for line loss pressure).  $P_d = 100 + 1004 \pm 5 = \text{psig}$	[]	[]	[]
<b>CUE: If candidate asks for independent verification, evaluator must act as Unit Supervisor and perform verification.</b>					
*H.14.c.	Throttle MO 1-1301-53, RCIC Test Bypass.	Directs EO to throttle 1-1301-53 slowly to establish discharge pressure $\geq$ as calculated above as indicated on PI 1-1340-7 Pmp Disch Press and RCIC Flow of $\geq$ 400 gpm on FIC 1-1340-1. EO can use local press indicator as guide. Candidate should adjust pump flow as necessary using flow controller in either manual or auto to aid in achieving these conditions.	[]	[]	[]
<b>EVALUATOR: Request the simulator operator to throttle the 53 valve as needed to establish a discharge pressure of 1250 to 1300 psig.</b>					
<b>CUE: EO reports the MO 1-1301-53 throttled to establish a local pressure of 1285 psig.</b>					

1104  $\pm$  5 psig

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u>	<u>UNSAT</u>	<u>N/A</u>
H.14.d.	Record parameters.	Records: Reactor pressure _____ (1-640-27/28). Initials block.  Pump flow _____ (FI 1-1340-1)  Disch press _____ (PI 1-1340-7) Initials block.  Pmp inlet press _____ (PI 1-1340-2)  Turbine speed _____ (1-1340-501)  Exhaust press _____ (PI 1-1340-3)	[ ]	[ ]	[ ]
*H.15.	Verify flow controller in auto.	Verifies auto setpoint at 400 gpm and places controller in auto.	[ ]	[ ]	[ ]
*H.16.a.	Verify proper Dcr. of flow in auto.	Adjusts auto setpoint to 350 gpm and verifies corresponding flow reduction.	[ ]	[ ]	[ ]
*H.16.b.	Verifies flow in auto at 400 gpm.	Adjusts auto setpoint to 400 gpm and verifies corresponding flow increase.	[ ]	[ ]	[ ]
*H.16.c.	Transfer controller to manual.	<del>Pressure</del> Manual pushbutton.	[ ]	[ ]	[ ]
*H.16.d.	Verify proper flow reduction in manual.	Moves slide bar to left and verifies flow reduction to ~350 gpm.	[ ]	[ ]	[ ]
*H.16.e.	Verify proper flow incr in manual.	Moves slide bar to right and verifies flow incr to 400 gpm.	[ ]	[ ]	[ ]
*H.16.f.	Return flow cont to auto.	Depresses auto pushbutton with setpoint of 400 gpm.	[ ]	[ ]	[ ]
H.17.	Verify RCIC has operated for 60 minutes.	Verify RCIC has operated for 60 minutes.	[ ]	[ ]	[ ]
<b>CUE: RCIC has been operating for 60 minutes.</b>					
*H.18.	Trip RCIC turbine.	Depresses turbine trip PB.	[ ]	[ ]	[ ]
H.19.	Verify closed vlv MO 1-1301-61, Stm to Turb and MO 1-1301-60, MIN FLOW VALVE.	Verifies closed lights lit.	[ ]	[ ]	[ ]
*H.20.	Close MO 1-1301-53, CCST Test Bypass.	Positions CS to close. - Closed light lit.	[ ]	[ ]	[ ]

Depress

	<b>PERFORMANCE</b>	<b>OBJECTIVE STANDARDS</b>	<b>SAT</b>	<b>UNSAT</b>	<b>N/A</b>
*H.21.	Close MO 1-1301-62, Turb Clg Wtr.	Positions CS to close. - Closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*H.22.	Reset the RCIC turbine.	Depresses the TURB. RESET pushbutton.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
*H.23.	Close MO 1-2301-15, HPCI test return.	Positions CS to close. - Closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H.24.	Record final torus level.	Records torus level from LR 1-1602-7 on QCOS 1300-01 and verifies level in normal operating band (QCOP 1600-12).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H.25.	Cycle the CCST TEST BYP MO 1-2301-53, HPCI test return twice.	Positions CS to open and then to close and then repeats. - Closed light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CUE: Allow Torus Cooling to run.</b>					
<b>CUE: Thirty minutes have elapsed.</b>					
*H.28.	Stop vacuum pump.	Positions CS to auto. - Stop light lit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H.29.	Record results of visual inspection.	Directs operator to report/record inspection results.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CUE: EO reports no visible leakage on pipes, valves, turbine or pump.</b>					
H.30.	Perform independent verification.	Informs US test is completed and independent verification is required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>CUE: I understand test is complete. I will assign assist NSO to verify line-up.</b>					
H.31.	Document satisfactory performance.	Operator signs and dates Step 31 then gives QCOS 1300-01 to US.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>EVALUATOR: The candidate should inform you that the task is complete.</b>					

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

.....

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: \_\_\_\_\_

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 OR 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.	[]	[]	[]
*F.1.	Select System 1 & 2. <u>OR</u> Select System 2 & 1, with keylock switch A and B SELECT.	Positions SBLC keylock switch to System 1 & 2 <u>OR</u> Positions SBLC keylock switch to System 2 & 1.	[]	[]	
*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)	[]	[]	
<b>EVALUATOR: If the operator informs the US that SBLC is not injecting, tell to take corrective action.</b>					
*F.3.	Attempt to inject SBLC with the opposite switch position.	Repositions SBLC keylock switch to the opposite position that was initially selected	[]	[]	[]

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

JPM Stop Time: .....

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. Power

Job Performance Measure No: B.1.d

K/A Reference: ~~263000~~ A.4 (3.3/3.5)

Examinee: 262001

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

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

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

*JPM changed so if could be run*  
Method of testing: *at 100% power IC.*

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: ~~QCCP-21~~ *Q05 6500-9*

Initiating Cue: attached

Time Critical Task: YES/NO (NO)

Validation time:

JPM B.1.d

Transfer Aux. Power From XFMR 11 to XFMR 12

### INITIAL CONDITIONS

- The unit is operating at 100% power.
- ~~Normal Unit Shutdown is in progress.~~
- Unit Supervisor has directed Aux. Power transferred. *For upcoming 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 2-1~~: *QCOP 6500-9*

*Prerequisites C1, C2, and C3 are complete*

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

QCOP 6500-9

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT UNSAT N/A</u>	
	Obtain procedure to be used.	Obtains procedure <del>QCOP 21</del> ↓	[ ]	[ ]
<b>EVALUATOR: 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>				
* <del>F.3.b.(1)</del> F.8.b (1)	Turn on synchroscope switch for XFMR 12 to Bus 11.	Insert synch key and rotate to on.	[ ]	[ ]
<del>F.3.b.(2)</del> F.8.b (2) (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.	[ ]	[ ] [ ]
* <del>F.3.b.(3)</del> F.8.b (2)	Close XFMR 12 to Bus 11 ACB.	Positions bkr control switch to close.	[ ]	[ ]
<del>F.3.b.(3)(a)</del>	Verify breaker close indication.	Closed light lit.	[ ]	[ ] [ ]
<del>F.3.b.(3)(b)</del> 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.	[ ]	[ ] [ ]
<del>F.3.b.(3)(c)</del>	Verify Amp indicaiton XFMR 12 to Bus 11.	Amps indicated on the XFMR 12 to Bus 11 breaker ammeter on 901-8 panel.	[ ]	[ ]
* <del>F.3.b.(4)</del> F.8.b (3)	Open XFMR 11 to Bus 11 breaker.	Position bkr control switch to trip.	[ ]	[ ]
<del>F.3.b.(4)(a)</del>	Verify breaker open indication.	Open light lit.	[ ]	[ ] [ ]
<del>F.3.b.(4)(b)</del> 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.	[ ]	[ ] [ ]
<del>F.3.b.(5)</del> F.8.b (4)	Turn synchroscope switch off for XFMR 12 to Bus 11.	Rotate synch switch to off remove synch key.	[ ]	[ ]
* <del>F.3.b.(6)</del> F.8.e (1)	Turn synchroscope switch on for XFMR 12 to Bus 14.	Insert synch key and rotate to on.	[ ]	[ ]
<del>F.3.b.(7)(a)</del> 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.	[ ]	[ ] [ ]

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT UNSAT N/A</u>		
<del>F.3.b.(7)(b)</del>	Verify voltage equal.	Checks running and incoming voltmeters are approximately equal.	[ ]	[ ]	[ ]
* <del>F.3.b.(8)</del> F.8.e(2)	Close XFMR 12 to Bus 14 ACB.	Positions bkr control switch to close.	[ ]	[ ]	
<del>F.3.b.(8)(a)</del>	Verify breaker close indication.	- Closed light lit.	[ ]	[ ]	[ ]
<del>F.3.b.(8)(b)</del> 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.	[ ]	[ ]	[ ]
<del>F.3.b.(8)(c)</del>	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.	[ ]	[ ]	[ ]
* <del>F.3.b.(9)</del> F.8.e.(3)	OPEN XFMR 11 to Bus 14 breaker.	Positions bkr control switch to trip.	[ ]	[ ]	
<del>F.3.b.(9)(a)</del>	Verify breaker open indication.	- Open light lit.	[ ]	[ ]	[ ]
<del>F.3.b.(9)(b)</del> 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.	[ ]	[ ]	[ ]
<del>F.3.b.(10)</del> F.8.e(4)	Turn synchroscope switch off for XFMR 12 to Bus 14.	Rotate synch switch to off remove synch key.	[ ]	[ ]	
<del>F.3.c.</del> F.8.f.	NOTIFY the Bulk Power Office that transfer of auxiliary power from XFMR 11 to	Bulk Power notified.	[ ]	[ ]	
<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: \_\_\_\_\_

.....

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.e

K/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.
- SBTG 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 SBTG 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.	[ ] [ ]
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.	[ ] [ ]
* 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.	[ ] [ ]
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.	[ ] [ ]
<b>EVALUATOR: The candidate should inform you that the task is completed.</b>			

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

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 just 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.
- 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 just 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".

The Unit Supervisor instructs you to:

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

- level is being controlled on the FEEDWATER LO FLOW CONTRLR 1-640-20 in auto at 30"
- blowdown from the cleanup system is in operation

## INITIATING CUE (candidate copy)

You are just coming on shift as BOP.

Your turn over was that:

- The plant has just been placed on Shutdown Cooling after a 150day run at full power.
- The "A" loop of Shutdown Cooling is in operation.
- The "B" recirc pump is off.
- The "A" recirc pump is running.
- Shutdown cooling is discharging to recirc loop "A".

The Unit Supervisor instructs you to.

- 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	[]	[]	[]
<p><b>CUE:</b> While the candidate is reviewing QCOP 1000-17 trip the "A" Recirc Pump on RECIRC MG A LUBE OIL LOW PRESSURE</p>					
	Operator responds to the Recirc Pump trip	Refers to annunciator procedure	[]	[]	[]
<p><b>EVALUATOR:</b> If the operator informs the US of the Recirc Pump respond by telling him to follow annunciator procedure, and then verify the Shutdown Cooling System is still running properly.</p>					
QCOP 1000-05 *E.17	Operator takes action to raise reactor water level to > 90"	Closes FCV 1238 to stop reject from reactor using reject FCV Position Potentiometer Switch FCV-1239	[]	[]	[]
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	[]	[]	[]
<p><b>EVALUATOR:</b> If the operator informs the US that QCOP 1000-05 requires the above <del>2 actions</del> <i>tell him to perform them. ask for his recommendation. If he does not</i></p>					
<p><b>CUE:</b> When the operator has taken the above 2 actions, or reports the Shutdown Cooling System is still running properly without the above 2 actions taken, state that the JPM is concluded.</p>					

*Sim OP* ↓

↻

←

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

\* Critical Steps

*recommend taking Manual control of the ~~LOW FLOW~~ FEEDWATER LO FLOW CONTRLR 1-640-20 to raise level. Direct him to take Manual control of 1-640-20 and raise water level to 90 to 100 inches. When level is increasing tell candidate that another operator will monitor the level increase.*

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 control

Job Performance Measure No: B.1.g

K/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 **(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

## 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).

*- 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).

**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 greater than 5000 gpm but less than 5600 gpm.	HPCI flow >5000gpm <5600 rpm <i>and MOTOR SPEED CHANGER at high speed stop</i>	[]	[]	[]
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	[]	[]	[]

*this step will be changed! procedure will not work as is!*

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	[ ]	[ ]	[ ]

CUE: Torus pressure should be rising due to open Turbine Exhaust Vacuum Breakers, at 0.625" DP the torus vacuum breakers will open and alarm.

*Sim Operator: on examiner signal alarm 901-3 6-11 and C-13 (Torus to Drywell Vacuum breakers open)*

*CUE: TORUS PRESSURE at 3 psig (red mark on recorder) Recorder 1-1602-7 TORUS PRESSURE*

	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"/>
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 above 2 actions, <del>or fails to identify the vacuum breaker failure after the drywell vacuum breakers open 2 times</del>, state that the JPM is concluded.</p>					

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

\* Critical Steps

*both or one of*

*either is  
is OK  
success path*

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 pump

Job Performance Measure No: B.2.a

K/A Reference: 3.4 Heat Removal

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

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

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

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

*add KA*

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: QCOP 2900-02

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 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.

*Pump*

### 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</u>	<u>UNSAT</u>	<u>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.	[ ]	[ ]	
<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.	[ ]	[ ]	
<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.	[ ]	[ ]	
<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: \_\_\_\_\_  
 .....

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: Local start of SBO ~~desel~~

Job Performance Measure No: B.2.b

K/A Reference: 264000 A4.04 (3.7/3.7)

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

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

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

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

Method of testing:

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

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

Classroom \_\_\_\_\_

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: note

General References: QCOP 6620-11

Initiating Cue: attached

Time Critical Task: YES  NO

Validation time:

JPM B.2.b

*make ~~the~~ unit 2 specific!*

Local Emergency Start Of The ~~1(2)~~ SBO Diesel Generator

### INITIAL CONDITIONS

- Unit One(~~Two~~) has just scrambled and has experienced a complete loss of power.
- The 13-1(~~23-1~~) and 14-1(~~24-1~~) crossties are inoperable due to an outage on Unit Two(~~One~~). Backfeeding operations are in progress but will take considerable time to complete.
- The Unit Two(~~One~~) EDG is OOS for the outage undergoing cylinder rebuild.
- The Unit One(~~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 901(~~2~~)-74 is not available. 2201(~~2~~)-105 F-3 Alarm is up and silenced. The SBO DG One(~~Two~~) Diesel is in it's normal standby lineup.
- An operator is standing by in the SBO building at Bus 61(~~71~~) for loading and breaker operation so another operator can start the Unit One(~~Two~~) SBO DG and supply 4kV Bus 61(~~71~~).

### INITIATING CUE

- Locally start the Unit One(Two) SBO DG in accordance with QCOP 6620-11 and load onto Bus 61(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</u>	<u>UNSAT</u>	<u>N/A</u>
*F.1.a	Verifies or places the DROOP/ISOCH switch in ISOCH.	On the 2201(2)-105 panel, verifies or places the DROOP/ISOCH switch in the ISOCH position.	[]	[]	[]
<b>CUE: On the 2201(2)-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 2201(2)-105 panel, verifies or places the voltage regulator switch in the AUTO position.	[]	[]	[]
<b>CUE: On the 2201(2)-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 2201(2)-105 panel, verifies the meter is reset to "0" or presses the reset button on the starting time meter.	[]	[]	[]
<b>CUE: On the 2201(2)-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 2201(2)-105 panel, places the LOCKOUT/REMOTE/ LOCAL/PLC BYPASS switch to PLC BYPASS.	[]	[]	[]
<b>CUE: On the 2201(2)-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 2201(2)-105 panel and state, "This lamp is lit."</b>					
*F.1.e.(2)	Press and hold the EMERGENCY START button.	On the 2201(2)-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 2201(2)-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 2201(2)-105 panel and state, "This meter indicates here."</b>			
F.1.f.	Verifies the amber DG IN ISOCH light is lit.	On the 2201(2)-105 panel, verifies the amber DG IN ISOCH light is lit.	{} {} {}
<b>CUE: Point to the DG IN ISOCH light located on the 2201(2)-105 panel and state, "This light is lit."</b>			
F.1.g.	Verifies the amber DG RUNNING NOT LOADED light is lit.	On the 2201(2)-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 2201(2)-105 panel and state, "This light is lit."</b>			
F.1.h.	Verifies the GENERATOR FREQUENCY at 60 hz.	On the 2201(2)-105 panel, verifies the frequency at 60 hz.	{} {} {}
<b>CUE: Point to 56 hz on the GENERATOR FREQUENCY meter located on the 2201(2)-105 panel and state, "This meter indicates here."</b>			
*F.1.h.	Adjusts generator frequency with the governor control switch.	On the 2201(2)-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 2201(2)-105 panel and state, "This meter indicates here."</b>			
F.1.i.	Adjusts or verifies the GENERATOR VOLTAGE is at 4160 volts.	On the 2201(2)-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 2201(2)-105 panel and state, "This meter indicates here."</b>			

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT</u> <u>UNSAT</u> <u>N/A</u>
F.2.	Informs the operator to load the SBO DG to Bus 61(71).	Contacts the operator at Bus 61(71) to locally load the SBO DG to Bus 61(71).	[ ] [ ] [ ]
<b>CUE: An operator reports that the electrical lineup for the SBO DG is complete and the Output Breaker is CLOSED to Bus 61(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 2201(2)-105 panel, verifies the DG RUNNING LOADED light is lit.	[ ] [ ] [ ]
<b>CUE: Point to the DG RUNNING LOADED light on the 2201(2)-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 2201(2)-104 panel, verify the following equipment is on:  Jacket water booster pump.  Radiator fan #1.  Radiator fan #2.	[ ] [ ] [ ]
<b>CUE: Point to the Red lamps on each of the following pieces of equipment located on the 2201(2)-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 2201(2)-106 panel, verify the following equipment is on:	[ ] [ ] [ ]
F.2.g.(1).	Jacket water booster pump.	Jacket water booster pump.	[ ] [ ] [ ]
F.2.g.(2).	Radiator fan #1.	Radiator fan #1.	[ ] [ ] [ ]
F.2.g.(3).	Radiator fan #2.	Radiator fan #2.	[ ] [ ] [ ]

	<u>PERFORMANCE</u>	<u>OBJECTIVE STANDARDS</u>	<u>SAT UNSAT</u> <u>N/A</u>
	<p><b>CUE: Point to the Red lamps on each of the following pieces of equipment located on the 2201(2)-106 panel and state, "This lamp is lit." Or provide them with indication that the following are running:</b></p> <p><b>Jacket Water Booster Pump.</b></p> <p><b>Radiator Fan #1.</b></p> <p><b>Radiator Fan #2.</b></p>		
	<p><b>CUE: Another operator is being sent out to load the SBO DG onto the safety related Bus and watch SBO DG parameters.</b></p>		
	<p><b>EVALUATOR: The candidate should inform you that the task is complete.</b></p>		

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

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: 295018 AA1.01 (3.3/3.4)

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**

- Units 1 and 2 are operating at full power.
- The Fuel Pool Cooling Pumps are off and can not be started.

## **INITIATING CUE**

Units 1 and 2 are 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.

Two mechanic are being dispatched with you to provide any necessary help.

Inform me know when you have completed this assignment.

## INITIATING CUE

Units 1 and 2 are 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.

Two mechanic are being dispatched with you to provide any necessary help.

Inform me know when you have completed this assignment.

**Job Performance Measure (JPM)**

(It is acceptable to use clean demin or five water, rather than the preferred contaminated condensate)

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

	PERFORMANCE	OBJECTIVE STANDARD	SAT	UNSAT	NA
	Obtain procedure(s)	Obtains QCOA 1900-03	[ ]	[ ]	[ ]
	Obtain any necessary equipment	Shows evaluator where any necessary hoses or keys would be obtained.	[ ]	[ ]	[ ]
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. ↙	[ ]	[ ]	[ ]
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.	[ ]	[ ]	[ ]
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.	[ ]	[ ]	[ ]
*	Starts adding water to Fuel Pool to maintain level.	Explains which valve he would open and 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

Evaluator: The pumps and heat exchanges are in a radiation area. Have the candidate use a pointer to identify the pumps and heat exchangers and describe opening the vents and drains. THEN cue the candidate the the value tags indicate the correct valve and that he has opened them and

add valve # and names

sees flow in the sight glasses

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 95% at 150 Mwe per Hr, and perform MSIV 10% closure scram surveillance test.

Event No.	Malf. No.	Event Type*	Event Description
1		N	Unit 1 DG load test (BOP)
2		R	Drop Rx power to 95% with recirc flow (RO)
3		C	One recirc pump stops responding in master manual. (RO) <i>Speed Control Failure</i>
43		C	DG Room High Temperature, shutdown/trip DG (BOP)
54		I	LPRM fails High (RO)
65		C	<del>Second MSIV tested goes full closed if BOP does not take action (BOP)</del>
76		M	Small steam line break outside containment
87			MSIVs 1A and <del>1B</del> fail to isolate <u>2A</u>
98		C	<i>HPCI Initiate Isolation valve Failed</i>
709			<i>Break in HPCI Room</i>

\* (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 95% power at 150 MWe/Hr IAW QCGP 3-1 REACTOR POWER OPERATIONS.
3	After a power decrease of ~10MWe the "A" recirc control system stops responding to master manual control signal. The RO should recognize this and transfer to individual manual recirc control.
4	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
5	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
6	While performing MSIV scram sensor surveillance per QCOS 0250-01 MSIV CLOSURE SCRAM SENSOR CHANNEL FUNCTIONAL TEST, the second MSIV tested goes full closed if BOP does not take action to open it when flow drops by $.2 \times 10^6$ lbm/hr.
7	A small steam line break outside containment occurs, followed by a Group I isolation due to high steamline temperature.
8	The reactor scrams due to the Group I isolation signal, but one steam line fails to isolate. The QGAs are entered and the reactor must be depressurize to stop the release to the environment.
9.	<i>HPCI spurious start</i>
10.	<i>Break in HPCI Room</i>

## Operator Actions

## SHIFT TURNOVER

- It is a ~~Wednesday~~ <sup>Friday</sup> 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 <sup>1/4 hr</sup> 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.

Also this shift drop Unit 1 reactor power to 95% at 150 Mwe/Hr. At 95% power perform QCOS 0250-01 MSIV CLOSURE SCRAM SENSOR CHANNEL FUNCTIONAL TEST. The Load Dispatcher has been notified that the load drop will begin as soon as shift turnover is completed and you are ready to begin.

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

- A pre-shift brief should cover
  - QCOS 6600-41
  - REMA For load drop

- provide a QCOS 6600-41 with prerec. signed off except D.8
- also provide REMA ~~signed off~~





Operator Actions

Event No. 3		Page 1 of 1
Description: "A" recirc control system stops responding to master manual control signal		
Initiation: On signal of lead examiner		
Cues: RO notes "A" recirc flow not responding		
Time	Position	Applicant's Action or Behavior
	RO	<ul style="list-style-type: none"> <li>● <b>CRITICAL STEP</b> RO notes "A" recirc flow not responding to master manual control signal. (T.S. require jet pump loop flow mismatch <math>\leq</math> 5% of rated core flow when operating at <math>\geq</math> 70% of rated flow)</li> <li>● RO reports abnormality to SRO.</li> <li>● Shifts recirc control to INDIVIDUAL MANUAL IAW QCOP 0202-03 (reference use) when directed to do so by SRO.                         <ul style="list-style-type: none"> <li>● Transfer individual pump speed controllers to BAL</li> </ul> </li> <li>● <b>CRITICAL STEP</b> adjust manual control potentiometer to null deviation (failure to null deviation will cause a unplanned reactivity change on the next step)                         <ul style="list-style-type: none"> <li>● Transfer individual pump speed controllers to MAN.</li> </ul> </li> <li>● Completes load drop when directed by SRO</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 directs recirc control shifted to INDIVIDUAL MANUAL</li> <li>● Authorizes and directs continuation of load drop.</li> <li>● Ensures operations are conducted IAW Tech Spec, Operation standards, and approved procedures. (T.S. 3.4.1&amp;2 require jet pump loop flow to be <math>\leq</math> 5% in this condition)</li> </ul>
Terminus: Load drop resumed with recirc control shifted to INDIVIDUAL MANUAL		

*Change to reflect that the plant runs in INDIV. MANUAL at all times*

NOTES:

*Tack fails Hion (signal of chief examiner) enters QCOA 0202-03 (they may insert rods)*

Operator Actions

Event No. <u>43</u>		Page 1 of 1
<b>Description:</b> DG Room High Temperature, shutdown/trip DG		
<b>Initiation:</b> On signal of lead examiner		
<b>Cues:</b> 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)                             <ul style="list-style-type: none"> <li><b>CRITICAL STEP</b> 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><b>CRITICAL STEP</b> "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><b>CRITICAL STEP</b> <u>Notify</u> SRO to consider classifying event as a possible GSEP (Failure to do this may result in GSEP classification being missed)</li> </ul> </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> <p>(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)</p>
Terminus: OPERATOR ACTIONS of QCAN 901(2)-8 H-8 completed		

← make it an option to shutdown per FI 'emergency' or F.4 'normal'

NOTES:


Operator Actions

Event No. <u>54</u>		Page 1 of 1
Description: LPRM fails High		
Initiation: On signal of lead examiner		
Cues: 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>• <del>CRITICAL STEP</del> 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>• <del>CRITICAL STEP</del> Verify sufficient inputs to APRM. (Insufficient input will cause the APRM to be inop.)</li> <li>• Bypass LPRM</li> <li>• <del>CRITICAL STEP</del> Check that effected APRM is within <u>+2%</u> 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>
Terminus: LPRM bypassed and APRM checked for accuracy.		

+2% - 1%

NOTES:


## Operator Actions

Event No. 6		Page 1 of 1
Description: Second MSIV tested goes full closed if RO does not take action.		
Initiation: When 1B INBD MSIV TEST switch turned to TEST		
Cues: MSL Flow drops by .2 X 10E6 lbm/hr		
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 QCOS 0250-01 MSIV CLOSURE SCRAM SENSOR CHANNEL FUNCTIONAL TEST (continuous Use)</p> <ul style="list-style-type: none"> <li>● Reviews QCOS 0250-01</li> <li>● Performs test on 1A INBD MSIV per QCOS 0250-01 <ul style="list-style-type: none"> <li>● install jumpers at Panel 901-15</li> <li>● Place 1A INBD MSIV TEST switch to TEST for ~ 2 seconds then release</li> <li>● Verify alarm 901-5 D-14 MAIL STM LINE ISO VALVES NOT FULL OPEN</li> <li>● When MSIV opens reset alarm 901-5 D-14</li> </ul> </li> <li>● Performs test on 1B INBD MSIV per QCOS 0250-01 <ul style="list-style-type: none"> <li>● Install jumpers at Panel 901-15</li> <li>● Place 1B INBD MSIV TEST switch to TEST for ~ 2 seconds then release</li> <li>● Verify alarm 901-5 D-14 MAIL STM LINE ISO VALVES NOT FULL OPEN</li> </ul> </li> <li>● <b>CRITICAL STEP</b> When MSL Flow drops by .2 X 10E6 lbm/hr immediately reopen the MSIV using the MSIV TEST switch. (Failure to reopen the MSIV could result in a scram)</li> <li>● Report failure to SRO</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>● Authorizes and directs start and loading of DG</li> <li>● Evaluates problem and initiate investigation into cause of MSIV test failure.</li> <li>● Ensures operations are conducted IAW Tech Spec, Operation standards, and approved procedures.</li> </ul> <p>(Testing per TS 3.3.1.1 table 3.3.1.1-1 function 5, this failure is not a failure of a required sensor )</p>
Terminus: Following test failure and reopening of MSIV 1B		
NOTES:		

Operator Actions

Event No. 7 & 8		Page 1 of 3
Description: Small steam line break outside containment. MSIVs 1A and 1B fail to isolate.		
Initiation: On signal of lead examiner		
Cues: 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>① alarm 901-4 comes in                      ② enters QCOA 0201-05                      ③ alarm 901-3 H-2 comes in</p> <ul style="list-style-type: none"> <li>● <b>CRITICAL STEP</b> Provide Reactor Parameters to SRO for entry into correct QGAs</li> </ul> <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>● <b>CRITICAL STEP</b> Coordinates with BOP and stabilizes RPV level +8" to +48"</li> </ul>

NOTES:

enters QCOA 2300-1 after HPCI spurious initiation



Operator Actions

Event No. 7 & 8		Page 3 of 3
Time	Position	Applicant's Action or Behavior
	SRO	<p>Directs entry into EOPs and EOP actions</p> <p>Per QGA 400 RADIOACTIVE RELEASE CONTROL</p> <ul style="list-style-type: none"> <li>● Enter QGA 100 RPV CONTROL</li> <li>● <b>CRITICAL STEP</b> Enter QGA 500 BLOW DOWN</li> </ul> <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"</li> </ul> <p>Per QGA 500 BLOW DOWN</p> <ul style="list-style-type: none"> <li>● <b>CRITICAL STEP</b> Direct BOP to open all 5 ADS valves before torus level less than 5 feet</li> <li>● When Rx pressure &lt;100 psig order Shutdown cooling</li> </ul> <p>Per QGA 200 PRIMARY CONTAINMENT CONTROL</p> <ul style="list-style-type: none"> <li>● <b>CRITICAL STEP</b> maintain torus level between 11 and 17 feet</li> <li>● Direct use of shutdown cooling</li> </ul> <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> <li>● Classifies event per GSEP</li> </ul>
<p>Terminus:</p> <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 Scenario No. 2 Op-Test No. 2001301

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

Initial Conditions: <sup>~ 90%</sup> ~~85%~~ power. ~~The APRM Scram and Rod Block are set for two-pump operation.~~ RCIC OOS (3<sup>rd</sup> day OOS). "A" loop of Suppression Pool Cooling is running, a HPCI surveillance was run last shift.

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

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

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

NUREG-1021, Revision 8

## Operator Actions

## NARRATIVE SUMMARY

Events	Description
1	Once the crew has accepted the unit, the SRO should direct the BOP to terminate torus cooling Per QCOP 1000-09 TORUS COOLING START-UP AND OPERATION (continuous Use).
2	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.
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 downscale (INOP). The RO must bypass the APRM and reset the 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 (RCIC is OOS and HPCI fails). A High Drywell pressure signal causes a reactor scram, and an ECCS initiation. <del>In anticipation of a blowdown using relief valves, the RPV should be rapidly depressurized using turbine bypass valves. The containment parameters must monitored and containment cooling, spray, and blowdown performed when called for by the QGAs.</del>

~~QGAs:~~ Drywell spray Fails

Blowdown on DW Temp > 280°F

or torus pres. > PSP

Operator Actions

SHIFT TURNOVER

*~90% Power*

- It is a Sunday day shift.
- There is no adverse weather expected.
- Unit 1 is at *~85% power* ~~70% recirc flow and a 98% flow control line~~, Unit 2 is at 100% power. *tagged out for breaker cube inspec.*
- On Unit 1 RCIC is out of service (~~has been out for 3 days~~). There is no equipment out of service on Unit 2.
- Work scheduled for this shift:

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.

Also 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.

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

● *Pre Shift brief*

*- REMA*

*- QCOS 1400-04 with sec D and 1ST attached*

Operator Actions

Event No. <b>X2</b>		Page 1 of 1
<b>Description:</b> Terminate torus cooling.		
<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	<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>● <b>Throttle</b> 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</li> <li>● <b>CRITICAL STEP</b> 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> <li>● Stop the other running RHR pump                                     <ul style="list-style-type: none"> <li>● Throttle close MO 1-1001-36A</li> <li>● <b>CRITICAL STEP WHEN</b> RHR Pump discharge pressure increases to within 25 psig of RHR Service Water pressure, <b>THEN</b> stop running RHR Pump on RHR Loop A and <b>fully close</b> MO 1-1001-36A</li> <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

Event No. 3		Page 1 of 1
Description: After testing "A" CS pump min flow valve fails open.		
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 QCOS 1400-04 CORE SPRAY OPERABILITY TEST</p> <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><b>CRITICAL STEP</b> Notes MO 1-1402-38A does <u>NOT</u> close</li> <li><b>CRITICAL STEP</b> Reports failure to SRO</li> </ul> </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><b>CRITICAL STEP</b> When failure is reported addresses T.S. operability. (refers to TS 3.5.1 B. restore Core Spray to operable in 7 days)</li> <li>Refers to QCAP 0230-19 EQUIPMENT OPERABILITY</li> </ul>
Terminus: A Core Spray Pump shutdown, T.S. operability addressed		

*also TS 3.3.5.1 E  
and table 3.3.5.1-1*

NOTES:


Operator Actions

Event No. 4		Page 1 of 1
<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"		
Time	Position	Applicant's Action or Behavior
	RO	<ul style="list-style-type: none"> <li>● Acknowledges alarm and refers to QCAN 901(2)-5 A-3 (continuous Use)</li> <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> <p>Per QCOA 0300-04 MISPOSITIONED CONTROL ROD (continuous Use)</p> <ul style="list-style-type: none"> <li>● Attempt to contact Qualified Nuclear Engineer (one will not be available)</li> <li>● <b>CRITICAL STEP</b> Insert drifted rod to position 00.</li> </ul> <p>Per QCOA 0300-11 CONTROL ROD DRIFT (continuous Use)</p> <ul style="list-style-type: none"> <li>● Attempt to determine cause of drift. (<b>CUE</b> 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>
	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>● <b>CRITICAL STEP</b> 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
Description: APRM fails <del>downscale (INOP)</del> . Upscale		
Initiation: On signal of lead examiner		
Cues: Annunciator 901-5 B-11 "CHANNEL A/B NEUTRON MONITOR, Annunciator 901-5 C-6 " <del>APRM DOWNSCALE</del> " A-6 APRM UPSCALE / HIGH		
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 C-6</li> <li>Verifies only one ARPM 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><b>CRITICAL STEP</b> Bypass APRM channel per QCOP 0700-04 AVERAGE POWER RANGE MONITORING SYSTEM OPERATION (APRM); (continuous Use)</li> <li><b>CRITICAL STEP</b> Reset 1/2 scram.</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>
Terminus: Failed APRM Bypassed and half scram reset.		

NOTES:

add Alarm 901-5 "H-1 APRM TROUBLE / INOP"	
reset on back pannel	

Operator Actions

Event No. 6		Page 1 of 1
Description: Low flow to recirc pump seal on "A" recirc pump.		
Initiation: On signal of lead examiner		
Cues: 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><b>CRITICAL STEP</b> 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</li> <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><b>CRITICAL STEP</b> Trip MG Set A then temperature exceeds 170 deg F (failure to trip the pump could lead to seal damage)</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> </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
Description: Intermediate LOCA (Liquid) and HPCI failure.		
Initiation: On signal of lead examiner		
Cues: 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>● <b>CRITICAL STEP</b> 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>● <b>CRITICAL STEP</b> Coordinates with RO and stabilizes RPV level +8" to +48"</li> </ul>

NOTES:


Operator Actions

Event No. 7&8		Page 2 of 3
Description: Intermediate LOCA (Liquid) and HPCI failure.		
Initiation: On signal of lead examiner		
Cues: 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> </ul> </li> <li>• Place Absorber Mode Switch to BYP</li> <li>• <b>CRITICAL STEP</b> Verify Group II isolation, verify ECCS operation, NOTE HPCI failure, NOTIFY SRO of failure of HPCI.</li> </ul> <p>Per QGA 100 RPV CONTROL</p> <ul style="list-style-type: none"> <li>• <b>CRITICAL STEP</b> 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>• <b>CRITICAL STEP</b> start available torus cooling</li> <li>• <b>CRITICAL STEP</b> before torus pressure reaches 5 psig start torus spray</li> <li>• <b>CRITICAL STEP</b> before drywell temp reaches 280 deg F start drywell spray</li> <li>• <b>CRITICAL STEP</b> if can not hold torus level &lt; 17 feet stop drywell spray, stop injection from outside containment.</li> <li>• <b>CRITICAL STEP</b> if can not hold torus level &lt; 18.5 feet Blowdown per QGA 500-1</li> </ul> </li> </ul>

*CRITICAL STEP open 5 ADS valves*

NOTES:


