

**INSTRUCTIONAL COVER SHEET**PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAININGCOURSE TITLE JOB PERFORMANCE MEASURELESSON TITLE INADVERTENT CRITICALITY ACTIONSLESSON LENGTH .5 HRS MAXIMUM STUDENTS 1**INSTRUCTIONAL MATERIALS INCLUDED**

Lesson Plan PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

JPM PQD Code _____ Rev. No. _____

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear TrainingDEPARTMENT Operations TrainingPREPARED BY Steve Garchow (NRC) DATE 9/10/04

REVISED BY _____ DATE _____

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

Operations Training Manager

Appendix C	Job Performance Measure Worksheet JPM - SA1#2, rev 0	Form ES-C-1
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Facility: CGS	Task No: RO-0559
Task Title: Determine Actions for Criticality outside of ECP	Job Performance Measure No: SA1#2
K/A Reference: 2.1.7 3.7/4.4	
Examinee:	NRC Examiner:
Facility Evaluator:	Date:

Method of testing:

Actual Performance: Perform

JPM SETUP INFORMATION

Initial Conditions:	A plant startup is in progress. PPM 3.1.2 has been completed through step 5.2.3.		
Task Standard:	The task will be completed successfully when criticality is recognized and the correct actions have been identified.		
Required Materials:	Marked up copy of PPM 3.1.2 Reactor Plant Startup		
General References:	PPM 3.1.2 Reactor Plant Startup, rev 43, page 20 - 22		
Initiating Cue:	As the RO you are second checking reactor conditions during the startup. You note the following conditions:		
	Reactor Power	20,000 cps and increasing	
	Period	118 seconds and stable	
	Control rod position	26-55 @ pos 14	
	There has been no control rod motion for the past 3 minutes. Inform the SM of any actions required for these conditions		
Time Critical Task:	NO		
Validation Time:	8 min.		
Simulator ICs:	N/A		
Malfunctions/Remote Triggers:	N/A		
Overrides:	N/A		
Special Setup Instructions:	N/A		

PERFORMANCE INFORMATION

START TIME:

Critical Step: YES *	
Performance Step: 1	
Standard:	Determine from given conditions that the reactor is critical prior to the Minimum Critical Position given. *
Comment: SAT / UNSAT	

Critical Step: YES *	
Performance Step: 2	
Standard:	Identify the requirement to: <ul style="list-style-type: none"> - Stop control rod withdrawal * - Insert control rods in reverse order * - Ask the SNE to provide a rod pattern that will maintain reactor subcritical *
Comment: SAT / UNSAT	

THE EXAMINEE SHOULD ANNOUNCE THE TERMINATION POINT OF THE JPM AT THIS POINT.

JPM TERMINATION TIME:	
JPM START TIME:	- _____
JPM COMPLETION TIME:	

VERIFICATION OF COMPLETION

JPM Number: Determine Actions for Criticality outside of ECP
SA1#2

NEW ADMIN JPM

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Completed:

JPM INFORMATION CARD

HAND THE STUDENT INFORMATION CARD TO THE EXAMINEE

READ TO THE EXAMINEE:

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

Task Standard: The task will be completed successfully when criticality is recognized and the correct actions have been identified.

Required Materials: Marked up copy of PPM 3.1.2 Reactor Plant Startup

Safety Equipment: N/A

General References: PPM 3.1.2 Reactor Plant Startup, rev 43, page 20 - 22

Time Critical Task: NO

Initial Conditions: A plant startup is in progress. PPM 3.1.2 has been completed through step 5.2.3.

INITIATING CUE

As the CRS you are second checking reactor conditions during the startup. You note the following conditions:

Reactor Power	20,000 cps and increasing
Period	118 seconds and stable
Control rod position	26-55 @ pos 14

There has been no control rod motion for the past 3 minutes. Inform the SM of any actions required for these conditions

INFORMATION BELOW THIS LINE NOT SHARED WITH EXAMINEE

Task Number: RO-0559
NUREG 1123 Reference: 2.1.7 3.7/4.4
Location: ADMIN
Prepared/Revised by: M. Westergren

Validation Time: 8 min.
Time Critical: NO
Performance Method: PERFORM
Revision Date: 1/12/99

STUDENT INFORMATION

Initial Conditions: A plant startup is in progress. PPM 3.1.2 has been completed through step 5.2.3.

INITIATING CUE

As the CRS you are second checking reactor conditions during the startup. You note the following conditions:

Reactor Power	20,000 cps and increasing
Period	118 seconds and stable
Control rod position	26-55 @ pos 14

There has been no control rod motion for the past 3 minutes. Inform the SM of any actions required for these conditions



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE DETERMINE THE OPERABILITY OF THE SLC SYSTEM

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

JPM PQD Code _____ Rev. No. _____

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY S. Hutchison DATE 6/20/04

REVISED BY _____ DATE _____

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

Operations Training Manager

Verify materials current IAW SWP-TQS-01 prior to use.

DETERMINE THE OPERABILITY OF THE SLC SYSTEM

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

ADMIN JPM SIMULATOR SETUP NEEDED.

Special Setup Instructions:

ADMIN JPM SIMULATOR SETUP NEEDED.

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: N/A

Safety Items: N/A

Task Number: SRO-0163-M-TS

Validation Time: 10

Prerequisite Training: N/A

Time Critical: NO

PPM Reference: OSP-INST-H101

Location: Simulator/Classroom

NUREG 1123 Ref: 2.1.12 2.9/4.0

Performance Method: Perform

DETERMINE THE OPERABILITY OF THE SLC SYSTEM

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	The plant is operating at 100% power.
INITIATING CUE:	<p>The CRO has just given you a copy of OSP-INST-H101, Shift and Daily Instrument Checks (MODES 1, 2, & 3) for day shift review.</p> <p>Evaluate steps 54, 55, and 56 to determine if SLC is operable.</p> <p>Notify the CRS with your answer.</p>

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
	Determines SLC Operability from temp.	From step 54 determines the need to use Att. 9.7 for comparison.	S / U
		Using ATT. 9.7, determines SLC concentration/temperature is outside of the acceptable region.	S / U
		From step 56 determines the need to use Att. 9.8 for comparison.	S / U
		Using Att. 9.8 determines SLC Tank volume is acceptable.	S / U
		Notifies the CRO that SLC is NOT operable.	S / U *
Termination Criteria: Student informs CRS that SLC is NOT operable.			
RECORD TERMINATION TIME: _____			
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedure and remaining JPM pages may be discarded.			

DETERMINE THE OPERABILITY OF THE SLC SYSTEM

RESULTS OF JPM:

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard:

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	/ NA	

COMMENTS:

[illegible]

Evaluator's Signature: _____ **Date:** _____

DETERMINE THE OPERABILITY OF THE SLC SYSTEM

STUDENT JPM INFORMATION CARD

Initial Conditions:

The plant is operating at 100% power.

Cue:

The CRO has just given you a copy of OSP-INST-H101, Shift and Daily Instrument Checks (MODES 1, 2, & 3) for day shift review.

Evaluate steps 54, 55, and 56 to determine if SLC is operable.

Notify the CRS with your answer.



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE TAGOUT CRD-P-1A USING MANUAL FORMS

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

JPM PQD Code _____ Rev. No. _____

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY Steve Hutchison DATE 6/28/04

REVISED BY _____ DATE _____

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

Operations Training Manager

Verify materials current IAW SWP-TQS-01 prior to use.

TAGOUT CRD-P-1A USING THE MANUAL FORMS

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

NO SETUP NEEDED, ADMIN JPM

Special Setup Instructions:

NO SETUP NEEDED, ADMIN JPM

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: N/A

Safety Items: N/A

Task Number: RO-0695

Validation Time: 30 Minutes

Prerequisite Training: N/A

Time Critical: NO

PPM Reference: OI-12 ATT. 2

Location: TABLE TOP

NUREG 1123 Ref: 2.2.13 3.6/3.8

Performance Method: PERFORM

TAGOUT CRD-P-1A USING THE MANUAL FORMS

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	SOMS is out of service and will not be available for the next 4 hours. CRD-P-1A must be tagged out for a gearbox oil change.
INITIATING CUE:	Using the Manual Clearance Order Process per OI-12, tag out CRD-P-1A for a gearbox oil change. Give the CRS the Manual Clearance Order forms when completed.

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
CUE: Cue response of simulated actions based on procedure and student actions			
	Perform all non-critical steps IAW current procedure.	Applies initial conditions & P/L, completes steps IAW procedure.	S / U
	Tags the control switch on P601 for CRD-P-1A.	Using an Equipment tag, tags CRD-RMS-S3A for CRD-P-1A in the CENTER AFTER STOP position.	S / U *
	Tags the closing fuses for CRD-P-1A.	Using a Danger Tag, tags E-FUSE-SM7/F6/1/2 fuses REMOVED.	S / U *
	Tags the trip fuses for CRD-P-1A.	Using a Danger Tag, E-FUSE-SM7/F5/1/2 fuses REMOVED.	S / U *
	Tags the 4160 breaker for CRD-P-1A.	Using a Danger Tag, tags CRD-CB-P1A for CRD-P-1A RACKED OUT.	S / U *
Note: The discharge valve, CRD-V-14A is shown as closed on the tagout form. Because the tagout is for a gearbox oil change, the discharge valve has no safety significance and is optional on the manual tagout. It is satisfactory to include it on the tagout, or to leave it off.			
Termination Criteria: Student presents the Manual Clearance Order Forms to the CRS.			
RECORD TERMINATION TIME: _____			

TAGOUT CRD-P-1A USING THE MANUAL FORMS

*** Items are Critical Steps**

Comments	Element	Standard	Sat/Unsat
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedure and remaining JPM pages may be discarded.			

RESULTS OF JPM:

TAGOUT CRD-P-1A USING THE MANUAL FORMS

STUDENT JPM INFORMATION CARD

Initial Conditions:

SOMS is out of service and will not be available for the next 4 hours.
CRD-P-1A must be tagged out for a gearbox oil change.

Cue:

Using the Manual Clearance Order Process per OI-12, tag out CRD-P-1A for a gearbox oil change.

Give the CRS the Manual Clearance Order forms when completed.



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE VALVE LINEUP RWP

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

JPM PQD Code _____ Rev. No. _____

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY Steve Garchow (NRC) DATE 9/10/04

REVISED BY _____ DATE _____

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

Operations Training Manager

Verify materials current IAW SWP-TQS-01 prior to use.

TAGOUT CRD-P-1A USING THE MANUAL FORMS

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

NO SETUP NEEDED, ADMIN JPM

Special Setup Instructions:

NO SETUP NEEDED, ADMIN JPM

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: N/A

Safety Items: Standard Safety Items Required for
Entering the Plant

Task Number: RO-0695

Validation Time: 12 Minutes

Prerequisite Training: N/A

Time Critical: NO

PPM Reference:

Location: TABLE TOP

NUREG 1123 Ref: 2.3.1 2.6/3.0

Performance Method: PERFORM

TAGOUT CRD-P-1A USING THE MANUAL FORMS

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	The reactor is operating at 100 percent and all systems are operating normally.
INITIATING CUE:	<p>Because it is suspected that one of the valves for EDR-HX-2 is partially closed, the Shift Manager needs to have the EDR-HX-2 valve lineup inspected. These valves are located at the north end of EDR-HX-2.</p> <p>As part of his decision making process, he has requested you to provide him with the following information as per ALARA Task: WO 00DK27 48 43.</p> <ul style="list-style-type: none"> • What is the RWP number that will be used to do this inspection? • Based on the most recent HP information, what is the highest general area dose rate that can be expected around this component? • What type of radiation area is this? • Will the person following up on this problem have to enter a contaminated area to do the inspection? • Without any HP extensions or other approvals, what would the maximum allowable stay time be for this task? (Use the highest general dose rate for your determination and assume you have 100 mrem for the current quarter and year.)

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			

TAGOUT CRD-P-1A USING THE MANUAL FORMS

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
CUE: Cue response of simulated actions based on procedure and student actions. CUE: While the candidate may use any reference available in the plant for this JPM, he/she may not request assistance from HP personnel. Because no high radiation area entry will be made for this JPM, no HP briefing is required. CUE: Ask the candidate to record the requested information on the CUE card provided with this JPM. CUE: The candidate will have to begin the sign in process at the Access Point to get the RWP up on the computer screen. Once the RWP information is obtained, instruct the candidate to abort the sign in process. If the candidate actually signs on to the RWP, ENSURE he/she signs back off again.			
	Perform all non-critical steps IAW current procedure.	Applies initial conditions & P/L, completes steps IAW procedure.	S / U
	Reviews the RWP for the referenced ALARA task number.	Goes to the RCA Access Point computer and inputs the ALARA task number.	S / U
		Reviews RWP 30001192 02	S / U *
CUE: Instruct the candidate to abort the sign in process once the RWP has been reviewed.			
		Determines the maximum general area dose is up to 250 mREM/hr.	S / U *
		Determines it is a high radiation area.	S / U *
	Reviews survey map	Locates the hard copy survey map showing EDR-HX-2. (Rx 422 South Side)	S / U
		Determines that the individual will not have to enter a contaminated area to perform this task.	S / U*
	Calculates the maximum stay time.	Determines the maximum stay time is 24 minutes. (100 mrem setpoint on ED / 250 mrem dose rate = .4 hours = 24 minutes)	S / U*
Termination Criteria: When the candidate states all required information has been provided to the Shift Manager.			

TAGOUT CRD-P-1A USING THE MANUAL FORMS

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD TERMINATION TIME: _____			
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedure and remaining JPM pages may be discarded.			

TAGOUT CRD-P-1A USING THE MANUAL FORMS

RESULTS OF JPM:

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard: Provides the following information to the Shift Manager: RWP #30001192 02, highest general area dose is 250 mrem/hr, it is a high radiation area, a contaminated area need not be entered for the inspection, and the stay time is 24 minutes.

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	12 Minutes / NA	

COMMENTS:

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

TAGOUT CRD-P-1A USING THE MANUAL FORMS

Evaluator's Signature: _____ **Date:** _____

TAGOUT CRD-P-1A USING THE MANUAL FORMS

STUDENT JPM INFORMATION CARD

Initial Conditions:

The reactor is operating at 100 percent and all systems are operating normally.

Cue:

Because it is suspected that one of the valves for EDR-HX-2 is partially closed, the Shift Manager needs to have the EDR-HX-2 valve lineup inspected. These valves are immediately adjacent to the north end of EDR-HX-2.

As part of his decision making process, he has requested you to provide him with the following information as per ALARA Task: WO 00DK27 48 43.

- What is the RWP number that will be used to do this inspection?
- What is the highest general area dose rate that can be expected around this component?
- What type of radiation area is this?
- Will the person following up on this problem have to enter a contaminated area to do the inspection?
- Without any RP extensions and/or approvals, what would the maximum allowable stay time be for this task? (Use the highest general dose rate for your determination and assume you have 100 mrem for the current quarter and year.)

No entries into a high radiation area will be made during this JPM.

Facility: Columbia Generating Station	Task No:
Task Title: Complete an INOP Equipment/LCO/RFO Status Sheet	Job Performance Measure No:
K/A Reference: 2.1.18 2.9/3.0	
Examinee:	NRC Examiner:
Facility Evaluator:	Date:

Method of testing: PERFORM

Actual Performance: SIMULATOR

NOTES: Provide the candidate with a blank INOP EQUIP/LCO/RFO STATUS SHEET
and INOP EQUIP/LCO/RFO LOG sheet.

JPM SETUP INFORMATION

Initial Conditions:	CGS is operating at 90 percent power with no equipment out of service with the exception of the LAN Operations Log System computer.
Task Standard:	Complete an INOP EQUIP/LCO/RFO Status Sheet and make a corresponding log entry per PPM 1.3.1.
Required Materials:	A copy of attachments 6.4 and 6.5 of PPM 1.3.1.
General References:	PPM 1.3.1, rev 62, pages 84/85 Tech Specs and LCS.
Initiating Cue:	<p>At 1045, I&C notified the Shift Manager (by telephone) that follow-up troubleshooting on an ADS problem has determined ADS switch MS-RMS-ADS12A, ADS DIV 1 INHIBIT, has failed. Their testing indicates the contacts for S12A have failed in the NORMAL position and do not open when the switch is placed in the INHIBIT position. As a result, placing the switch in the INHIBIT position will not inhibit or reset ADS Channel A logic. The I&C technicians have not discussed this with anyone other than the SM and will generate a PER and WR later today after they discuss it with their supervisor.</p> <p>The Shift Manager has directed you to complete an INOP EQUIP/LCO/RFO Status Sheet and make the corresponding Log entry for this situation. Provide him with the Status and Log Entry Sheets when completed so they can be put on the LAN when it becomes available.</p>
Time Critical Task:	NO
Validation Time:	30 Minutes
Simulator ICs:	N/A
Malfunctions/Remote Triggers:	N/A
Overrides:	N/A
Special Setup	None

Instructions:

PERFORMANCE INFORMATION

START TIME:

Critical Step:	
Performance Step: 1	PPM 1.3.1, rev 62, page 84
Performance Step: 2	PPM 1.3.1, rev 62, page 85
Task Standard:	<p>Complete the referenced forms as shown in the attached. The candidate's form does not have to be verbatim, however it shall be technically consistent with the attached.</p> <p>The critical steps for this JPM are correctly identifying the LCS number (1.3.5.2) and the INOP time/date (1045 and today's date).</p>
Comments: SAT / UNSAT	

THE EXAMINEE SHOULD ANNOUNCE THE TERMINATION POINT OF THE JPM AT THIS POINT.

JPM TERMINATION
TIME:
JPM START TIME: - _____
JPM COMPLETION
TIME:

VERIFICATION OF COMPLETION

JPM Number:	Complete an INOP Equipment/LCO/RFO Status Sheet NEW JPM - ADMIN
Examinee's Name:	
Examiner's Name:	
Date Performed:	
Number of Attempts:	
Time to Complete:	

JPM INFORMATION CARD

HAND THE STUDENT INFORMATION CARD TO THE EXAMINEE

READ TO THE EXAMINEE:

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

Task Standard: Complete the referenced forms as shown in the attached. The candidate's form does not have to be verbatim, however it shall be technically consistent with the attached.

The critical steps for this JPM are correctly identifying the LCS number (1.3.5.2) and the INOP time/date (1045 and today's date).

Required Materials: A copy of attachments 6.4 and 6.5 of PPM 1.3.1.
Tech Specs and LCS

Safety Equipment: N/A

General References: PPM 1.3.1, Conduct of Operations
Technical Specifications
Licensee Controlled Specifications (LCS)

Time Critical Task: No

Initial Conditions: CGS is operating at 90 percent power with no equipment out of service with the exception of the LAN Operations Log System computer.

INITIATING CUE

At 1045, I&C notified the Shift Manager (by telephone) that follow-up troubleshooting on an ADS problem has determined ADS switch MS-RMS-ADS12A, ADS DIV 1 INHIBIT, has failed. Their testing indicates the contacts for S12A have failed in the NORMAL position and do not open when the switch is placed in the INHIBIT position. As a result, placing the switch in the INHIBIT position will not inhibit or reset ADS Channel A logic. The I&C technicians have not discussed this with anyone other than the SM and will generate a PER and WR later today after they discuss it with their

supervisor.

The Shift Manager has directed you to complete an INOP EQUIP/LCO/RFO Status Sheet and make the corresponding Log entry for this situation. Provide him with the Status and Log Entry Sheets when completed so they can be put on the LAN when it becomes available

EXAMINER CUE: Provide the candidate with a blank Status Sheet and Log Sheet for this JPM.

INFORMATION BELOW THIS LINE NOT SHARED WITH EXAMINEE

Task Number:

NUREG 1123 Reference: 2.1.18 2.9/3.0

Location: SIMULATOR

Prepared/Revised by: S Garchow (NRC)

Validation Time: 30 minutes

Time Critical: No

Performance Method: PERFORM

Revision Date: New JPM

STUDENT INFORMATION

Initial Conditions: CGS is operating at 90 percent power with no equipment out of service with the exception of the LAN Operations Log System computer.

INITIATING CUE

At 1045, I&C notified the Shift Manager (by telephone) that follow-up troubleshooting on an ADS problem has determined ADS switch MS-RMS-ADS12A, ADS DIV 1 INHIBIT, has failed. Their testing indicates the contacts for S12A have failed in the NORMAL position and do not open when the switch is placed in the INHIBIT position. As a result, placing the switch in the INHIBIT position will not inhibit or reset ADS Channel A logic. The I&C technicians have not discussed this with anyone other than the SM and will generate a PER and WR later today after they discuss it with their supervisor.

The Shift Manager has directed you to complete an INOP EQUIP/LCO/RFO Status Sheet and make the corresponding Log entry for this situation. Provide him with the Status and Log Entry Sheets when completed so they can be put on the LAN when it becomes available.



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE INTERPRET EWDS

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

JPM PQD Code _____ Rev. No. _____

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY S. Hutchison DATE 6/20/04

REVISED BY _____ DATE _____

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

Operations Training Manager

Verify materials current IAW SWP-TQS-01 prior to use.

INTERPRET EWDS

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

ADMIN JPM NO SIMULATOR SETUP NEEDED.

Special Setup Instructions:

ADMIN JPM NO SIMULATOR SETUP NEEDED.

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: N/A

Safety Items: N/A

Task Number: None

Validation Time: 5 min.

Prerequisite Training: N/A

Time Critical: NO

PPM Reference: EWD 80E001

Location: Simulator

NUREG 1123 Ref: 2.1.24 2.8/3.1

Performance Method: Perform

INTERPRET EWDS

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	The plant is operating at power. ROA-FN-1A has to be started for operability following maintenance.
INITIATING CUE:	<p>The plant is operating at power. ROA-FN-1A has to be started for operability following maintenance. The following scenario occurs:</p> <p>The breaker for the fan has been racked in and the EO has notified the control room he is ready for a start.</p> <p>The CRO notices that the green STOP/OFF indication at the control switch is off. Thinking the light bulb is burned out; the CRO places the control switch for ROA-FN-1A to start.</p> <p>The EO reports the breaker closes by sound and the manual indicators but there is no closed indication on the lights on the breaker door.</p> <p>The CRO also notes there is no closed/running indication in the control room.</p> <p>The CRO places the control switch in the TRIP position. Nothing happens, the fan continues to run. All light bulbs have been verified as good.</p> <p>Using EWD 80E001, explain why there are no indicating lights for ROA-FN-1A and why it did not trip.</p>

INTERPRET EWDS

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
	Demonstrate on EWD 80E001 the reason for the indications in the Initiating Cue.	Using EWD 80E001, demonstrate the following: 1. Since there was no breaker indication locally or in the control room and the fan would not trip with the control switch the trip fuses FO4-1 and FO4-2 (either or both) are blown or not installed correctly.	S / U *
Termination Criteria: Student informs CRS that the trip fuses are bad/blown, which prevents both the light indications and tripping of the fan.			
RECORD TERMINATION TIME: _____			
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedure and remaining JPM pages may be discarded.			

INTERPRET EWDS

RESULTS OF JPM:

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard: Indications for the start of ROA-FN-1A are explained correctly using EWD 80E-001

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	5 Minutes / NA	

COMMENTS:

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

Evaluator's Signature: _____ **Date:** _____

INTERPRET EWDS

STUDENT JPM INFORMATION CARD

Initial Conditions:

The plant is operating at power. ROA-FN-1A has to be started for operability following maintenance.

Cue:

The plant is operating at power. ROA-FN-1A has to be started following maintenance for operability. The following scenario occurs:

The breaker for the fan has been racked in and the EO has notified the control room he is ready for a start.

The CRO notices that the green STOP/OFF indication at the control switch is off. Thinking the light bulb is burned out; the CRO places the control switch for ROA-FN-1A to start.

The EO reports the breaker closes by sound and the manual indicators but there is no closed indication on the lights on the breaker door.

The CRO also notes there is no closed/running indication in the control room.

The CRO places the control switch in the TRIP position. Nothing happens, the fan continues to run. All light bulbs have been verified as good.

Using EWD 80E001, explain why there are no indicating lights for ROA-FN-1A and why it did not trip.



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE VERIFY CLEARANCE ORDER FOR CORRECT VALVE LINEUP

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

JPM PQD Code _____ Rev. No. _____

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY S. Hutchison DATE 6/23/04

REVISED BY _____ DATE _____

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

Operations Training Manager

Verify materials current IAW SWP-TQS-01 prior to use.

VERIFY CLEARANCE ORDER FOR CORRECT VALVE LINEUP

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

ADMIN JPM, NO SETUP NEEDED

Special Setup Instructions:

ADMIN JPM, NO SETUP NEEDED

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: Copy of clearance order.

Safety Items: N/A

Task Number: RO-N-1157

Validation Time: 10 minutes

Prerequisite Training: N/A

Time Critical: NO

PPM Reference: PPM 1.3.64 step 3.9.1

Location: SIMULATOR/PLANT/TABLE TOP

NUREG 1123 Ref: 2.2.13 3.6/3.8

Performance Method: PERFORM

VERIFY CLEARANCE ORDER FOR CORRECT VALVE LINEUP

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	<p>The Aux Boiler is in operation to supply seal steam for the main turbine.</p> <p>The Aux Boiler Feedpump, CO-P-2B has a broken discharge flange and must be repaired.</p> <p>The work is expected to last into the next shift.</p> <p>Clearance Order D-CO-P-2B –010 is ready for review.</p>
INITIATING CUE:	<p>You are directed to review Clearance Order D-CO-P-2B –010 using the supplied M513.</p> <p>Notify the Shift Manager when you have found two (2) mistakes with this Clearance Order.</p>

VERIFY CLEARANCE ORDER FOR CORRECT VALVE LINEUP

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
CUE: Cue response of simulated actions based on procedure and student actions			
	Perform all non-critical steps IAW current procedure.	Applies initial conditions & P/L, completes steps IAW procedure.	S / U
	Clearance Order is reviewed for correctness.	The Clearance Order is reviewed against M513 and the following mistakes are identified: <div style="text-align: center;">CO-V-10 (CO-P-2B discharge) is open instead of closed.</div> <div style="text-align: center;">CO-V-27B or CO-V-31B (CO-</div>	S / U *
Note: CO-V-711B is used for a vent path and must be closed when returning the system to service. Therefore, it is correct as listed on the return status as closed.			
Termination Criteria: Student informs the Shift Manager of the above mistakes found in the Clearance Order.			
RECORD TERMINATION TIME: _____			
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedure and remaining JPM pages may be discarded.			

VERIFY CLEARANCE ORDER FOR CORRECT VALVE LINEUP

RESULTS OF JPM:

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard:

Overall Evaluation		Exam Code	
SAT / UNSAT (Circle One)			
Verified Procedure #/Rev.	Validation/Critical	JPM Completion	
	10 Minutes / NA		

COMMENTS:

Evaluator's Signature: _____ **Date:** _____

VERIFY CLEARANCE ORDER FOR CORRECT VALVE LINEUP

STUDENT JPM INFORMATION CARD

Initial Conditions:

The Aux Boiler is in operation to supply seal steam for the main turbine.

The Aux Boiler Feedpump, CO-P-2B has a broken discharge flange and must be repaired.

The work is expected to last into the next shift.

Clearance Order D-CO-P-2B –010 is ready for review.

Cue:

You are directed to review Clearance Order D-CO-P-2B –010 using the supplied M513.

Notify the Shift Manager when you have found two (2) mistakes with this Clearance Order.

Facility: Columbia Generating Station	Task No:
Task Title: Calculate Projected dose.	Job Performance Measure No: SA.3JPRMreplacement
K/A Reference: 2.3.11 2.7/3.2	
Examinee:	NRC Examiner:
Facility Evaluator:	Date:

Method of testing:

Perform - Simulator

JPM SETUP INFORMATION

Initial Conditions: The plant was operating at 100% power when a transient occurred. The reactor scrammed 30 minutes ago. The following conditions exist:

- Wind Speed – 14 mph
- Wind Direction – from 62°
- A release is underway from the Radwaste Building with Radwaste HVAC flowrate of 83,000 scfm.
- WEA-RIS-14 indicates 1.92E5 cpm.
- The release is expected to last 3 hours.

Task Standard: Projected dose is calculated to correctly using QEDPS.

Required Materials: A computer terminal with QEDPS

General References: PPM 13.8.1 rev. 25 pages 5, 6, & 7

Initiating Cue: The plant was operating at 100% power when a transient occurred. The reactor scrammed 30 minutes ago. The following are the current conditions:

- Wind Speed – 14 mph
- Wind Direction – from 62°
- A release is underway from the Radwaste Building with Radwaste HVAC flowrate of 83,000 scfm.
- WEA-RIS-14 indicates 1.92E5 cpm.
- The release is expected to last 3 hours.
- Stability class = E

You are directed to calculate a projected dose using QEDPS.

Notify the CRS when you have completed the dose projection with the results.

Time Critical Task: NO

Appendix C	Admin Job Performance Measure Worksheet SA3JPMreplacement	Form ES-C-1
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Validation Time: 15 minutes

Simulator ICs: N/A

Malfunctions/Remote Triggers: N/A

Overrides: N/A

Special Setup Instructions: N/A

PERFORMANCE INFORMATION

START TIME:

Critical Step: Yes	
Performance Step: 1 4.2.1: Turn on computer equipment as needed.	
Standard:	Equipment is on and ready for software start.
Comment: SAT / UNSAT	

Critical Step: Yes	
Performance Step: 2 4.2.2: Start QEDPS by double clicking on QEDPS icon.	
Standard:	Double click on the icon.
Comment: SAT / UNSAT	

Critical Step: Yes	
Performance Step: 3 4.2.2.b: Select Radwaste Building Low Range Monitor, WEA-RIS-14..	
Standard:	Radwaste Low Range (WEA-RIS-14) Monitor selected.
Comment: SAT / UNSAT	

Critical Step: Yes	
Performance Step: 4 4.2.2.b: Enter 1.92E5 for the monitor reading.	
Standard:	Enter 1.92E5 for the monitor reading.
Comment: SAT / UNSAT	

Critical Step: Yes	
Performance Step: 5 4.2.3.a: Enter 3 hours for the release duration.	
Standard:	Enter 3 hours for the release duration.
Comment: SAT / UNSAT	

Critical Step: Yes	
Performance Step: 6 4.2.3.b: Enter 30 min for time since reactor shutdown.	
Standard:	Enter 30 min for time since reactor shutdown.
Comment: SAT / UNSAT	

Critical Step: Yes	
Performance Step: 7 4.2.4: Enter meteorological data:	
Wind Speed – 14 mph Wind Direction – 62° Stability Class - E	
Standard:	Enters correctly as above.
Comment: SAT / UNSAT	

Critical Step: **YES**Performance Step: 8 **4.2.5: Select RUN.**

Standard: Run selected to run the program.

Comment:
SAT / UNSAT

Critical Step: No

Performance Step: 9 4.2.6: Select Print for paper output.

CUE: **If candidate give the results verbally, instruct him to print the output.**

Standard: Results printed.

Comment:
SAT / UNSAT

THE EXAMINEE SHOULD ANNOUNCE THE TERMINATION POINT OF THE JPM AT THIS POINT.

JPM TERMINATION
TIME:
JPM START TIME: - _____
JPM COMPLETION
TIME:

VERIFICATION OF COMPLETION

JPM Number: SA.3JPM replacement

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of
Attempts:

Time to Complete:

JPM INFORMATION CARD

HAND THE STUDENT INFORMATION CARD TO THE EXAMINEE

READ TO THE EXAMINEE:

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

Task Standard: Projected dose is calculated to correctly using QEDPS.

Required Materials: A computer terminal with QEDPS

Safety Equipment: N/A

General
References: PPM 13.8.1 rev. 25

Time Critical Task: No

Initial Conditions: The plant was operating at 100% power when a transient occurred. The reactor scrammed 30 minutes ago. The following conditions exist:

- Wind Speed – 14 mph
- Wind Direction – from 62°
- A release is underway from the Radwaste Building with Radwaste HVAC flowrate of 83,000 scfm.
- WEA-RIS-14 indicates 1.92E5 cpm.
- The release is expected to last 3 hours.

INITIATING CUE

The plant was operating at 100% power when a transient occurred. The reactor scrammed 30 minutes ago. The following conditions exist:

- Wind Speed – 14 mph
- Wind Direction – from 62°
- A release is underway from the Radwaste Building with Radwaste HVAC flowrate of 83,000 scfm.
- WEA-RIS-14 indicates 1.92E5 cpm.
- The release is expected to last 3 hours.
- Stability class = E

You are directed to calculate a projected dose using QEDPS.

Provide the CRS with the QEDPS printout with the results of your dose projections.

INFORMATION BELOW THIS LINE NOT SHARED WITH EXAMINEE

Task Number:

NUREG 1123 Reference: 2.3.11

2.7/3.2

Location: Simulator

Prepared/Revised by: S Hutchison

Validation Time: 15 minutes

Time Critical: No

Performance Method: Perform

Revision Date: 9/21/02

STUDENT INFORMATION

Initial Conditions: The plant was operating at 100% power when a transient occurred. The reactor scrammed 30 minutes ago. The following are the current conditions:

- Wind Speed – 14 mph
- Wind Direction – from 62°
- A release is underway from the Radwaste Building with Radwaste HVAC flowrate of 83,000 scfm.
- WEA-RIS-14 indicates 1.92E5 cpm.
- The release is expected to last 3 hours.

INITIATING CUE

The plant was operating at 100% power when a transient occurred. The reactor scrammed 30 minutes ago. The following conditions exist:

- Wind Speed – 14 mph
- Wind Direction – from 62°
- A release is underway from the Radwaste Building with Radwaste HVAC flowrate of 83,000 scfm.
- WEA-RIS-14 indicates 1.92E5 cpm.
- The release is expected to last 3 hours.
- Stability class = E

You are directed to calculate a projected dose using QEDPS.

Provide the CRS with the QEDPS printout with the results of your dose projection.

**INSTRUCTIONAL COVER SHEET**PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAININGCOURSE TITLE JOB PERFORMANCE MEASURELESSON TITLE CLASSIFY THE EP EVENTLESSON LENGTH .5 HRS MAXIMUM STUDENTS 1**INSTRUCTIONAL MATERIALS INCLUDED**

Lesson Plan PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

JPM PQD Code _____ Rev. No. _____

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear TrainingDEPARTMENT Operations TrainingPREPARED BY Steve Hutchison DATE 4/14/04REVISED BY Steve Garchow (NRC) DATE 9/10/04

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

Operations Training Manager

Facility: Columbia Generating Station	Task No: SRO-0233-P-PLA
Task Title: Classify the Emergency and PAR	Job Performance Measure No:
K/A Reference: 2.4.41 2.3/4.1	
Examinee:	NRC Examiner:
Facility Evaluator:	Date:

Method of testing: PERFORM

Actual Performance: SIMULATOR

NOTE: This JPM will be done after the performance of the dynamic scenarios run on day 1 and 2 of the 2004 ILC EXAM. The simulator will be frozen following the scenario and the classification will be based on the existing conditions.

NOTE: This JPM will only be performed on day 2 for those SRO candidates that did not complete it on day 1.

JPM SETUP INFORMATION

Initial Conditions:	CGS has experienced the plant event you have just performed.
Task Standard:	<p>Correctly classify the plant event as indicated on the Columbia Generating Station Classification Notification Form as shown in the attached. Note on day one there are three possible answer keys as follows:</p> <ol style="list-style-type: none">1. If RPV level decreases to less than –161” than it is a Site Area Emergency based on 2.1.S.1.2. If RPV level remains greater than –161” and the SRO declares there was a fire in the EDG room than it is an Alert based on 9.2.A.1 due to a fire in the EDG room.3. If RPV level remains greater than –161” and the SRO does not declare a fire in EDG room than there is no EP classification. <p>On day two the EP classification is a site area emergency based on 2.2.S.1 based on an ATWS with reactor power remaining above 5 percent.</p>
Required Materials:	Columbia Generating Station Classification Notification Form
General References:	PPM 13.1.1, rev 32, page 14 PPM 13.2.2, rev 14, page 8
Initiating Cue:	As the Shift Manager, you are directed to complete a Columbia Generating Station Classification Form and make a PAR based on the scenario you just completed. Base your classification on the highest EP level reached during the scenario. You have 15 minutes to provide me with your completed form and PAR.
Time Critical Task:	15 minutes
Validation Time:	10 Minutes
Simulator ICs:	N/A
Malfunctions/Remote Triggers:	N/A
Overrides:	N/A

Appendix C	Job Performance Measure Worksheet	Form ES-C-1
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Special Setup
Instructions:

This JPM will be done after the performance of all day 1 and day 2 scenarios. For day 2 it will only be performed for those SROs that did not perform this JPM on day 1. The simulator will be frozen following the scenario and the classification will be based on the highest EP level reached during the scenario.

PERFORMANCE INFORMATION

Start Time:

Critical Step: YES

Performance Step: 1 PPM 13.1.1, rev 32, page 14

Performance Step: 2 PPM 13.2.2, rev 14, page 8

Standard: Correctly classify the plant event as indicated on the Columbia Generating Station Classification Notification Form as shown in the attached. Note on day one there are three possible answer keys as follows:

1. If RPV level decreases to less than –161” than it is a Site Area Emergency based on 2.1.S.1.
2. If RPV level remains greater than –161” and the SRO declares there was a fire in the EDG room than it is an Alert based on 9.2.A.1 due to a fire in the EDG room.
3. If RPV level remains greater than –161” and the SRO does not declare a fire in EDG room than there is no EP classification.

On day two the EP classification is a site area emergency based on 2.2.S.1 based on an ATWS with reactor power remaining above 5 percent.

Comments:

SAT / UNSAT

THE EXAIMEE SHOULD ANNOUNCE THE TERMINATION POINT OF THE JPM AT THIS POINT.

JPM TERMINATION

TIME:

JPM START TIME: - _____

JPM COMPLETION

TIME:

VERIFICATION OF COMPLETION

JPM Number: Classify the Emergency and PAR
NEW JPM - ADMIN

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

JPM INFORMATION CARD

HAND THE STUDENT INFORMATION CARD TO THE EXAMINEE

READ TO THE EXAMINEE:

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

Task Standard: Correctly classify the plant event as indicated on the Columbia Generating Station Classification Notification Form as shown in the attached. Note on day one there are three possible answer keys as follows:

1. If RPV level decreases to less than –161” than it is a Site Area Emergency based on 2.1.S.1.
2. If RPV level remains greater than –161” and the SRO declares there was a fire in the EDG room than it is an Alert based on 9.2.A.1 due to a fire in the EDG room.
3. If RPV level remains greater than –161” and the SRO does not declare a fire in EDG room than there is no EP classification.

On day two the EP classification is a site area emergency based on 2.2.S.1 based on an ATWS with reactor power remaining above 5 percent.

Required Materials: One Columbia Generating Station Classification Notification Form (CNF)

Safety Equipment: N/A

General References: PPM 13.1.1, rev 32, page 14
PPM 13.2.2, rev 14, page 8

Time Critical Task: 15 minutes

Initial Conditions: CGS has experienced the plant event you have just performed.

INITIATING CUE

As the Shift Manager, you are directed to complete a Columbia Generating Station

Classification Form and make a PAR based on the scenario you just completed. Base your classification on the highest EP level reached during the scenario. You have 15 minutes to provide me with your completed form and PAR.

INFORMATION BELOW THIS LINE NOT SHARED WITH EXAMINEE

Task Number: SRO-0233-P-PLA

NUREG 1123 Reference: 2.4.41 2.3/4.1

Location: SIMULATOR

Prepared/Revised by: S Garchow (NRC)

Validation Time: 10

Time Critical: 15 minutes

Performance Method: PERFORM

Revision Date: 8/29/2004

CANDIDATE JPM INFORMATION

Initial Conditions: CGS has experienced the plant event you have just performed.

INITIATING CUE

As the Shift Manager, you are directed to complete a Columbia Generating Station Classification Form and make a PAR based on the scenario you just completed. Base your classification on the highest EP level reached during the scenario. You have 15 minutes to provide me with your completed form and PAR.



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE	LICENSED OPERATOR/STA REQUALIFICATION TRAINING		
COURSE TITLE	JOB PERFORMANCE MEASURE		
LESSON TITLE	START AN RRC PUMP WITH THE REACTOR AT POWER (FAULTED)		
LESSON LENGTH	.5 HRS	MAXIMUM STUDENTS	1
INSTRUCTIONAL MATERIALS INCLUDED			
Lesson Plan PQD Code	_____	Rev. No.	_____
Simulator Guide PQD Code	_____	Rev. No.	_____
JPM PQD Code	?????	Rev. No.	_____
Exam PQD Code	_____	Rev. No.	_____
DIVISION TITLE	Nuclear Training		
DEPARTMENT	Operations Training		
PREPARED BY	Steve Hutchison	DATE	4/14/04
REVISED BY	_____	DATE	_____
TECHNICAL REVIEW BY	_____	DATE	_____
INSTRUCTIONAL REVIEW BY	_____	DATE	_____
APPROVED BY	_____	DATE	_____
Operations Training Manager			

Verify materials current IAW SWP-TQS-01 prior to use.

START AN RRC PUMP WITH THE REACTOR AT POWER

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

IC-14 or special IC created for JPM set.

Special Setup Instructions:

Trip RRC-P-1A, open breakers CB-RRA, CB-RPT4A, CB-RPT3A, and allow conditions to stabilize. Ensure XMT-RRP009B is active with a severity of –50 in the snapshot.

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: N/A

Safety Items: N/A

Task Number: RO-0061-N-RRC

Validation Time: 20 min

Prerequisite Training: N/A

Time Critical: NO

PPM Reference: SOP-RRC-START rev. 1

Location: Simulator

NUREG 1123 Ref: 202001A4.01 (3.7/3.7)

Performance Method: Perform

START AN RRC PUMP WITH THE REACTOR AT POWER

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	<p>The plant was operating at 99% power when RRC-P-1A tripped. The cause has been corrected and RRC-P-1A is ready for a start.</p> <p>The SNE is in the control room and has evaluated Core Maximum Peaking Factor and RPV inlet temperature as satisfactory per PPM 9.3.12. A startup plan is in place.</p> <p>The operating loop flow is approximately 20,600 gpm.</p> <p>The reactor is below the 70% rod line.</p> <p>Reactor level is in the normal operating band.</p> <p>RRC seal purge has been in service GT 30 minutes.</p> <p>Both Channel Selector Switches are in the ON positions. At panels:</p> <p style="padding-left: 40px;">RRC-IMD-ASD1A/1 (Local Control and Diagnostics Panel).</p> <p style="padding-left: 40px;">RRC-IMD-ASD1A/2 (Local Control and Diagnostics Panel).</p>
INITIATING CUE:	<p>The CRS has directed you to start RRC-P-1A per SOP-RRC-START section 5.1 step 5.1.6.</p> <p>Notify the CRS when RRC-P-1A has been started and is operating at 15 Hz.</p>

*** Items are Critical Steps**

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
5.1.6	<p>VERIFY the following:</p> <p>RRC-V-23A OPEN (Pump Suction) (H13-P602).</p> <p>RRC-V-67A OPEN (Pump Discharge valve) (H13-P602).</p> <p>RCC-V-17A OPEN (RCC Inlet to RRC-P-1A) (H13-P614).</p>	<p>VERIFIES the following:</p> <p>RRC-V-23A OPEN</p> <p>RRC-V-67A OPEN</p> <p>RCC-V-17A OPEN</p>	S / U

START AN RRC PUMP WITH THE REACTOR AT POWER

	<p>RRC-M/A-R676A in MANUAL (Loop AA@ Manual/Auto Controller) (H13-P602).</p> <p>RRC-M/A-R676A is set at 15 hz demand.</p> <p>RRC-M/A-R676A status lights EXTINGUISHED</p> <p>Feed Pump Trip.</p> <p>ΔT Cavitation</p> <p>Reactor Low Level</p> <p><u>NOTE</u>: It is acceptable for the Thrust Monitor to be in alarm when the RRC pump is shutdown.</p> <p>H13-P602.A6-2.4, RECIRC A SYSTEM VIB HIGH is extinguished.</p> <p>H13-P602.A6.2-1, RECIRC A PUMP SEAL COOLING WATER FLOW LOW is extinguished.</p> <p>H13-P602.A6.3-2, RECIRC A MOTOR WINDING COOLANT FLOW LOW is extinguished.</p>	<p>RRC-M/A-R676A in MANUAL</p> <p>RRC-M/A-R676A is set at 15 hz demand.</p> <p>RRC-M/A-R676A status lights EXTINGUISHED</p> <p>Feed Pump Trip.</p> <p>ΔT Cavitation</p> <p>Reactor Low Level</p> <p>H13-P602.A6-2.4, RECIRC A SYSTEM VIB HIGH is extinguished.</p> <p>H13-P602.A6.2-1, RECIRC A PUMP SEAL COOLING WATER FLOW LOW is extinguished.</p> <p>H13-P602.A6.3-2, RECIRC A MOTOR WINDING COOLANT FLOW LOW is extinguished.</p>	<p>S / U</p> <p>S / U</p> <p>S / U</p> <p>S / U</p> <p>S / U</p> <p>S / U</p>
5.1.7	CLOSE CB-RRA (RRC-P-1A Bus Tie breaker) (H13-P602).	CLOSES CB-RRA	<p>S/U</p> <p>Critical Step</p>
5.1.8	CLOSE CB-RPT4A (RRC-P-1A Motor Interlock Breaker) (H13-P602).	CLOSES CB-RPT4A	<p>S/U</p> <p>Critical Step</p>
5.1.9	CLOSE CB-RPT-3A (RRC-P-1A Motor Interlock Breaker) (H13-P602).	CLOSES CB-RPT-3A	<p>S/U *</p> <p>Critical Step</p>

START AN RRC PUMP WITH THE REACTOR AT POWER

5.1.10	<p><u>NOTE</u>: White Lights DS 6A and 6C may be pulsing at the rate of approximately once per second</p> <p>VERIFY DS 6A and DS 6C white lights DIMLY LIT (RPT trip systems A) (H13-P609).</p>	<p>VERIFIES DS 6A and DS 6C white lights DIMLY LIT</p>	<p>S / U</p>
5.1.11	<p><u>IF</u> starting an RRC pump on the slave channel 1A2, <u>THEN</u> VERIFY the following: Otherwise, N/A</p> <p>Channel Selector Switch for Channel 1A1 is in the OFF position</p> <p>Channel Selector Switch for Channel 1A2 is in the ON position</p>	<p>N/A</p>	<p>S / U</p>
5.1.12	<p><u>IF</u> starting an RRC pump on both drive channels, <u>THEN</u> VERIFY both Channel Selector Switches for that drive are in the ON positions. Otherwise, N/A</p> <p>RRC-IMD-ASD1A/1 (Local Control and Diagnostics Panel).</p> <p>RRC-IMD-ASD1A/2 (Local Control and Diagnostics Panel).</p>	<p>Given in Cue.</p>	<p>S / U</p>
5.1.13	<p>VERIFY temperature limitations within 15 minutes prior to starting an idle recirculation pump per OSP-RRC-C103</p>	<p>VERIFY temperature limitations within 15 minutes prior to starting an idle recirculation pump per OSP-RRC-C103</p>	<p>S/U * Critical Step</p>

START AN RRC PUMP WITH THE REACTOR AT POWER

	<p>CAUTION: Operation within the prohibited region of the Two Loop Recirculation Pump Speed Mismatch Operating Limits Curve, Attachment 6.6, will result in high vibration levels in the idle Jet Pumps</p>		
5.1.14	<p>IF starting an idle pump with the other pump in operation, THEN VERIFY the operating loop flow is LT 50% of rated loop flow (30 hz) within 15 minutes prior to pump start per OSP-RRC-C103. Otherwise, N/A.</p>	<p>VERIFIES the operating loop flow is LT 50% of rated loop flow (30 hz)</p>	<p>S / U</p>
5.1.15	<p>IF applicable, THEN REMOVE the B18 computer substitute value for Single Loop Operation. Otherwise, N/A.</p>	<p>N/A</p>	
5.1.16	<p>VERIFY the ASD "READY" light for the drive channels to be started are LIT.</p>	<p>VERIFIES the ASD "READY" light for the drive channels to be started are LIT.</p>	<p>S / U</p>
	<p>NOTE: A momentary "GTO FREEZE" alarm may be expected upon channel start. This alarm may be cleared by depressing the local reset pushbutton. An actual "GTO FREEZE" alarm will cause the channel to fault and trip</p> <p>NOTE: Frequency indication may be momentarily erratic during pump start</p> <p>NOTE: If the pump has been idle for an extended period of time, the expected start time of 30-50 seconds may be longer due to no oil film present under the thrust bearing</p>		<p>S / U</p>
5.1.17	<p>START RRC-P-1A by MOMENTARILY DEPRESSING the ASD START pushbutton</p>	<p>STARTS RRC-P-1A by MOMENTARILY DEPRESSING the ASD START pushbutton</p>	<p>S/U * Critical Step</p>

START AN RRC PUMP WITH THE REACTOR AT POWER

5.1.18	VERIFY the RRC-P-1A starts and continues to operate at approximately 450 RPM (15 Hz).	VERIFIES the RRC-P-1A starts and continues to operate at approximately 450 RPM (15 Hz).	S/U
5.1.19	<p>IF motor speed does not reach 15 Hz within approximately 50 seconds, <u>THEN</u> PERFORM the following: Otherwise, N/A</p> <p>STOP the pump by depressing the ASD STOP pushbutton</p> <p>NOTIFY the Duty Technical Engineer the motor failed to start</p>	<p>STOPS the pump by depressing the ASD STOP pushbutton</p> <p>May Notify the Duty Technical Engineer the motor failed to start (not part of the critical task).</p>	S/U * Critical Step
Termination Criteria: Student informs CRS that RRC-P-1A has been tripped due to inadequate speed.			
RECORD TERMINATION TIME: _____			
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time;			
Marked Up procedure and remaining JPM pages may be discarded.			

START AN RRC PUMP WITH THE REACTOR AT POWER

RESULTS OF JPM:

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard: RRC-P-1A is started IAW SOP-RRC-START rev. 1 and tripped when the pump fails to attain 15 hz.

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	20 / NA	

COMMENTS:

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Evaluator's Signature: _____ **Date:** _____

STUDENT JPM INFORMATION CARD

Initial Conditions:

The plant was operating at 99% power when RRC-P-1A tripped. The cause has been corrected and RRC-P-1A is ready for a start.

The SNE is in the control room and has evaluated Core Maximum Peaking Factor and RPV inlet temperature as satisfactory per PPM 9.3.12. A startup plan is in place.

The operating loop flow is approximately 20,600 gpm.

The reactor is below the 70% rod line.

Reactor level is in the normal operating band.

RRC seal purge has been in service GT 30 minutes.

Both Channel Selector Switches are in the ON positions. At panels:

RRC-IMD-ASD1A/1 (Local Control and Diagnostics Panel).

RRC-IMD-ASD1A/2 (Local Control and Diagnostics Panel).

Cue:

The CRS has directed you to start RRC-P-1A per SOP-RRC-START section 5.1 step 5.1.6.

Notify the CRS when RRC-P-1A has been started and is operating at 15 Hz.



WASHINGTON PUBLIC POWER
SUPPLY SYSTEM

INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE STARTUP A REACTOR FEED PUMP

LESSON LENGTH 0.5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code	_____	Rev. No.	_____
OJT Guide PQD Code	_____	Rev. No.	_____
Simulator Guide PQD Code	_____	Rev. No.	_____
Student Handout PQD Code	_____	Rev. No.	_____
JPM PQD Code	<u>LR000232</u>	Rev. No.	<u>9</u>
Check off Sheet PQD Code	_____	Rev. No.	_____
Exam PQD Code	_____	Rev. No.	_____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY L. Monroe DATE 04/13/95

REVISED BY M. Evosevich DATE 10/13/98

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

Operations Training Superintendent

STARTUP A REACTOR FEED PUMP MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

IC-5

Special Setup Instructions:

Shutdown the “A” RFP per PPM 2.2.4 Section 5.10 by performing only the following steps in sequence:

- Transfer RFW-SC-601A to MDEM
- Trip the RFP by placing the Turbine Emergency Trip/Reset switch to Trip
- Lower RFW-SC-601A until the MIN light illuminates
 - Close RFW-V-102A
 - Open MS-V-105A
 - Open BS-V-17A
- Reset RFW A Trip
- Ensure RFT-P-MOPA ON
- Ensure RFT-P-EOPA OFF

Verify the following:

- RPV level is stable
- The “A” RFP is on the turning gear
- The turning gear C/S is ON
- COND-V-149 is open

JPM Instructions:

Verify the current procedure against the JPM. If the procedure is a different revision than listed in the JPM, ensure the critical steps still match. If the critical steps have changed, the JPM should be revised.

The evaluator and student shall use the current procedure. The instructor should mark off steps as they are completed, note comments, and transfer the comments to the results of JPM page.

Tools/Equipment: None

Safety Items: None

Task Number: RO-0371

Validation Time: 30 min.

Prerequisite Training: N/A

Time Critical: No

PPM Reference: SOP-RFT-START rev. 1

Location: Simulator

NUREG 1123 Ref: 259001A4.02 (3.9/3.7)

Performance Method: Perform

STARTUP A REACTOR FEED PUMP JPM CHECKLIST

PROCEDURE VALIDATION	Verify the revision number of procedure copies for evaluator and student. If the procedure revision is different from that listed on the JPM, the critical tasks must be verified. The evaluator copy may be used for marking step completion and comments.
INITIAL CONDITIONS:	A reactor startup is in progress and a feed pump must be started. Both of the RFPs are fully operational. CPU "A" is in service.
INITIATING CUE:	You have been directed by the CRS to perform a start of the "A" RFP in accordance with SOP-RFT-START. The procedure has been completed to Section 5.9, step 5.9.6. Inform the CRS when RFP "A" is in automatic and maintaining level at 36 inches.

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
5.9.7	VERIFY RFW-SC-601A (Turbine Speed Control) is in MDVP at 0%.	VERIFIES RFW-SC-601A is in MDVP at 0%.	S/U * Critical Task
5.9.8	VERIFY RFW-SC-601A MIN indicator is LIT.	VERIFIES RFW-SC-601A MIN indicator is LIT.	S / U
5.9.9	PERFORM the following to roll the RFW-DT-1A: a. DEPRESS the RAISE PUSHBUTTON on RFW-SC-601A. b. RAISE and HOLD turbine speed at - 800 RPM. c. <u>IF</u> turbine speed should significantly overshoot 800 rpm, <u>THEN</u> RETURN turbine speed to - 800 rpm. Otherwise, N/A.	PERFORMS the following to roll the RFW-DT-1A: a. DEPRESSES the RAISE PUSHBUTTON on RFW-SC-601A. b. RAISES and HOLD turbine speed at - 800 RPM. c. <u>IF</u> turbine speed should significantly overshoot 800 rpm, <u>THEN</u> RETURNS turbine speed to - 800 rpm. Otherwise, N/A.	S / U * Critical Task S / U * Critical Task
5.9.10	VERIFY the Turbine Turning Gear automatically DISENGAGES	VERIFIES the Turbine Turning Gear automatically DISENGAGES	S / U

STARTUP A REACTOR FEED PUMP

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
5.9.11	DEPRESS the MDEM PUSHBUTTON to transfer controller operation to MDEM mode.	DEPRESSES the MDEM PUSHBUTTON to transfer controller operation to MDEM mode.	S/U * Critical Task
5.9.12	STOP Turbine Turning Gear by placing its control switch to OFF.	STOPS Turbine Turning Gear by placing its control switch to OFF.	S / U
5.9.13	ALLOW the turbine to roll at - 800 RPM for at least 30 minutes.	ALLOWS the turbine to roll at - 800 RPM for at least 30 minutes.	S / U
Cue: The turbine has been rolling for 30 minutes.			
5.9.14	MONITOR the turbine for rubs and other noises.	MONITORS the turbine for rubs and other noises.	S / U
5.9.15	MONITOR bearing temperatures and vibration indicators.	MONITORS bearing temperatures and vibration indicators.	S / U
Cue: All bearing indications are sat – there are neither rub noises nor high temperature indications.			
5.9.16	<u>IF</u> vibration, rubbing, unusual noise or any other abnormal conditions should develop, <u>THEN SHUTDOWN</u> the turbine immediately. Otherwise, N/A.	N/A	
5.9.17	<u>IF</u> RFW-DT-1A was jacked using minimum flow, locally in the TTE panel, <u>THEN VERIFY</u> the TTE Flowpath Diagnostic Transfer switch in the ENABLE position.	N/A	
Cue: The feed pump was not jacked using minimum flow.			

STARTUP A REACTOR FEED PUMP

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
5.9.18	SLOWLY RAISE turbine speed using RFW-SC-601A	SLOWLY RAISES turbine speed using RFW-SC-601A	S/U * Critical Task
5.9.19	HOLD turbine speed using RFW-SC-601A at - 2500 RPM.	HOLDS turbine speed using RFW-SC-601A at - 2500 RPM.	S / U
5.9.20	VERIFY MS-V-142A, BS-V-44A and BS-45A (Turbine Drain Valves) automatically CLOSE when turbine first stage pressure reaches - 10 psig.	VERIFIES MS-V-142A, BS-V-44A and BS-45A (Turbine Drain Valves) automatically CLOSE .	S / U
5.9.21	SLOWLY RAISE RFW-DT-1A speed using RFW-SC-601A.	SLOWLY RAISES RFW-DT-1A speed using RFW-SC-601A.	S/U * Critical Task
5.9.22	MONITOR the ΔP across RFW-V-102A (Pump Discharge Valve).	MONITOR the ΔP across RFW-V-102A (Pump Discharge Valve).	S / U
5.9.23	<u>WHEN</u> the discharge pressure is 20 to 30 psi LT the RFW-DT-1A pump discharge pressure, <u>THEN</u> OPEN RFW-V-102A.	<u>WHEN</u> the discharge pressure is 20 to 30 psi LT the RFW-DT-1A pump discharge pressure, <u>THEN</u> OPENS RFW-V-102A.	S / U
5.9.24	PERFORM the following to approximately match the speeds of both Feedwater Turbines: a. SLOWLY RAISE the speed of RFW-DT-1A. b. VERIFY a corresponding decrease in RFW-DT-1B. c. VERIFY the speeds of both Feedwater Turbines are approximately matched.	PERFORMS the following to approximately match the speeds of both Feedwater Turbines: a. SLOWLY RAISES the speed of RFW-DT-1A. b. VERIFIES a corresponding decrease in RFW-DT-1B. c. VERIFIES the speeds of both Feedwater Turbines are approximately matched.	S/U * Critical Task NA NA

STARTUP A REACTOR FEED PUMP

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
5.9.25	<p><u>IF</u> RFW-FIC-2A is in MANUAL,</p> <p><u>THEN</u> PERFORM the following. Otherwise, N/A.</p> <p>a. VERIFY RFW-FCV-2A is CLOSED.</p> <p>b. b. PLACE RFW-FIC-2A in AUTO.</p>	N/A	NA
5.9.26	<p><u>WHEN</u> RFW-SC-601A DEV signal is " 0.8% from 0% (" 3 light bars),</p> <p><u>THEN</u> PLACE RFW-SC-601A in AUTO (A).</p>	<p><u>WHEN</u> RFW-SC-601A DEV signal is " 0.8% from 0% (" 3 light bars),</p> <p><u>THEN</u> PLACES RFW-SC-601A in AUTO (A).</p>	S/U * Critical Task
Termination Criteria: Operator informs the CRS that RFP "A" is in automatic at 36 inches.			
RECORD TERMINATION TIME: _____			
Transfer to JPM Results Page the following information: Procedures validated prior to use; Comments from marked up evaluator's procedure copy; Unsatisfactory critical tasks; Total JPM time. Marked Up procedure and remaining JPM pages may be discarded.			

STARTUP A REACTOR FEED PUMP

RESULTS OF JPM:

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard: A feed pump is maintaining RPV level at 36 inches.

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM	Validation/Critical Time	JPM Completion Time
	30 Minutes / NA	

COMMENTS:

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Evaluator's Signature: _____ **Date:** _____

STARTUP A REACTOR FEED PUMP
STUDENT JPM INFORMATION CARD

Initial Conditions:

A reactor startup is in progress and a feed pump must be started. Both of the RFPs are fully operational. CPU “A” is in service.

Cue:

You have been directed by the CRS to perform a start of the “A” RFP in accordance with SOP-RFT-START. The procedure has been completed to Section 5.9, step 5.9.6.

Inform the CRS when RFP “A” is in automatic and maintaining level at 36 inches.



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE BYPASS CONTROL RODS ON RSCS (SIMULATOR)

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code	_____	Rev. No.	_____
OJT Guide PQD Code	_____	Rev. No.	_____
Simulator Guide PQD Code	_____	Rev. No.	_____
Student Handout PQD Code	_____	Rev. No.	_____
JPM PQD Code	_____	Rev. No.	_____
Check off Sheet PQD Code	_____	Rev. No.	_____
Exam PQD Code	_____	Rev. No.	_____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY STAFF DATE 9/92

REVISED BY Steve Garchow (NRC) DATE 08/16/04

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

N/A

Special Setup Instructions:

None

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: None

Safety Items: None

Task Number: RO-0134

Validation Time: 20 Minutes

Prerequisite Training: N/A

Time Critical: No

PPM Reference: PPM 2.1.5 Section 5.2 Rev. 10

Location: Simulator

NUREG 1123 Ref: 201004 A4.01 (3.4/3.5)

Performance Method: Perform

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	The SRO has verified bypassing control rod 50-19 is in compliance with Technical Specifications. The Shift Manager has given permission to bypass this control rod. No control rods are currently bypassed.
INITIATING CUE:	The CRS has directed you to bypass control rod 50-19 in the RSCS cabinet per steps 1 through 10 of PPM 2.1.5. Inform the CRS when you have bypassed control rod 50-19. CONTROL MANIPULATIONS WILL NOT BE PERFORMED. ALL ACTIONS AND STEPS WILL BE SIMULATED.

*** Items are Critical Steps**

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
CUE: Cue response of actions based on procedure and student actions. CUE: There are no control rods currently bypassed. CUE: The rod sequence in effect is as reflected on P-601. CUE: All indications are as reflected by the simulator as this JPM is performed. NOTE: Reactor power may be at any level, including shutdown, for the performance of this JPM.			
	Perform all non-critical steps IAW current procedure.	Applies initial conditions & P/L, completes steps IAW procedure.	S / U
	Determine control rods that are currently bypassed.	Depresses the rod bypass pushbutton (if not already selected) on P-601 to display all bypassed rods.	
CUE: Step 4 (Record and initial verifications in the control room log) is to be simulated (i.e. locate the log and state what would be entered). The entry would be the total number of control rods is three or less and are in compliance with BPWS. Note that the candidate may instead chose to enter reactor power has been verified to be greater than 10%. NOTE: The simulator does not require a key to open the door for P-659.			
	Open cabinet door	Obtain the cabinet key and open door for cabinet P659.	
	Determines RSCS binary equivalent.	Determines RSCS binary equivalent X and Y coordinates are 01110 and 01100 utilizing Attachment 6.1.	S / U

*** Items are Critical Steps**

Comments	Element	Standard	Sat/Unsat
CUE: Provide independent verification of rod toggle switch positions – Inform candidate the toggle switches are in the correct position.	Selects control rod 50-19 to be bypassed using binary code.	Places toggle switches as follows: $X_0 = 0$, and $Y_0 = 0$ $X_1 = 1$, and $Y_1 = 1$ $X_2 = 1$, and $Y_2 = 1$ $X_3 = 1$, and $Y_3 = 0$ $X_4 = 0$, and $Y_4 = 0$	S / U *
	Bypasses control rod 50-19.	Places the BYPASSED/NOT BYPASSED Toggle Switch in the BYPASSED position.	S / U *
	Verifies correct rod is bypassed	The switch on P-603 is positioned to ROD BYPASSED position and the rod bypassed indicator light on the full core display for rod 50-19 is verified.	S / U
Termination Criteria: Student informs CRS that control rod 50-19 is bypassed.			
RECORD TERMINATION TIME: _____			
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedure and remaining JPM pages may be discarded.			

BYPASS CONTROL RODS ON RSCS

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard:

Control Rod 50-19 indicates it is bypassed in RSCS when verified on P-601 per PPM 2.1.5.

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	20 Minutes / NA	

COMMENTS:

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Evaluator's Signature: _____ **Date:** _____

STUDENT JPM INFORMATION CARD

Initial Conditions:

The SRO has verified bypassing control rod 50-19 is in compliance with Technical Specifications.

The Shift Manager has given permission to bypass this control rod.

No control rods are currently bypassed.

Cue:

The CRS has directed you to bypass control rod 50-19 in the RSCS cabinet per PPM 2.1.5.

Inform the CRS when you have bypassed control rod 50-19.



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE SHIFTING SHUTDOWN COOLING

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code _____ Rev. No. _____

OJT Guide PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

Student Handout PQD Code _____ Rev. No. _____

JPM PQD Code _____ Rev. No. _____

Check off Sheet PQD Code _____ Rev. No. _____

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY Steve Garchow (NRC) DATE 6/04

REVISED BY _____ DATE _____

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

Normal shutdown IC – see special setup instructions

Special Setup Instructions:

RHR-RMS-FCV/64A is danger tagged. RHR-42-7BA7B breaker is open. RRC-V-67A is closed. Reactor pressure is less than 100 psig. There is less than 80 degree differential between the A RHR heat exchanger outlet and the RRC-P-1A suction. Reactor vessel level is +80 inches. SW-P-1A and both reactor recirc pumps are in operation.

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: None

Safety Items: None

Task Number:

Validation Time: 20 Minutes

Prerequisite Training: N/A

Time Critical: No

PPM Reference: SOP-RHR-SDC, Section 5.8,
Revision 3

Location: Simulator

NUREG 1123 Ref: 205000 A4.09 (3.1/3.1)

Performance Method: Perform

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	The plant is shutdown for a refueling outage. RRC-P-1A and RRC-P-1B are operating and service water pump 1A is in service. ASD cooling is in operation per SOP-RRC-ASD.
INITIATING CUE:	The CRS has directed you to complete shifting shutdown cooling from loop B to RHR loop A using section 5.8 of procedure SOP-RHR-SDC. You are to perform, as required, steps 5.8.10 through 5.8.27. Inform the CRS when you have completed step 5.8.27 of SOP-RHR-SDC.

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
CUE: Cue response of simulated actions based on procedure and student actions			
Examiner Cues: <ul style="list-style-type: none"> • There is no degraded core condition. • There is no reactor recirc pump (RRC) start planned • The reactor has been shutdown for 30 days • Step 5.8.1 – Section 5.5, Securing RHR Loop B Shutdown Cooling, has been completed 	Perform all non-critical steps IAW current procedure.	Applies initial conditions & P/L, completes steps IAW procedure.	S / U
	Verify	Verify RHR-V-4A is Closed	S / U*
	Verify	Verify RHR-V-6A is Open	S / U*

*** Items are Critical Steps**

Comments	Element	Standard	Sat/Unsat
	Verify	Verify RHR-V-8 is Open	S / U
	Verify	Verify RHR-V-9 is Open	S / U
	Stop RRC-P-1A	Stop RRC-P-1A per SOP-RRC-SHUTDOWN	S / U*
	Verify	Verify RRC-V-67A or RRC-V-23A is closed	S / U
	Verify	Verify the differential temperature between RHR Heat Exchanger outlet and RRC-P-1A suction is less than 80 degrees. (RRC-TR-650, point 1)	S / U
	Close Valve	Close RHR-V-48A	S / U*
	Throttle Open Valve	Throttle Open RHR-V-48A for 8 seconds.	S / U*
	Close Valve	Close RHR-V-3A	S / U*
CUE: Per step 5.8.22, Logging of the cooldown rate will not be required until RHR A is in service.			
	Verify	Verify SW-P-1A is running	S / U
	Start Pump	Start RHR-P-2A	S / U*
	Open Valve	Immediately Open RHR-V-53A	S / U*
	Throttle Valve	Throttle RHR-V-48A to obtain flow of about 3000 gpm	S / U
	Throttle Valve	After 30 seconds, throttle RHR-V-48A to obtain flow of GT 5400 gpm.	S / U
RECORD TERMINATION TIME: _____			
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedure and remaining JPM pages may be discarded.			

RESULTS OF JPM: SHIFTING SHUTDOWN COOLING

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard:

RHR loop A is in service providing shutdown cooling.

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	Minutes / NA	

COMMENTS:

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Evaluator's Signature: _____ **Date:** _____

STUDENT JPM INFORMATION CARD

Initial Conditions:

The plant has been shutdown 32 days for a refueling outage.

RRC-P-1A and 1B are operating.

SW-P-1A is operating.

ASD cooling is in service.

Section 5.5 and 5.8.1 of SOP-RHR-SDC is complete.

Reactor vessel level is +80 inches.

Cue:

The CRS has directed you to shift shutdown cooling from loop B to loop A using section 5.8 of procedure SOP-RHR-SDC. You are to perform, as required, steps 5.8.10 through 5.8.27.

Inform the CRS when you have completed step 5.8.27 of SOP-RHR-SDC.



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE RAISE SUPPRESSION POOL LEVEL USING HPCS SYSTEM (SIM)

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

JPM PQD Code LR000153 Rev. No. 6

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY Staff DATE 8/92

REVISED BY Steve Garchow (NRC) DATE 8/31/04

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

Operations Training Manager

Verify materials current IAW SWP-TQS-01 prior to use.

RAISE SUPPRESSION POOL LEVEL USING HPCS SYSTEM

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

Any IC

Insert MAL-RHR001 with a severity of 8400 (Suppression pool leak at RHR loop “A” suction)

Special Setup Instructions:

After initializing to the desired IC, place the simulator in RUN. From the action window, select MAL and then RHR001. Place the severity of the malfunction to 8400. Allow the simulator to run until Suppression Pool level is approximately –4 inches. Clear the malfunction. If this JPM will be run more than once during the day, snapshot this setup.

Advance the Wetwell Level Recorders to hide the induced level transient.

Ensure RHR-V-4A is closed and tagged.

JPM Instructions:

Verify the current procedure against the JPM. If the procedure is a different revision than listed in the JPM, ensure the critical steps still match. If the critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: None

Safety Items: None

Task Number: RO-0713

Validation Time: 10 minutes

Prerequisite Training: N/A

Time Critical: NO

PPM Reference: PPM 5.5.23 rev 4

Location: SIMULATOR

NUREG 1123 Ref: 209002A4.09 (3.4/3.5)

Performance Method: PERFORM

RAISE SUPPRESSION POOL LEVEL USING HPCS SYSTEM

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	Fatigue cracking of RHR Loop 'A' suction has caused a suppression pool leak with a suppression pool level at -3.4 inches. HPCS is in a normal standby lineup with no initiation signal present. RHR-V-4A has been closed.
INITIATING CUE:	PPM 5.2.1 has been entered due to low Suppression Pool Level. You have been directed by the CRS to raise Suppression Pool level using the HPCS system per PPM 5.5.23. Notify the CRS when Suppression Pool Level has been returned to 0 inches and HPCS-P-1 is closed.

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
CUE: Cue response of simulated actions based on procedure and student actions			
	Verify Pump Suction From CST, is open.	Ensures HPCS-V-1, Pump Suction From CST, is open.	S / U
	Start HPCS-P-1 and ensure Minimum Flow Bypass valve opens.	Starts HPCS-P-1 and ensures HPCS-V-12, HPCS-P-1 Minimum Flow Bypass, opens.	S / U* Critical Step
	If HPCS Service Water Pump, is not running, then start.	Starts HPCS-P-2.	S / U
	Ensure Service Water Pump Discharge, opens.	Ensures SW-V-29, Service Water Pump Discharge, opens.	S / U
Note: HPCS initiation signal is NOT present, override of HPCS-V-23 is not necessary			
	Open Test Bypass To Suppression Pool and adjust flow as necessary to a maximum of 7175 GPM.	Opens HPCS-V-23, Test Bypass To Suppression Pool to a maximum of 7175 GPM to fill the suppression pool.	S / U* Critical Step
	Ensure HPCS-V-12 closes.	Ensures HPCS-V-12 closes.	S / U

RAISE SUPPRESSION POOL LEVEL USING HPCS SYSTEM

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
	Monitor suppression pool level	Monitors suppression pool level	S / U
	When suppression pool level reaches zero inches, then close HPCS-V-23.	When suppression pool level reaches zero inches, then closes HPCS-V-23.	S / U* Critical Step
	Ensure HPCS-V-12 opens	Ensures HPCS-V-12 opens	S / U
	Refer to Attachment 6.1 and remove contact boot previously installed on HPCS-RLY-K3.	Removes contact boot previously installed on HPCS-RLY-K3.	N / A
	If HPCS is not required for injection, then stop HPCS-P-1 and ensure HPCS-V-12 closes.	Stops HPCS-P-1 and ensures HPCS-V-12 closes.	S / U
Termination Criteria: Student informs CRS that Suppression Pool level is 0 inches and HPCS-P-1 is shutdown.			
RECORD TERMINATION TIME: _____			
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedure and remaining JPM pages may be discarded.			

RAISE SUPPRESSION POOL LEVEL USING HPCS SYSTEM
RESULTS OF JPM:

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard:

Suppression Pool Level is returned to 0 inches (+ or – 1 inch) in accordance with PPM 5.5.23.

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	10 Minutes / NA	

COMMENTS:

Evaluator's Signature: _____ **Date:** _____

RAISE SUPPRESSION POOL LEVEL USING HPCS SYSTEM

STUDENT JPM INFORMATION CARD

Initial Conditions:

Fatigue cracking of RHR Loop A suction has caused a suppression pool leak with a suppression pool level at –3.4 inches

HPCS is in a normal standby lineup with no initiation signal present.

RHR-V-4A has been closed.

Cue:

PPM 5.2.1 has been entered due to low Suppression Pool Level.

You have been directed by the CRS to raise Suppression Pool level using the HPCS system per PPM 5.5.23.

Notify the CRS when Suppression Pool Level has been returned to 0 inches and HPCS-P-1 is shutdown.



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE	LICENSED OPERATOR/STA REQUALIFICATION TRAINING		
COURSE TITLE	JOB PERFORMANCE MEASURE		
LESSON TITLE	TRANSFER SM-1 FROM TR-N TO TR-S (SIM) (FAULTED)		
LESSON LENGTH	.5 HRS	MAXIMUM STUDENTS	1
INSTRUCTIONAL MATERIALS INCLUDED			
Lesson Plan PQD Code	_____	Rev. No.	_____
Simulator Guide PQD Code	_____	Rev. No.	_____
JPM PQD Code	LR001515	Rev. No.	0
Exam PQD Code	_____	Rev. No.	_____
DIVISION TITLE	Nuclear Training		
DEPARTMENT	Operations Training		
PREPARED BY	Ron Hayden	DATE	10/01/01
REVISED BY	_____	DATE	_____
TECHNICAL REVIEW BY	Pat Bagan	DATE	10/24/01
INSTRUCTIONAL REVIEW BY	Jim Redwine	DATE	10/17/01
APPROVED BY	Randy Guthrie	DATE	10/25/01
Operations Training Manager			

Verify materials current IAW SWP-TQS-01 prior to use.

TRANSFER SM-1 FROM TR-N TO TR-S

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

Any IC where SM-1 is powered from N1-1 breaker.

Special Setup Instructions:

BKR-EPS038 CB-N1/1 Fail to Auto Trip

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: None

Safety Items: None

Task Number: RO-0414-N-AC

Validation Time: 5 Minutes

Prerequisite Training: N/A

Time Critical: No

PPM Reference: PPM 2.7.1A Section 5.6 Rev. 13

Location: Simulator

NUREG 1123 Ref: 262001A4.04(3.6/3.6)

Performance Method: Perform

TRANSFER SM-1 FROM TR-N TO TR-S

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	A plant shutdown is in progress. All conditions, limitations, and prerequisites for this evolution are completed.
INITIATING CUE:	The CRS has directed you to transfer SM-1 from the Normal transformer to the Startup transformer. Inform the CRS when SM-1 is being powered from the Startup transformer.

*** Items are Critical Steps**

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
CUE: Cue response of simulated actions based on procedure and student actions			
	At H13-P842 (Bd. F), ensure the white Lockout TR-S Lockout Rly 86TS light for Startup Transformer (TR-S) is illuminated.	At H13-P842 (Bd. F), ensures the white Lockout TR-S Lockout Rly 86TS light for Startup Transformer (TR-S) is illuminated.	S / U
	Ensure the CB-S1 white LOCKOUT CIRCUIT AVAIL light and green tripped light are illuminated.	Ensures the CB-S1 white LOCKOUT CIRCUIT AVAIL light and green tripped light are illuminated.	S / U
	Ensure the green position flag is being displayed in the CB-S1 control switch window.	Ensures the green position flag is being displayed in the CB-S1 control switch window.	S / U
	Ensure the CB-N1/1 white LOCKOUT CIRCUIT AVAIL light and red closed light are illuminated.	Ensures the CB-N1/1 white LOCKOUT CIRCUIT AVAIL light and red closed light are illuminated.	S / U
	Place the CB-S1 Sync Selector switch in the MANUAL position.	Places the CB-S1 Sync Selector switch in the MANUAL position.	S / U * Critical step

TRANSFER SM-1 FROM TR-N TO TR-S

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
	Check voltage present on both incoming and running buses (not required to be matched). <u>NOTE:</u> The blue sync permit light for CB-S1 is illuminated from the initiation of closure until closure actually occurs. <u>NOTE:</u> CB-N1/1 should be manually tripped if it does not trip at the time of CB-S1 closure.	Checks voltage present on both incoming and running buses (not required to be matched).	S / U
	Place the CB-S1 control switch to the CLOSE position.	Places the CB-S1 control switch to the CLOSE position.	S / U * Critical step
	Ensure CB-S1 closes.	Ensures CB-S1 closes.	
	Ensure CB-N1/1 auto trips at time of breaker CB-S1 closure. Manually trip CB-N1/1 if it does not auto trip.	Recognizes that breaker CB-n1/1 does not opene. Manually trips CB-N1/1 when it does not auto trip.	S / U * Critical step
	Place the CB-N1/1 control switch to the TRIP position and ensure a green flag is displayed in the CB-N1/1 control switch window.	Ensures a green flag is displayed in the CB-N1/1 control switch window.	S / U
Termination Criteria: Student informs CRS that SM-1 is being powered from TR-S.			
RECORD TERMINATION TIME: _____			
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedure and remaining JPM pages may be discarded.			

TRANSFER SM-1 FROM TR-N TO TR-S

RESULTS OF JPM:

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard:

SM-1 power supply has been transferred from N1-1 to TR-S per PPM 2.7.1A..

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	LR001515

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	5 Minutes / NA	

COMMENTS:

[illegible]

Evaluator's Signature: _____ **Date:** _____

TRANSFER SM-1 FROM TR-N TO TR-S

STUDENT JPM INFORMATION CARD

Initial Conditions:

A plant shutdown is in progress. All conditions, limitations, and prerequisites for this evolution are completed.

Cue:

The CRS has directed you to transfer SM-1 from the Normal transformer to the Startup transformer.

Inform the CRS when SM-1 is being powered from the Startup transformer.



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE RPV DEPRESSURIZATION

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code _____ Rev. No. _____

OJT Guide PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

Student Handout PQD Code _____ Rev. No. _____

JPM PQD Code _____ Rev. No. _____

Check off Sheet PQD Code _____ Rev. No. _____

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY Steve Garchow (NRC) DATE 6/04

REVISED BY _____ DATE _____

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

Reactor shutdown

Special Setup Instructions:

Reactor initial pressure is about 675 psig.

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: None

Safety Items: None

Task Number:

Validation Time: 20 Minutes

Prerequisite Training: N/A

Time Critical: No

PPM Reference: PPM 3.2.1 Section 5.6 Rev. 47

Location: Simulator

NUREG 1123 Ref: 241000 A3.08 (3.3/3.2)

Performance Method: Perform

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	The plant is being shutdown and reactor pressure is approximately 675 psig. Section 5.4 of procedure 3.2.1 has been completed.
INITIATING CUE:	The CRS has directed you to continue the plant shutdown using section 5.6 of procedure 3.2.1, Normal plant shutdown. You are to perform steps 5.6.5 through 5.6.8. Logging of RPV temperature and pressure will be performed by another operator.

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
CUE: Cue response of actions based on procedure and student actions.			
Examiner Cue: Inform candidate step 5.6.6, Logging of RPV temperature and pressure, is being performed by another licensed operator.	Perform all non-critical steps IAW current procedure.	Applies initial conditions & P/L, completes steps IAW procedure.	S / U
	Initiate RPV Cooldown	Obtains procedure PPM 3.2.1, Section 5.6.	S / U
	Initiate a pressure setpoint change in PRESS SETPOINT AUTO Mode	Verify PRESS SETPOINT AUTO Mode is lit.	S / U
		Depress PRESS SETPOINT PSI pushbutton.	S / U
		Verify PRESS SETPOINT PSI pushbutton light is lit	S / U
		Verify the current pressure setpoint appears in the display and display demand window	S / U
		Enter the desired pressure setpoint with the numerical keyboard	S / U*
		Verify the desired pressure setpoint appears in the display demand window	S / U
		Depress ENTER	S / U
		Verify the old pressure setpoint remains in the DISPLAY window	S / U
		Verify the HOLD light is lit	S / U
		Depress PRESS RATE, PSI/MIN	S / U

*** Items are Critical Steps**

Comments	Element	Standard	Sat/Unsat
Perform at 650 psig		Verify PRESS RATE, PSI/MIN light is lit	S / U
		Verify PRESS SETPOINT PSI light is extinguished	S / U
		Verify the current selected pressure setpoint rate of change appears in the display window	S / U
		Depress the PRESS SETPOINT PSI pushbutton to display the new pressure setpoint and current value in the display window.	S / U*
		Depress GO	S / U
		Verify the GO light backlights, the HOLD light goes out, and the GO light go out when the new setpoint is reached.	S / U
		Verify the steam supply pressure responds as the display value changes	S / U
	Bypass MSIV low vacuum interlock	Obtains keys 51, 52, 71, 72 for the bypass switches	S / U
		Place the condenser low vacuum switches in bypass : <ul style="list-style-type: none"> • MS-RMS-S24A • MS-RMS-S24C • MS-RMS-S24B • MS-RMS-S24D 	S / U*
	Verify Annunciators	Verify main condenser vacuum trip bypass annunciators are lit: <ul style="list-style-type: none"> • P601-A11-6.2 • P601-A12-2.2 	S / U
Termination Criteria: Student informs CRS that step 5.6.8 of procedure PPM 3.2.1, Normal Plant Shutdown has been completed.			
RECORD TERMINATION TIME: _____			
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedures and remaining JPM pages may be discarded.			

RESULTS OF JPM: RPV DEPRESSURIZATION

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard:

A plant cooldown using the main turbine bypass valves has been established and the MSIV Low Vacuum Isolations have been bypassed per Steps 5.6.5 through 5.6.8 of procedure PPM 3.2.1, Normal Plant Shutdown.

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	20 Minutes / NA	

COMMENTS:

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Evaluator's Signature: _____ **Date:** _____

STUDENT JPM INFORMATION CARD

Initial Conditions:

The plant is being shutdown for an outage.

Reactor pressure is approximately 675 psig.

Section 5.4 of procedure 3.2.1 has been completed.

Cue:

The CRS has directed you to continue the RPV cooldown by performing section 5.6 of procedure 3.2.1, Normal Plant Shutdown. You are to perform, as required, steps 5.6.5 through 5.6.8. Logging of RPV pressure and temperature will be performed by another operator.

Inform the CRS when you have completed step 5.6.8 of procedure 3.2.1.



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE PREPARE FOR EMERGENCY WETWELL VENTING
(HIGH H₂ AND O₂ CONCENTRATIONS (CONTROL ROOM))

LESSON LENGTH 0.5 MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code	<u></u>	Rev. No.	<u></u>
OJT Guide PQD Code	<u></u>	Rev. No.	<u></u>
Simulator Guide PQD Code	<u></u>	Rev. No.	<u></u>
Student Handout PQD Code	<u></u>	Rev. No.	<u></u>
JPM PQD Code	<u>LR000162</u>	Rev. No.	<u>6</u>
Check off Sheet PQD Code	<u></u>	Rev. No.	<u></u>
Exam PQD Code	<u></u>	Rev. No.	<u></u>

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY Larry Monroe DATE 10/21/94

REVISED BY Ron Hayden DATE 10/01/01

TECHNICAL REVIEW BY Pat Bagan (Signature on File) DATE 10/24/01

INSTRUCTIONAL REVIEW BY Jim Redwine (Signature on File) DATE 10/17/01

APPROVED BY Randy Guthrie (Signature on File) DATE 10/25/01

Operations Training Manager

**PREPARE FOR EMERGENCY WETWELL VENTING
MINOR REVISION RECORD**

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

N/A

Special Setup Instructions:

NA

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The instructor should mark off steps as they are completed, note comments, and transfer the comments to the results of JPM page.

Tools/Equipment:

Safety Glasses, and Flashlight, if required

Safety Items: High voltages inside panels

Task Number: RO-0690

Validation Time: 20 Minutes

Prerequisite Training: N/A

Time Critical: NO

PPM Reference: PPM 5.5.20 Rev. 6

Location: Control Room

NUREG 1123 Ref: 295024GA.12 (3.9/4.5)

Performance Method: Simulate

PREPARE FOR EMERGENCY WETWELL VENTING

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	A LOCA has occurred coincident with a loss of Off Site power. Parameters now indicate that Primary Containment integrity may be challenged due to potentially flammable atmosphere in containment. The Reactor Building is inaccessible.
INITIATING CUE:	<p>The CRS has directed you to use SGT B to emergency vent the wetwell per PPM 5.5.20 due to high H₂ and O₂ concentrations. Inform the CRS when Wetwell Venting has been initiated.</p> <p>THE PERFORMANCE OF THIS JPM WILL BE SIMULATED. CONTROL MANIPULATIONS WILL NOT BE PERFORMED.</p>

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
Step 1)	Select the SGT train to be used for venting	Given in the Initiating Cue as SGT B.	S / U
Step 2)	<p>IF the B SGT train will be used for venting, THEN perform the following:</p> <p>a. At H13-P891, Bay 1, override SGT-V-1B, Inlet From Containment, isolation logic by lifting and taping the gray(top) lead on terminal 16 of TM-K2-1-09</p> <p>b. At H13-P811, prevent B SGT Lead heater and fan operation by placing the control switch for SGT-EHC-1B-2, Main Heater, in PULL-TO-LOCK</p>	<p>Overrides SGT-V-1B, Inlet From Containment, isolation logic by lifting and taping the gray(top) lead on terminal 16 of TM-K2-1-09</p> <p>Places the control switch for SGT-EHC-1B-2, Main Heater, in PULL-TO-LOCK</p>	<p>S/U * Critical Task</p> <p>S/U * Critical Task</p>
Cue: SGT-EHC-1B-2 control switch is in PTL.			

PREPARE FOR EMERGENCY WETWELL VENTING

	c. At H13-P892, Bay 1, prevent B SGT Lag Heater and Fan operation by performing the following: (1) For SGT-FN-1B1, lift and tape the top gray conductor on terminal 10 of TM-K1-1-18.	For SGT-FN-1B1, lifts and tapes the top gray conductor on terminal 10 of TM-K1-1-18.	S/U * Critical Task
	(2) For SGT-EHC-1B1, perform the following: a) Lift and tape the top gray conductor on terminal 4 of TM-K1-1-20.	Lifts and tapes the top gray conductor on terminal 4 of TM-K1-1-20.	S/U * Critical Task
	b) Lift and tape the top gray conductor on terminal 5 of TM-K1-1-20.	Lifts and tapes the top gray conductor on terminal 5 of TM-K1-1-20.	S/U * Critical Task
Note: Step 3d is not performed because the reactor building is inaccessible.			
CUE: Inform candidate each of the leads is lifted and taped.			
CUE: CAUTION - K2-21/23 terminal strip cover SHOULD NOT BE REMOVED FOR JPM			
Step 3)	Override CEP-V-3A, Wetwell Exhaust Outboard Isolation, isolation logic as follows: a. At H13-P892, Bay 4, install a jumper between terminal 6 and terminal 7 on TM-K1-4-7	Installs a jumper between terminal 6 and terminal 7 on TM-K1-4-7	S/U * Critical Task
CUE: Inform candidate the jumper is installed where the candidate indicated.			
Step 4)	Override CEP-V-4A, Wetwell Exhaust Inboard Isolation, isolation logic as follows a. At H13-P813, TB H28, install a jumper between terminal 14 and terminal 15.	Installs a jumper between terminal 14 and terminal 15.	S/U * Critical Task
CUE: If student checks, cue CEP-V-11 green light is lit, SGT-V-2B red light is lit, and SGT-V-3B-1 red light is lit.			

PREPARE FOR EMERGENCY WETWELL VENTING

Step 5)	At H13-P813 ensure CEP-V-11, Exhaust To Rx Bldg Plenum, is closed		S / U
Step 6)	At H13-P827 (P811), line up the selected SGT Train B as follows: a. Ensure SGT-V-2B, Inlet From Reactor Building is open. b. Ensure SGT-V-3B-1, Fan (B-2) Inlet, is open		S / U
Cue: If student checks, CEP-V-11 green light is lit. SGT-V-2B red light is lit. SGT-V-3B-1 red light is lit.			
	c. Open SGT-V-5B-2, Exhaust To Stack	Opens SGT-V-5B-2	S/U * Critical Task
Step 7)	Evacuate all personnel from the Reactor Building before continuing in this procedure.		S / U
Step 8)	Open SGT-V-1B, Inlet From Containment.	Opens SGT-V-1B	S/U * Critical Task
Step 9)	At H13-P813 open CEP-V-3A, Wetwell Exhaust Outboard Isolation.	Opens CEP-V-3A.	S/U * Critical Task
Step 10)	At H13-P813 open CEP-V-4A, Wetwell Exhaust Inboard Isolation	Opens CEP-V-4A	S/U * Critical Task
CUE: Each of the valves “operated” above have a red position indicator light lit after the candidate operates the valve.			
Termination Criteria: Student informs CRS that Wetwell Venting has been initiated.			
RECORD TERMINATION TIME: _____			
Transfer to JPM Results Page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedure and remaining JPM pages may be discarded.			

PREPARE FOR EMERGENCY WETWELL VENTING

RESULTS OF JPM:

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard:

Initiates Emergency Wetwell Venting via SGT Train B in accordance with PPM 5.5.20.

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	20 Minutes / NA	

COMMENTS:

[illegible]

Evaluator's Signature: _____ **Date:** _____

PREPARE FOR EMERGENCY WETWELL VENTING
STUDENT JPM INFORMATION CARD

Initial Conditions:

A LOCA has occurred coincident with a loss of Off Site power. Parameters now indicate that Primary Containment integrity may be challenged due to potentially flammable atmosphere in containment.

The Reactor Building is inaccessible.

Cue:

The CRS has directed you to use SGT B to emergency vent the wetwell per PPM 5.5.20 due to high H₂ and O₂ concentrations.

Inform the CRS when Wetwell Venting has been initiated.

**THE PERFORMANCE OF THIS JPM WILL BE
SIMULATED. CONTROL MANIPULATIONS WILL NOT BE
PERFORMED.**



Material verified
current prior to use.

Initials _____
Date: _____

INSTRUCTIONAL COVER SHEET

PROGRAM TITLE OPERATIONS TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE RESTORATION OF RPS ELECTRICAL ALIGNMENT TO NORMAL
(FAULTED)

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code	_____	Rev. No.	_____
OJT Guide PQD Code	_____	Rev. No.	_____
Simulator Guide PQD Code	_____	Rev. No.	_____
Student Handout PQD Code	_____	Rev. No.	_____
JPM PQD Code	_____	Rev. No.	_____
Checkoff Sheet PQD Code	_____	Rev. No.	_____
Exam PQD Code	_____	Rev. No.	_____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY Dan Hughes DATE 4/14/95

REVISED BY Steve Garchow (NRC) DATE 06/16/04

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

None

Special Setup Instructions:

Have procedure PPM 2.7.6 including the attachments ready to provide to candidate.

JPM Instructions:

Verify the current procedure against the JPM. If the procedure is a different revision than listed in the JPM, ensure the critical steps still match. If the critical steps have changed, the JPM should be revised.

Evaluator and student shall use the current procedure. The instructor should mark off steps as they are completed, note comments, and transfer the comments to the results of JPM page.

Tools/Equipment: None.

Safety Items: None

Task Number: EO-0158

Validation Time: 20 Minutes

Prerequisite Training: N/A

Time Critical: No

PPM Reference: PPM 2.7.6 Rev. 18

Location: Plant

NUREG 1123 Ref: 212000A2.01 (3.7/3.9)

Performance Method: Simulate

JPM CHECKLIST

PROCEDURE VALIDATION	Verify the revision number of procedure copies for evaluator and student. If the procedure revision is different from that listed on the JPM, the critical tasks must be verified. The evaluator copy may be used for marking step completion and comments.
INITIAL CONDITIONS:	RPS Division A is energized from the alternate source of power. The RPS A MTR GEN MG-1 supply breaker (RPS-DISC-7A1B) on MC-7A is closed.
INITIATING CUE:	<p>The CRS has directed you to place the A RPS motor generator and associated EPA breakers in service in accordance with PPM 2.7.6 section 5.3. You are to complete this procedure through step 5.3.6. The division will be restored to a normal lineup following the post maintenance test.</p> <p>Inform the CRS when the GENERATOR A FEED white power available indicating light on H13-P610 is illuminated.</p> <p>The performance of this task is simulated. Control manipulations will not be performed.</p>

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
CUE: Cue response of simulated actions based on procedure and operator actions			
	Performs all non-critical steps IAW current procedure.	Applies initial conditions & P/L, completes steps IAW procedure.	S / U
	Locates Procedure	Locates procedure PPM 2.7.6 in the control room.	
CUE: When the candidate locates PPM 2.7.6, provide him/her with a “For Information Only” copy for JPM use.			
	Obtains Keys.	Obtains EPA breaker keys # 166 & 168.	S / U
NOTE: If the keys are not obtained when in the control room getting the procedure, it is not necessary to return to the control room. Have the candidate verbalize the location of the keys. (The keys are located in the key locker located on the wall to the left of the Shift Manager’s office door.)			
CUE: After candidate locates the correct breaker, inform him/her it is	Checks MG Power Supply	Verifies RPS-DISC-7A1B is closed.	Given as closed in the initial conditions

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
closed.			
CUE: Green light is lit.	Starts the RPS MG set	a. Ensure the MOTOR OFF (green) indicating light is illuminated.	S / U
CUE: The output breaker is open.		b. Ensure RPS-CB-MG1, Generator Output breaker, is open.	S / U
		c. Hold RPS-RMS-MG1/START, MOTOR ON, pushbutton depressed.	S / U
CUE: The green light goes out and the red light comes on.		d. Ensure the MOTOR OFF (green) indicating light extinguishes and the MOTOR ON (red) indicating light illuminates.	S / U
		e. When RPS-MG-1 has come up to speed, release RPS-RMS-MG1/START pushbutton.	
		<u>NOTE:</u> MOTOR ON pushbutton doubles as an Over Voltage Trip Reset pushbutton.	S / U
		f. If voltage is not indicated at rated speed, momentarily depress RPS-RMS-MG1/START, MOTOR ON, pushbutton to reset the overvoltage trip.	S / U
CUE: The voltage stabilizes at 120 VAC.		g. Ensure RPS-VM-MG1A voltage stabilizes at *120 VAC.	
CUE: The output breaker is closed.	Closes the RPS MG output breaker	At RPS-MG-1 panel, places GENERATOR OUTPUT breaker in ON (pushed up)	S / U

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
<p>CUE: Switch S-1 is in the normal position.</p> <p>CUE: S-2 is in the OPER position.</p> <p>CUE: The POWER IN indicator is lit.</p> <p>CUE: Inform operator that all indicators are extinguished <u>except UNDERFREQUENCY</u>.</p>	Closes EPAs	Obtain required Electrical Protection Assembly (EPA) breaker keys, numbers 166 and 168, from the Control Room key locker.	S / U
		5.3.3 In RPS-MG2 Room, close EPA breaker RPS-EPA-3A as follows:	S / U*
		a. Ensure breaker keylock switch S-1 is in the NORMAL position.	S / U
		b. Ensure breaker keylock switch S-2 is in the OPER position.	S / U
		c. Ensure the POWER IN indicator is illuminated.	S / U
		<p>d. <u>IF</u> any of the following indicators are not extinguished, <u>THEN</u> rotate keylock switch S-2 to the RESET position and return to OPER. Otherwise, N/A.</p> <ul style="list-style-type: none"> • OVERVOLTAGE • UNDERVOLTAGE • UNDERFREQUENCY • POWER OUT 	S / U*

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
CUE: Inform operator that all indicators are extinguished.		e. Ensure the following indicators are extinguished: <ul style="list-style-type: none"> • OVERVOLTAGE • UNDERVOLTAGE • UNDERFREQUENCY • POWER OUT 	S / U

Comments	Element	Standard	Sat/Unsat
<p>CUE: RPS-EPA-3A is closed.</p> <p>CUE: The POWER OUT indicator is lit.</p> <p>The UNDER-VOLTAGE light is not lit.</p>		f. Reset EPA breaker RPS-EPA-3A by opening it fully.	S / U
		g. Close the EPA breaker RPS-EPA-3A.	S / U*
		h. Ensure POWER OUT indicator is illuminated.	S / U
		<p><u>NOTE:</u> EPA breakers are designed such that the undervoltage lights for RPS-EPA breakers may illuminate indicating an undervoltage condition without activating the undervoltage trip circuit.</p> <p>i. <u>IF</u> the UNDERVOLTAGE light is illuminated and the breaker is closed, <u>THEN</u> initiate a work request to evaluate. Otherwise, N/A.</p>	
		<p><u>NOTE:</u> EPA breakers use key numbers 166 and 168.</p>	S / U
<p>CUE: S-1 is in the NORMAL position.</p> <p>CUE: S-2 is in the OPER position.</p>		5.3.4 In RPS-MG2 Room, close EPA breaker RPS-EPA-3C as follows:	S / U*
		a. Ensure breaker keylock switch S-1 is in the NORMAL position.	S / U
		b. Ensure breaker keylock switch S-2 is in the OPER position.	S / U

*** Items are Critical Steps**

Comments	Element	Standard	Sat/Unsat
Termination Criteria: Operator informs the CRS that the EPA breakers are closed.			
RECORD TERMINATION TIME: _____			
Transfer to JPM Results Page the following information: Procedures validated prior to use; Comments from marked up evaluator's procedure copy; Unsatisfactory critical tasks; Total JPM time. Marked Up procedure and remaining JPM pages may be discarded.			

RESULTS OF JPM RESTORATION OF RPS ELECTRICAL ALIGNMENT TO NORMAL

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard: EPA breakers are closed.

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial box)	Validation/Critical Time	JPM Completion Time
	? Minutes / NA	

COMMENTS:

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Evaluator's Signature: _____ **Date:** _____

STUDENT JPM INFORMATION CARD

Initial Conditions:

RPS Division A is being powered from the alternate power supply.

The RPS transfer switch is in the ALT A position.

Maintenance has completed their work on the RPS A MTR GEN MG-1.

The RPS A MTR GEN MG-1 supply breaker (RPS-DISC-7A1B) on MC-7A is closed.

Cue:

The CRS has directed you to place the A RPS motor generator and associated EPA breakers in service in accordance with PPM 2.7.6. You are to complete this procedure through step 5.3.7. RPS will be restored to a normal electrical lineup following the post maintenance test.

Inform the CRS when the GENERATOR A FEED white power available indicating light on H13-P610 is illuminated.

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**THE PERFORMANCE OF THIS JPM IS
SIMULATED.**

**CONTROL MANIPULATIONS WILL NOT
BE PERFORMED.**



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE NON-LICENSED OPERATOR REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE SHIFT CAS AIR DRYERS (CAS-DY-2A/2B) (FAULTED) (PLANT)

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code _____ Rev. No. _____

OJT Guide PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

Student Handout PQD Code _____ Rev. No. _____

JPM PQD Code ER000337 Rev. No. 0

Check off Sheet PQD Code _____ Rev. No. _____

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY Ron Hayden DATE 02/05/03

REVISED BY _____ DATE _____

TECHNICAL REVIEW BY Jim Redwine (Signature on File) DATE 3/13/03

INSTRUCTIONAL REVIEW BY RW Hayden (Signature on File) DATE 3/05/03

APPROVED BY Randy Guthrie (Signature on File) DATE 3/13/03

Operations Training Manager

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

N/A

Special Setup Instructions:

NONE

JPM Instructions:

Verify Current Procedure against JPM and ensure procedure critical steps match if procedure is different revision than listed in JPM. If critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: None

Safety Items: None

Task Number: EO-1782

Validation Time: 25 Minutes

Prerequisite Training: N/A

Time Critical: No

PPM Reference: 2.8.1 Rev. 28

Location: Plant

NUREG 1123 Ref: N/A

Performance Method: Simulate

JPM CHECKLIST

PROCEDURE VALIDATION	Procedure copies for evaluator and student, if procedure revision is different from that listed on JPM, critical tasks reverified. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	The plant is operating at full power. CAS-DY-2A is currently in service and the power supply breaker for both dryers has been closed for at least a week.
INITIATING CUE:	The CRS has directed you to shift CAS Air Dryers. Inform the Control Room when the Air Dryers have been swapped. THE PERFORMANCE OF THIS JPM IS SIMULATED. CONTROL MANIPULATIONS WILL NOT BE PERFORMED.

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
CUE: Cue response of simulated actions based on procedure and student actions			
	Perform all non-critical steps IAW current procedure.	Applies initial conditions & P/L, completes steps IAW procedure.	S / U
	Lines up CJW to the CAS dryer to be placed in service.	Opens CJW-V-130B.	S / U *
CUE: CJW-V-130B is open.			
	Starts dryer.	Depresses the START pushbutton on the dryer skid.	S / U *
CUE: Inform the student that the dryer failed to start.			
	Resets dryer.	Pushes the High Pressure Reset button inside the dryer assembly.	S / U *
	Attempts another starts of dryer.	Depresses the START pushbutton on the dryer skid.	S / U *
CUE: Inform the candidate the dryer has started.			
CUE: Inform the candidate the 15 minute waiting period has been met as per step 5.4.2.e.			
	Opens dryer inlet.	Opens CAS-V-279B.	S / U *
CUE: Inform the candidate CAS-V-279B.			
	Verify valve position	Ensures CAS-V-299B is open	S / U
CUE: CAS-V-299B is open.			
	Removes offline dryer from service.	Closes CAS-V-279A.	S / U *
CUE: Inform the candidate CAS-V-279A is closed.			
	Secures offline dryer.	Depresses the STOP pushbutton for CAS-DY-2A.	S / U *
CUE: CAS-DY-2A stops.			

*** Items are Critical Steps**

Comments	Element	Standard	Sat/Unsat
	Secures CJW to the offline CAS dryer.	Closes CJW-V-130A.	S / U *
CUE: CJW-V-130A indicates closed.			
Termination Criteria: Student informs Control Room that CAS Air Dryers have been swapped and CAS-DY-2B is in service.			
RECORD TERMINATION TIME: _____			
Transfer to “Results of JPM” page the following information: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time; Marked Up procedure and remaining JPM pages may be discarded.			

RESULTS OF JPM: SHIFT CAS AIR DRYERS (FAULTED) (PLANT)

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard: Shifts CAS Air Dryers per current procedure and CAS-DY-2B is in service and CAS-DY-2A has been removed from service.

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	25 Minutes / NA	

COMMENTS:

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Evaluator's Signature: _____ **Date:** _____

STUDENT JPM INFORMATION CARD

Initial Conditions:

The plant is operating at full power. CAS-DY-2A is currently in service and the power supply breaker for both CAS dryers has been closed for at least a week.

Cue:

The CRS has directed you to shift CAS Air Dryers. Inform the Control Room when the Air Dryers have been swapped.

**THE PERFORMANCE OF THIS JPM IS SIMULATED.
CONTROL MANIPULATIONS WILL NOT BE
PERFORMED.**



INSTRUCTIONAL COVER SHEET

PROGRAM TITLE LICENSED OPERATOR/STA REQUALIFICATION TRAINING

COURSE TITLE JOB PERFORMANCE MEASURE

LESSON TITLE VENT CRD OVERPISTON AREA FOR ROD INSERTION (PLANT)

LESSON LENGTH .5 HRS MAXIMUM STUDENTS 1

INSTRUCTIONAL MATERIALS INCLUDED

Lesson Plan PQD Code _____ Rev. No. _____

OJT Guide PQD Code _____ Rev. No. _____

Simulator Guide PQD Code _____ Rev. No. _____

Student Handout PQD Code _____ Rev. No. _____

JPM PQD Code LR000258 Rev. No. 12

Check off Sheet PQD Code _____ Rev. No. _____

Exam PQD Code _____ Rev. No. _____

DIVISION TITLE Nuclear Training

DEPARTMENT Operations Training

PREPARED BY Donald Hughes DATE 4/95

REVISED BY Steve Garchow (NRC) DATE 9/7/04

TECHNICAL REVIEW BY _____ DATE _____

INSTRUCTIONAL REVIEW BY _____ DATE _____

APPROVED BY _____ DATE _____

Operations Training Manager

MINOR REVISION RECORD

Minor Rev Number	Description of Revision	Affected Pages	Entered By	Effective Date	Manager Approval

JPM SETUP

Simulator ICs; Malfunctions; Triggers; Overrides:

N/A

Special Setup Instructions:

N/A

JPM Instructions:

Verify the current procedure against the JPM. If the procedure is a different revision than listed in the JPM, ensure the critical steps still match. If the critical steps have changed, the JPM should be revised.

The evaluator and student shall use current procedure. The evaluator should mark off steps as they are completed, note comments, and transfer the comments to the “Results of JPM” page.

Tools/Equipment: None

Safety Items: None

Task Number: RO-0683, EO-1443

Validation Time: 8 minutes

Prerequisite Training: N/A

Time Critical: NO

PPM Reference: PPM 5.5.11 Rev. 4

Location: PLANT

NUREG 1123 Ref: 295037EA1.05 (3.9/4.0)

Performance Method: SIMULATE

JPM CHECKLIST

PROCEDURE VALIDATION	Regarding procedure copies for evaluator and student, if the procedure revision is different from that listed on the JPM, verify that the critical task steps are the same. Evaluator copy may be used for marking step completion, and comments.
INITIAL CONDITIONS:	A scram has been initiated. All rods are <u>NOT</u> fully inserted. Reactor pressure is 930 psig, stable. Health Physics is standing by, ready to support the work. Communications have been established between the control room and the HCUs.
INITIATING CUE:	The CRS has directed you to vent control rod 26-31 over-piston area in accordance with PPM 5.5.11. Inform the CRS when Rod 26-31 venting has commenced. THE PERFORMANCE OF THIS JPM WILL BE SIMULATED. CONTROL MANIPULATIONS WILL NOT BE PERFORMED.

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
RECORD START TIME: _____			
CUE: Cue response of simulated actions based on procedure and student actions			
		Obtain continuous HP coverage prior to venting.	S / U
CUE: Inform candidate you will provide continuous HP coverage.			
		Using Att. 6.3 selects correct row of HCUs for control rod 26-31.	S / U * Critical Step
		Establish communications between the HCUs and the control room.	S / U
CUE: Inform candidate you will act as the control room communicator.			
		Ensure leather gloves are worn to prevent burns.	S / U
CUE: Ensure candidate either has, can show, or can verbalize the location of leather gloves.			
		Connect CRD vent hose to EDR drain.	S / U

* Items are Critical Steps

Comments	Element	Standard	Sat/Unsat
CUE: The vent hose is connected as the candidate indicated.			
		At HCU 26-31, closes CRD-V-102 withdraw vent isolation.	S / U * Critical Step
Caution: Pressurized water could be trapped behind dragon vent valve plugs and cause personal injury or contamination.			
CUE: CRD-V-102 valve stem is inserted (down).			
		Remove the bottom and end plugs from CRD-V-102A withdraw vent valve	S / U * Critical Step
CUE: The end plugs indicated by the candidate are removed.			
		Connect CRD vent hose to the bottom of CRD-V-102A, withdraw vent valve.	S / U * Critical Step
Caution: Opening CRD-V-102A may eject the valve and cause severe personal injury.			
CUE: The vent hose is connected to the bottom the valve indicated by the candidate.			
	Open CRD-V-102A ONE turn. Inform the SRO of the results.		S / U * Critical Step
CUE:			
Termination Criteria: Student informs CRS that rod 26-13 venting has commenced.			
RECORD TERMINATION TIME: _____			
Transfer the following information to the “Results of JPM” page: Procedures validated prior to use; Comments from marked up evaluator’s procedure copy; Unsatisfactory critical tasks; Total JPM time.			
The marked up procedure and remaining JPM pages may be discarded.			

RESULTS OF JPM: VENT CRD OVERPISTON AREA FOR ROD INSERTION

Examinee (Please Print): _____

Evaluator (Please Print): _____

Task Standard: Control rod 26-31 over-piston area vented per PPM 5.5.11.

Overall Evaluation	Exam Code
SAT / UNSAT (Circle One)	

Verified Procedure #/Rev. Used for JPM (Initial Box)	Validation/Critical Time	JPM Completion Time
	8 Minutes / NA	

COMMENTS:

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

Evaluator's Signature: _____ **Date:** _____

STUDENT JPM INFORMATION CARD

Initial Conditions:

- A scram has been initiated
- All rods are NOT fully inserted
- Reactor pressure is 930 psig, stable
- Health Physics is standing by, ready to support the work
- Communications have been established between the control room and the HCU's.

Cue:

The CRS has directed you to vent control rod 26-31 over-piston area in accordance with PPM 5.5.11.

Inform the CRS when Rod 26-31 venting has commenced.

**THE PERFORMANCE OF THIS JPM WILL BE SIMULATED.
CONTROL MANIPULATIONS WILL NOT BE PERFORMED.**

Facility: COLUMBIA**Scenario No.:** 1**Op-Test No.:** 1

Examiners: _____ **Operators:** _____

Plant Status: The reactor has been operating at 100% power for the last 131 days except for a few minor down powers for control rod adjustments. Thirty days remain until the start of the next refueling outage. Reactor water cleanup pump RWCU-P-1B was isolated and tagged out of service at 0345 this morning to repair a leak on the pump shaft. Mechanical maintenance completed the work near the end of the previous shift, the tags have been lifted, and the pump needs to be run for 24 hours as a post maintenance test. SRV MS-RV-5B has a high tail pipe temperature alarm and engineering is working on developing a troubleshooting plan.

Turnover: Maintain reactor power at 100%. Using SOP-RWCU-START complete placing RWCU-P-1B in service starting at step 5.5.5c. The 40 minute run has just been completed. Run RWCU-P-1B for at least 24 hours. Completing this procedure should be done expeditiously because RWCU-P-1A also needs to have the shaft seals adjusted. After completion of SOP-RWCU-START perform control rod surveillance OSP-CRD-W701, Control Rod Exercise for Fully Withdrawn Control Rods starting with rod 18-59 working from left to right, top to bottom. Closely monitor SRV MS-RV-5B for increased leakage.

Scenario: This scenario includes two normal evolutions (shifting RWCU pumps and performing control rod overtravel surveillances), two component failures (RWCU pump seal failure/trip and a control rod overtravel), one instrument failure (Main Steam Line flow element fails high) and one main event. The main event is initiated with a ground fault on the Division 3 4160 volt bus supply breaker that causes a fire in the Division 3 auxiliary transformer and a loss of the Division 3 4160 bus. This causes a lockout on SM-2, a loss of one condensate and one booster pump. This causes a RFW trip on low suction and a subsequent reactor scram on low RPV water level. SM-1 and SM-3 will fail to auto transfer to the startup transformer but power may be restored manually. At -50" RCIC initiates and the MSIVs close. RCIC trips on startup causing a loss of all high pressure injection systems (except CRD). MS-RV-5B fails open when actuated but will close when the 'C' solenoid is de-energized per ABN-SRV. The crew should restart a Condensate pump and a Condensate Booster Pump and reduce RPV pressure to facilitate feeding the RPV with the booster pump.

Event	Malf. No.	Event	Event Description
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No.		Type*	
1.	Initiated by turnover T=0	N (BOP)	Place RWCU-P-1B in service and secure RWCU-P-1A.
2.	Initiated by turnover T=0	N (RO)	Perform rod over travel surveillance OSP-CRD-W701.
3.	Active at start T=15 min	C (RO)	The third rod tested fails the overtravel surveillance. The control rod is driven full in, withdrawn, and recoupled successfully.
4.	Trigger 1 T=25	I (BOP)	Main steam line flow instrument MS-DPIS-10B fails high.
5.	Trigger 2 T=45 min	C (BOP)	RWCU-P-1B trips.
6.	Trigger 3 T=55 min	M (All)	Fire alarm in the HPCS DG Room. SM-2 and SM-4 ground fault alarms and lockout of SM-2 and SM-4.
7.	Active at start of scenario	C (BOP)	Failure of SM-1, SM-2 and SM-3 to close in Startup Power on Main Turbine Trip.
8.	Active at start of scenario	C (BOP/RO)	RCIC turbine over speed trip on startup. (Loss of all high pressure injection systems.)
9.	Active at start	C (BOP/RO)	MS-RV-5B will not close when initially opened.

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

Event No. 1

Description: Place RWCU-P-1B in service and shutdown RWCU-P-1A.

This event is initiated by the turnover sheet. The event endpoint occurs when RWCU-P-1A is shutdown.

Time	Position	Applicants Actions or Behavior
T=0	SRO	Directs the BOP to place RWCU-P-1B in service and secure RWCU-P-1A per SOP-RWCU-START.
	BOP	<p>Carries out actions of SOP-RWCU-START:</p> <p>When RWCU-P-1B has run on its Discharge Bypass valve for 40 minutes, OPEN RWCU-V-13B.</p> <p>BOP operator contacts OPS2 and directs him to open RWCU-V-13B at the local panel Reactor Building 522’.</p> <p>BOOTH OPERATOR: RWCU-V-13B to open is LOA-RWCU-012.</p> <p>VERIFY an increase in RWCU-FI-609 Pump Suction Flow.</p> <p>STOP RWCU-P-1A.</p> <p>VERIFY normal system flow at RWCU-FI-609.</p> <p>Close RWCU-V-13A for the previously running pump.</p> <p>BOP operator contacts OPS2 and directs him to close RWCU-V-13A at the local panel Reactor Building 522’.</p> <p>BOOTH OPERATOR: RWCU-V-13A to close is LOA-RWCU-011.</p>

		<p>Place the RWCU Demineralizers in service per SOP-RWCU-DEMIN.</p> <p>BOP informs the CRS that RWCU-P-1B is in service and RWCU-P-1A has been secured.</p>
Note: Use LOA-RWU003 to increase flow to 120 gpm with a 60 sec ramp.		
COMMENTS:		

The ROD OVERTRAVEL alarm is received on control rod 26-59, the third rod tested.

Verify coupling integrity of the control rod.

Verify position 48 is illuminated or verify the FULL OUT indicating light is illuminated.

For control rods that were highlighted per step 7.4 re-perform steps 7.5.9 and 7.5.10 to promote the restoration of cooling. NA

Initial on Attachment 9.2 for each control rod that has been exercised satisfactorily.

A second licensed Operator or STA is to verify the correct final control rod position after the settle function light has extinguished. Initial on attachment 9.2.

Record any difficulties while performing this exercise on Attachment 9.3.

This may include double notches, failure to notch, or increase drive water pressure required.

Repeat Steps 7.5.2 through 7.5.14 for all rods to be exercised.

If available, obtain a control rod position printout and compare it with Step 7.5.1. Notify the CRS/SM and STA of any discrepancies.

CAUTION: If any rod is accidentally inserted more than one notch, the rod should be withdrawn one notch at a time to avoid overnotching on the withdrawal.

COMMENTS:

Event No. 3

Description: A control rod fails the rod over travel surveillance.

This event is initiated by the procedure addressed in Event #2. The event endpoint occurs when the control rod is recoupled and restored to the original position.

Time	Position	Applicants Actions or Behavior
T=20	RO	Receives ROD OVERTRAVEL alarm (P603 A7 1-8), pulls the Alarm Response Procedure, and gives to CRS.
	SRO	Notify the Shift Manager and Shift Engineer of the control rod over travel alarm.
		BOOTH OPERATOR: If the SNE is contacted inform the CRS that rod 26-59 insertion and withdrawal is permitted.
		Directs the RO to insert the affected control rod to position 00 to accomplish recoupling.
	RO	Inserts the control rod to attempt recoupling.
		The control rod is recoupled on the first attempt.
		<u>BOOTH OPERATOR: DELETE THE ROD UNCOUPLING MALFUNCTION WHEN THE CONTROL ROD IS BEING INSERTED.</u>
	SRO	Directs RO to withdraw rod to notch 48 to determine if the rod has been recoupled.
	RO	Withdraws control rod 26-59 and reports to CRS that the control rod is recoupled.

COMMENTS: This event is terminated by the initiation of the next event, which should occur after control rod 26-59 coupling check is performed and is satisfactory.

Event No. 4

Description: Main steam line flow instrument MS-DPIS-810B fails high.

*This event is initiated when the coupling check for 26-59 has been satisfactorily completed by **INITIATING TRIGGER 1.***

Time	Position	Applicants Actions or Behavior
	BOP	<p>Reports MSIV Half Trip System B and NSSSS ISOL MSL FLOW HIGH alarms.</p> <p>Pulls Alarm Response Procedure. Checks backpanels and reports that MS-RLY K3B on H13-P611 is deenergized.</p>
	SRO	<p>Contacts Work Control and requests investigation of MS-dPIS-8B, 9B, 810B and 11B to determine failed instrument.</p> <p>Refers to TS 3.3.6.1.A and is required to place channel B in the tripped condition within 24 hours.</p>

Cue: If contacted as OPS 2 report that MS-DPIS-810B has failed upscale. This instrument is located on H22-P022 RB 471 M5/7.9

COMMENTS:

Event No. 5

Description: RWCU-P-1B trips.

*This event is initiated when the SRO has determined possible TS actions for a failed instrument by **INITIATING TRIGGER 2**. The event endpoint occurs when RWCU-P-1B is in service.*

Time	Position	Applicants Actions or Behavior
	BOP/RO	Acknowledges alarm and reports that RWCU-P-1B has tripped.
	SRO	Directs BOP to perform a quick restart of RWCU-P-1A.
	BOP	<p>From SOP-RWCU-START directs OPS 2 to open RWCU-V-13A Refers to SOP-RWCU-START section 5.6. Open RWCU-V-1.</p> <p>Open RWCU-V-4.</p> <p>Ensure RWCU-V-104 is closed.</p> <p><u>NOTE:</u> Perform the following two steps simultaneously.</p> <ol style="list-style-type: none"> PLACE and HOLD RWCU-RMS-P/1A to START. THROTTLE OPEN RWCU-V-44 until RWCU PUMP FLOW LOW Annunciator CLEARS. VERIFY RWCU-FI-609 system flow is GT 70 gpm. RELEASE RWCU-RMS-P/1A. <p>PLACE filter demineralizers in service per SOP-RWCU-DEMIN.</p>

Cue: If called as OPS 2 to investigate ground, tell the control room the 50GX at SL-81 will not reset and that the ground is on MC-8C.

If sent to the breaker for RWCU-P-1B, tell the control room the overloads will not reset.

COMMENTS:

Event No. 6

Description: Fire alarm in the HPCS DG Room; SM-2 and SM-4 ground fault alarms; lockout on SM-2 and on SM-4 due to breaker 2/4 failing to trip open. Reactor Scram due to lowering RPV Level.

*This event is **initiated with TRIGGER 3**. The event endpoint occurs when the scenario is terminated.*

Time	Position	Applicants Actions or Behavior
	BOP	<p>Reports fire alarm in the HPCS DG Room.</p> <p>Directs investigation by OPS 1 and or OPS 2.</p> <p>BOOTH OPERATOR: After the initial scram report inform the control room that there is a lot of smoke in the HPCS-DG Room. It smells electrical in nature and you see no flame (there is NO fire).</p>
	RO	<p>Reports lowering RPV level due to the loss of COND-P-1B and COND-P-2B.</p> <p>Reports Reactor Scram on Low RPV level and performs immediate scram actions:</p> <ol style="list-style-type: none"> PLACE Mode switch to Shutdown. MONITORS Reactor Power, Pressure, and Level. VERIFIES all control rods fully inserted. Insert IRMs and SRMs.
	SRO	Enters EOP 5.1.1 and directs RPV Level control with available systems.
	RO	Reports RPV level continues to lower to -50”.

	BOP/RO	Reports MSIVs closure and RCIC actuation due to RPV level at -50".
	SRO	Directs RPV pressure control 800-1000 psig with SRV's.
	BOP/RO	Controls RPV Pressure with SRVs as directed.
	BOP/RO	Announce PPM 5.2.1 entry on high drywell pressure.
	SRO	Enters PPM 5.2.1 on high drywell pressure.
COMMENTS:		

Event No. 7**Description: Failure of Startup power to automatically close in on SM-1 and SM-3.**

The malfunctions are activated at the start of the scenario. The event endpoint occurs when the main event scenario is terminated.

Time	Position	Applicants Actions or Behavior
	BOP	<p>Investigates electrical plant status and notes SM-1, SM-2 and SM-3 are not powered.</p> <p>Recognizes lockout on SM-2.</p> <p>Recognizes failure of startup to close in on SM-1 and SM-3.</p> <p>Takes the CB-S1 SYNC SELECTOR switch to MAN and then takes the CB-S1 switch to CLOSE.</p> <p>Takes the CB-S3 SYNC SELECTOR switch to MAN and then takes the CB-S3 switch to CLOSE.</p> <p>Recognizes SL-11, SL-21 and SL-31 are deenergized.</p> <p>Refers to quick card and energizes SL-11 from SM-1 and SL-31 from SM-3:</p> <ol style="list-style-type: none"> a. OPEN CB-11/1 (CB-31/3) b. FLAG OPEN then CLOSE CB-1/11 (CB-3/31) c. CLOSE CB-11/1 (CB-31/3)

		<p>Refers to quick card and energizes SL-21 from either SL-11 or SL-31:</p> <ul style="list-style-type: none">a. FLAG CB-21/2 to OPENb. CLOSE CB-21/11 (CB-31/21) <p>Reports Electrical Plant status to CRS.</p>
COMMENTS:		

Event No. 8

Description: Trip of the RCIC turbine on overspeed.

This malfunction is initiated automatically when RCIC turbine speed reaches 3000 rpm.

Time	Position	Applicants Actions or Behavior
	RO/BOP	<p>Recognizes that the RCIC turbine has initiated due to -50" RPV level and has subsequently tripped.</p> <p>Reports trip of the RCIC Turbine to the CRS.</p>
	SRO	Directs that RCIC be restarted.
	RO/BOP	<p>Refers to ABN-RCIC-ISOL/TRIP to reset the RCIC Turbine:</p> <ol style="list-style-type: none"> VERIFY RCIC-V-45 CLOSED CLOSE RCIC-V-1 CLOSE RCIC-V-45 WHEN RCIC-V-45 begins to open, THEN OPEN RCIC-V-1 Notes RCIC-V-1 does not open Directs OPS2 to RCIC Turbine reset per Attachment 7.1

		<p>BOOTH OPERATOR – Two minutes after request to reset the RCIC mechanical overspeed trip, inform the control room that the turbine will not reset and you will contact mechanical maintenance to investigate.</p> <p>Reports failure of RCIC to reset.</p> <p>If level is reduced to the ADS initiation setpoint, -129 inches, announces the annunciator to the SRO.</p>
	SRO	<p>Directs that ADS inhibit switches be placed in inhibit when below –129 inches.</p> <p>When SM-1, SM-2, SM-3, SL-11, SL-21 and SL-31 are re-energized, directs starting a Condensate and a Condensate Booster Pump to facilitate RPV level control. (Refer to Event 9 for pressure control actions).</p> <p>Directs RPV level be maintained 13” to 54” with condensate.</p>
	BOP	<p>Inhibits ADS as directed.</p> <p>Starts a Condensate Pump and a Condensate Booster Pump as directed.</p> <p>Controls RPV level as directed.</p>
	BOP/RO	<p>Reports a CAS air compressor needs to be reset and returned to service (may report to CRS for direction or contact OPS3 directly).</p> <p>BOOTH OPERATOR – Activate TRIGGER 23 to reset CAS A/Cs.</p>
<p>COMMENTS:</p>		

Event No. 9

Description: Failure of MS-RV-5B to close after being opened.

This malfunction is initiated automatically when the control switch is taken to the open position. The end point is when MS-RV-5B is closed due to de-energizing the 'C' solenoid per ABN-SRV.

Time	Position	Applicants Actions or Behavior
	SRO	Directs RPC pressure control with SRV's 500 to 600 psig to facilitate feeding the RPV with the Condensate Booster Pumps.
	BOP	Opens SRV's to reduce pressure as directed. Notes that MS-RV-5B will not close when the control switch is taken back to "AUTO" position and reports same to CRS.
	SRO	Directs performance of ABN-SRV (may direct individual steps or hand off ABN to BOP).
	BOP/RO	Reports a re-entry into PPM 5.2.1 on high suppression pool temperature.
	SRO	Re-enters PPM 5.2.1
	BOP	Takes the control switch to the "OFF" position and reports SRV still does not close. Places one loop of RHR (B Preferred) in Suppression Pool Cooling per SOP-RHR-SPC. VERIFIES the ADS SRV Control switch is in AUTO on H13-P628 and H13-P631. REMOVES fuses for MS-RV-5B per Attachment 7.1. In H13-P628, de-energizes A solenoid by removing fuses BB-F13 and

SCENARIO ENDPOINT – When RPV water level has been returned to the band of +13” to +54”, the scenario may be terminated.

SRO TURNOVER INFORMATION

The reactor has been operating at 100% power for the last 131 days except for a few minor down powers for control rod adjustments. Thirty days remain until the start of the next refueling outage. Maintain reactor power at 100%.

Using SOP-RWCU-START complete placing RWCU-P-1B in service starting at step 5.5.5c. The 40 minute run has just been completed. Run RWCU-P-1B for at least 24 hours. Completing this procedure should be done expeditiously because RWCU-P-1A also needs to have the shaft seals adjusted.

Perform control rod surveillance OSP-CRD-W701, Control Rod Exercise for Fully Withdrawn Control Rods, starting with rod 18-59 working from left to right, top to bottom.

SRV MS-RV-5B has a high tail pipe temperature alarm and engineering is working on developing a troubleshooting plan. Monitor SRV MS-RV-5B for indications of increased leakage.

SIMULATOR SETUP FOR SCENARIO #1**Use IC-233**

Facility: Columbia		Scenario Set No: 1		Scenario No: 5	
Examiners: _____		Operators: _____			
_____		_____			
_____		_____			
<p>Initial conditions: Plant is at approximately 20% with the main turbine generator synchronized and a startup in progress. Reactor feedwater control is in 3 element on feedpump speed control.</p> <p>Turnover: RCC-P-1A is OOS for motor replacement. BPA is selling power to CA. and power should be increased as soon as possible following turnover. The reactivity brief has been given and the power increase is to begin immediately.</p>					
Event No.	Timeline	Event Type*	Event Description		
1.	T=0	N SRO RO	Power increase with rods to 24%.		
2.	T=5	I ALL	LPRM 08-41A fails upscale. TRG-1		
3.	T=15	C SRO BOP	Failure of RB exhaust fan requires entry into PPM 5.3.1. TRG-2		
4.		I SRO RO	Failure of RFW-LIC-600 to manual. OVERRIDE TO MANUAL DURING POWER INCREASE.		
5.	T=30	M ALL	Loss of SL-81 results in a loss of RCC and subsequent trip of RWCU, RRC, and a manual reactor scram. TRG 3		
6.		M ALL	Failure of enough rods to insert such that reactor power is GT 5%. Active at the beginning of the scenario.		
7.		C SRO RO	SLC fails – neither squib valve fires. Active at the beginning of the scenario.		
8.			Termination Cue: Power is being controlled with level less than LL>		

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

Event No. 1		
Description: Power reduction in preparation to take the unit off line. <i>This event is initiated by the Control Room Supervisor.</i>		
Time	Position	Applicants Actions or Behavior
T=0 when crew assumes shift	SRO	Directs RO to increase reactor power to 24% per PPM 3.1.2 step 5.8.8.
	RO	Withdraws control rods to continue the startup per PPM 3.1.2. Closely monitors reactor power during rod withdrawal. Verifies prior to each rod movement: correct rod selected correct start/stop position
	BOP	Monitors plant conditions
COMMENTS: Rod pull starts at RWM group (TBD).		

Event No. 2

Description: LPRM 08-41A fails upscale.

The event is initiated by TRIGGER 1 during the control rod withdrawal approximately 5 minutes following

Time	Position	Applicants Actions or Behavior
T=5	RO	Acknowledges the LPRM UPSCALE annunciator and announces to the SRO. Refers to ARP 4.603.A8 and identifies the upscale LPRM as 08-41A.
	SRO	Directs BOP to the back panel to read the output of the affected LPRM.
	BOP	Using the function and selector switches at P608 and determine that 08-41A is greater than 100 watts/cm ² . Inform the SRO of the upscale reading.
	SRO	Direct that the affected LPRM be bypassed per PPM 9.3.4 Failed or Drifting LPRMs.
	BOP	Using PPM 9.3.4: Notify the SRO to check Tech Spec Table 3.3.1.1-1 to ensure APRM operability. Gets permission from the SRO prior to bypassing the APRM as required by PPM 9.3.4. Bypasses both APRM A and LPRM 08-41A at P608. Notify the SRO that the LPRM is bypassed.
	SRO	Ensure APRM A indicates within ½% of CTP (CGS Admin Requirement per PPM 9.3.4) prior to directing the BOP to un-bypass the APRM.
	BOP	Return APRM A to service.

COMMENTS:

Event No. 3

Description: Loss of REA-FN-1B resulting in a high reactor building pressure and entry into EOP Secondary Containment Control, 5.3.1.

This event is MANUALLY initiated with TRIGGER 2 approximately 15 minutes following the start of the scenario..

Critical Task for this event: Directs or takes action to maintain Secondary Containment Pressure negative with regards to outside pressure

Time	Position	Applicants Actions or Behavior
T=15	BOP	<p>Reports the receipt of the Secondary Containment ΔP High alarm and notes that it is a possible EOP entry.</p> <p>Goes to the back panel (P812) to investigate the cause of the abnormal condition in secondary containment.</p> <p>Reports that REA-FN-1B has tripped and that Reactor Bldg. pressure is positive on REA-DPR-1A(B).</p>
	SRO	Enters EOP 5.3.1, Secondary Containment Control , based on Reactor Bldg. pressure at or above 0" H ₂ O
	BOP	<p>Refers to the annunciator response procedures (PPM 4.812.R2, 9-1)</p> <p>Attempts to start REA-FN-1A, Rx Bldg. Exhaust Fan (<i>fan will not start</i>)</p> <p>If neither reactor bldg. exhaust fan can be started:</p> <p>Immediately secures Rx Bldg. Inlet Fan (ROA-FN-1B)</p>

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		<p>Closes ROA-V-1 & 2, REA-V-1 & 2 (Inlet and Outlet dampers)</p> <p>Starts A train of SGT to maintain Rx Bldg. Pressure negative</p> <p>Refers to PPM 2.3.5, SGT System, to verify steps taken to start SGT.</p> <p>Notifies Chemistry to monitor Rx Bldg</p> <p>Refers to ODCM 6.1.2.1 and LCS 1.3.3.1 (the examinee should inform the SRO that this procedure makes reference to these, it is not expected for the RO/BOP to enter these)</p> <p>Refers to ABN-HVAC, HVAC Trouble Procedure, (all applicable actions have already been carried out in the Annunciator Response Procedure)</p> <p>Ensures Rx Bldg. pressure is maintained negative (monitors back panel or Secondary Containment ΔP High annunciator on P602)</p> <p>May send an equipment operator to investigate the loss of fan 1B and check the start of fan 1A</p>
<p>Cue: If asked to investigate the loss of REA-FN-1B, report that there is no apparent cause identified in your visual inspection. If requested to do pre or post fan start checks on REA-FN-1A or SGT, report that the checks are satisfactory</p>		
	RO	<p>Monitors plant</p> <p>Continues with plant shutdown (see event 1)</p>

	SRO	May exit EOP 5.3.1, Secondary Containment Control when Rx Bldg. Pressure is restored and with shift manager permission
Cue: When asked, as the Shift Manager, for permission to exit the EOP 5.3.1, provide permission to exit since the entry condition has cleared and no emergency exists.		
COMMENTS:		

Event No. 4

Description: Failure of RFW-LIC-600 to manual.

The event is initiated shortly after the power increase is started.

Note: Override RFW-LIC-600 to manual.

Time	Position	Applicants Actions or Behavior
T=5	RO	<p>Notes that reactor level is no longer tracking during the power increase and notifies the SRO.</p> <p>Notes that RFW-LIC-600 has gone to manual and tells the SRO.</p> <p>Operates RFW-LIC-600 in manual to maintain reactor level.</p> <p>May refer to ABN-LEVEL and/or PPM 4.603.A8 drop 3-7 depending on conditions when the failure is noticed.</p>
	SRO	<p>May refer to ABN-LEVEL and/or PPM 4.603.A8 drop 3-7 depending on conditions when the failure is noticed.</p> <p>Should direct the RO to attempt to place RFW-LIC-600 back in AUTO.</p> <p>(Authority to operate equipment given in PPM 1.3.1)</p>
	RO	Places RFW-LIC-600 in auto.

COMMENTS:

Event No. 5

Description: Overcurrent on SL-81 causes BKR 8-81 to trip open.

*This event is **MANUALLY initiated by TRIGGER 3**, at approximately 30 minutes following the start of the scenario, and after the crew has exited EOP 5.3.1, Secondary Containment Control, or at the direction of the lead examiner.*

Time	Position	Applicants Actions or Behavior
T=30	BOP	<p>Announces loss of SL-81 due to the trip of BKR 8-81.</p> <p>Refers to PPM 4.800.C5. drop 1-5:</p> <p>Announce monitoring of drywell temperature and pressure.</p> <p>Refer to ABN-RCC.</p> <p>Note: The BOP operator must recognize that there is a complete loss of RCC due to the loss of power to RCC-P-1B and 1C with 1A out of service.</p>
	SRO	<p>Refers to ABN-RCC:</p> <p>Directs the RO to scram the reactor.</p> <p>Directs the BOP operator to stop both RRC Pumps.</p> <p>Directs the BOP operator to stop RWCU-P-1A/B, close RWCU-V-4, and throttle open RWCU-V-104.</p> <p>Directs the BOP operator to place all RCC pumps in PTL.</p>

	RO	<p>Scrams the reactor as directed and gives the scram report of Power, Pressure, and Level, noting an ATWS (hydraulic) condition.</p> <p>Takes the immediate scram actions from PPM 3.3.1:</p> <p>Place the Mode Switch in SHUTDOWN.</p> <p>Monitor reactor power, pressure and level.</p> <p>Verify all control rods have inserted and since they did not insert, depress the manual scram pushbuttons and initiate ARI.</p> <p>Insert SRMs and IRMs.</p>
Comments:		

Event No. 6		
Description: Hydraulic ATWS <i>This event is setup at the beginning of the scenario and occurs automatically.</i>		
Critical Task for this event: 1. Enters PPM 5.1.2 and maintains power with level controlled less than LL.		
Time	Position	Applicants Actions or Behavior
	RO	Announce EOP entry into PPM 5.1.1 on reactor level or the ATWS. Takes immediate scram actions: MS to SHUTDOWN Monitor Power, Pressure, and Level Verify all CRs have not fully inserted. Depress the manual scram pushbuttons Initiate ARI. Insert SRMs and IRMs.
	SRO	Enters PPM 5.1.1 and directs/verifies that the Mode Switch has been placed in SHUTDOWN and enters the Level, Pressure and Power leg concurrently and exits PPM 5.1.1 via the Power leg to PPM 5.1.2 RPV Control ATWS. Directs BOP to: Verify all appropriate isolations and initiations have occurred. Verify pressure is being maintained by the main turbine/bypass valves and if not, maintain pressure 800# to 1000# with SRVs. Directs RO to: Ensure both RRC Pumps are off. Initiate both SLC pumps before WW temp reaches 110°F.

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	RO	<p>Takes actions as directed:</p> <p>Stop both RRC Pumps if not already off.</p> <p>Initiate both SLC pumps before WW temp reaches 110°F.</p> <p>Announce that the SLC Squib valves did not fire and SLC is NOT injecting into the core.</p>
	SRO	<p>Direct the BOP operator to bypass the MSIV isolation interlocks per PPM 5.5.6.</p> <p>Call OPS 3 on the radio and align firewater to the air compressors.</p>
<p>Note: Agree as Ops 3 to align firewater to the air compressors. 2 minutes after being called as OPS 3 activate triggers 23 and 24 to align FW to the air compressors.</p>		
	SRO	<p>Direct the RO to:</p> <p>Stop and prevent all injection into the RPV except by Boron injection systems, RCIC, and CRD.</p> <p>Lower level to a band less than –65 inches but greater than –183 inches. Record the upper limit as LL.</p> <p>Maintain level as directed from LL to –183 inches with outside the shroud injection systems listed in Table 5.</p>
	BOP	<p>Takes actions as directed:</p> <p>Using PPM 5.5.6, bypass the MSIV isolation interlocks.</p>
	SRO	<p>Directs BOP operator to Perform PPM 5.5.10 and appropriate steps of 5.5.11 for a hydraulic ATWS, Tabs B, F, and G.</p>

	BOP	<p>Takes actions as directed:</p> <p>Performs PPM 5.5.10 Override ARI Logic.</p> <p>Performs Tabs B, F, and G of PPM 5.5.11 to:</p> <p>Reset, Scram, Reset</p> <p>Drive control rods</p> <p>Vent the overpiston area</p>
COMMENTS:		

Event No. 7		
Description: Both SLC Squib valves fail to fire and will not operate. <i>Note: This failure is discussed under Event #6.</i>		
Time	Position	Applicants Actions or Behavior
COMMENTS:		
Termination cue for this scenario: Level has been reduced by stopping and preventing injection too less than LL and power is controlled by the evolution.		
Critical Task for this event: Reactor power is being controlled at less than 5% with reactor level below LL. When this task is completed, the scenario can be terminated at the discretion of the Lead Examiner.		

SCENARIO OUTLINE
Columbia Generating Station September 2004
SRO TURNOVER INFORMATION

Initial conditions: Plant is at approximately 20% with the main turbine generator synchronized and a startup in progress. Reactor feedwater control is in 3 element on feedpump speed control.

Turnover: RCC-P-1A is OOS for motor replacement. BPA is selling power to CA. and power should be increased as soon as possible following turnover. The reactivity brief has been given and the power increase is to begin immediately.

**SCENARIO OUTLINE
Columbia Generating Station September 2004
SPECIAL SETUP**

1. Ensure RCC-P-1A is racked out and tagged out.

Facility: Columbia	Scenario Set No: 1	Scenario No: 10	
Examiners: _____	Operators: _____		
_____	_____		
_____	_____		
<p>Initial conditions: The plant is operating at 90% power due to economic dispatch. Power is to be increased to 100% immediately following shift turnover.</p> <p>Turnover Information: HPCS-P-1 is OOS for motor bearing replacement. It is expected to be returned to service in two days. Tech. Spec. 3.5.1, condition B, was entered four hours ago. A reactivity brief for the power increase has been held and power is to be increased to 100% immediately following shift turnover. There are no pre-conditioning limits.</p>			
Event No.	Timeline	Event Type*	Event Description
1.	T=0	R SRO RO	Increase power with flow.
2.	When power = 95%	I SRO RO	APRM-A fails upscale Tech Spec TRG 1
3.	T=7	C SRO BOP	DEH-P-1A shaft break with a fail to auto start of DEH-P-1B. TRG 2
4.	T=12	C RO SRO	ASD Channel A2 alarm and fault TRG 3
5/6.	T=20	C ALL	ASD UPS trouble alarm TRG 4 Trip of E-PP-ASD1/4 and ASD CH A1 and B1 fault which results in a manual scram by the crew. TRG 5
7.	T=30	M ALL	OBE and RHR-B Suction Break with a trip of both RFW pumps. TRG 6
8.	T=31	C ALL	RCIC trips on initiation and cannot be re-started Automatic upon RCIC initiation.
9.			Termination cue: The scenario can be terminated when the ED has been performed and reactor level is being controlled in the band from +13 inches to +54 inches.

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

Event No. 1**Description:** increase reactor power with flow to 100% power.

Time	Position	Applicants Actions or Behavior
T=0	SRO	Directs the RO to increase reactor power to 100% power with RRC flow at the rate of 10 mwe/minute.
	RO	Increases reactor power with RRC flow as directed.
	BOP	Monitors plant equipment.

COMMENTS:

Event No. 2**Description:** APRM-C fails upscale.*This event is triggered with **TRIGGER 1** when reactor power = 95%.*

Time	Position	Applicants Actions or Behavior
T=5	RO	<p>Reports APRM-A upscale and a ½ scram on RPS-A.</p> <p>Refers to ARP and recommends; Consider bypassing APRM-A. Refer to TS 3.3.1.1. LCS 1.3.2.1, and 1.3.3.1</p> <p>Verify no rods have scrammed. Recommend resetting the ½ scram Verify Scram Group Lights are illuminated. Verify Backup Scram Lights have extinguished.</p>
	SRO	<p>Acknowledges the report.</p> <p>Refers to Tech Specs and LCS and determines there are no regulatory requirements with this failure.</p> <p>Directs RO to bypass APRM-A.</p> <p>Directs RO to reset the ½ scram.</p> <p>Directs BOP to make announcement to stop all testing and maintenance with a potential for generating a trip in the unaffected channel.</p> <p>Calls PSRO/WC</p>
	BOP	Makes announcement to stop all testing and maintenance with a potential for generating a trip in the unaffected channel.
	RO	<p>Bypasses the APRM.</p> <p>Resets the ½ scram.</p>

COMMENTS:

Event No. 3

Description: DEH-P-1A shaft breaks with a failure of DEH-P-1B to auto start.

*This event is triggered with **TRIGGER 2** approximately 7 minutes following the start of the scenario.*

Time	Position	Applicants Actions or Behavior
	BOP	Announce the loss of pressure to DEH Verify the start of the backup pump, and when it does not start, manually start DEH-P-1B. Verify pressure returns to normal.
Note: When the operator places the control switch for DEH-P-1B in start, delete the override for the control switch for DEH-P-1A.		
	SRO	Acknowledges report. Directs BOP to take actions as directed in the ARP. Directs OPS 3 to check system for indications of failure. Notifies PSRO/WC.
Cue: Call back as OPS 3 with the information that the shaft on DEH-P-1A is sheared.		
	RO	Monitors reactor; Power Pressure Level
	BOP	Verifies system operation per PPM 2.5.1. Sends OPS 3 to verify lineup in ARP. Refers to ABN-DEH-LEAK.

COMMENTS:

Event No. 4

Description: ASD Channel A2 alarm and fault.

*This event is triggered with **TRIGGER 3** 10 minutes following the start of the scenario.*

Time	Position	Applicants Actions or Behavior
	RO	Reports ASD 1A/2 alarm and Fault alarms. Verifies trip of channel ASD1 A/2. Ensures RRC-P-1A has runback to 51 Hz. Reports power decrease due to runback. Checks ASD video Display Unit for source of alarm. Sends OPS4 to investigate @ ASD BLD
	SRO	Directs actions per ARPs.

Cue: Using the telephone, call x2242 and report as OPS4 that there is a GTO freeze alarm on Channel A2.

	SRO	Directs actions per ARP for high delta flow. Directs RO to match RRC loop flows. Enters Tech. Spec. 3.4.1. Tech. Spec. 3.4.1 flow mismatch is applicable until flows are matched. Notifies PSRO/WC
	RO	Reduces RRC-P-1B speed to 51 Hz. Performs PPM OSP-RRC-D701, Jet Pump Operability and RRC loop Flow mismatch.

Cue: If called as OPS 4 for horsepower on RRC B, inform the control room it is 5700.

COMMENTS:

Event No. 5 and 6

Description: ASD UPS trouble alarm and trip of E-PP-ASD1/4 and ASD CH A1 and B1 fault.

*This event is imitated with **TRIGGER 4** 20 minutes following the start of the scenario and should be initiated when RRC loop flows are matched.*

*This fault event is activated by **TRIGGER 5** and is activated 45 seconds after the preceding report from OPS 4.*

Time	Position	Applicants Actions or Behavior
	RO	Reports ASD UPS Trouble Alarm and refers to ARP.
	SRO	Directs actions per ARP for ASD UPS Trouble. Refers to ABN-ASD-INV
	RO	Sends OPS4 to investigate. Notifies PSRO/WC.
Cue: Thirty seconds after Trigger 4 is activated, call x2242 and report as OPS4 that there is arching and sparking coming from E-PP-ASD 1 / 4.		
Cue: 45 seconds after the report from OPS4 activate Trigger 5, trip of E-PP-ASD1/4 and ASD CH A1 and B1 fault.		
	RO	Reports both ASD Channels A1 and B1 are in alarm. Reports that both RRC pumps have tripped. Reports reactor scram.
	SRO	Directs RO to perform PPM 3.3.1Reactor Scram.

	RO	<p>Takes immediate scram actions:</p> <p>MS to SHUTDOWN</p> <p>Monitor Power, Pressure, and Level</p> <p>Verify all CRs have fully inserted.</p> <p>Insert SRMs and IRMs.</p> <p>Reports EOP entry condition on RPV Level into PPM 5.1.1 and loss of feedwater due to reactor high level.</p>
	SRO	<p>Enters PPM 5.1.1 and directs:</p> <p>RO to restore and maintain reactor level to the band of +13 inches to +54 inches and continue in PPM 5.3.1 with RCIC or reset 1 feedpump and restart.</p> <p>BOP to verify all isolations and initiations and to monitor pressure on the turbine BPVs less than 1060 psig</p>
	RO	<p>Reports the trip of RCIC.</p> <p>Reports feedpumps cannot be reset.</p> <p>Performs actions of PPM 3.3.1.</p>
	BOP	<p>Reports initiations and isolations sat and monitors pressure.</p>
	SRO	<p>Directs the BOP to reduce pressure to 500 psig to 600 psig to allow injection with the condensate booster pumps.</p>
	BOP	<p>Reduces power as directed with SRVs.</p>
	RO	<p>Sets up feedwater level control for 10 valve operation.</p> <p>Injects through the 10 valves with condensate booster pumps when pressure has been reduce to 500psig to 600 psig.</p> <p>Restores reactor level to +13 inches - + 54 inches.</p>
<p>COMMENTS:</p>		

Event No. 7 and 8.		
Description: OBE and RHR-B Suction Break <i>This event is initiated by TRIGGER 6 approximately 30 minutes following the start of the scenario.</i>		
Time	Position	Applicants Actions or Behavior
Cue: As OPS1, call the control room on the radio and report that you felt severe shaking/movement in the turbine building.		
	BOP	Reports OBE annunciator and goes to the back to Bd. L. Reports indications from Bd. L.
	SRO	Directs actions for earthquake. Directs plant tours to determine damage.
	RO	Reports Suppression Pool level lowering. Reports the trip of both feed pumps. Reports RHR B Room level Hi EOP entry.
	SRO	Enters PPM 5.2.1 on low SP level and directs actions per ABN-FLOODING. Enters PPM 5.3.1 on RHR B room level Hi. Directs OPS2 to investigate water level in RHR B room. Determines that RHR B is not operational due to flooding. May direct the RO to close RHR-V-4B in an attempt to isolate the leak. Directs pulling of RHR-P-2B control power fuses.
	RO	If directed, closes RHR-V-4B. Reports continued lowering trend on Suppression Pool level.
Note: SRO may anticipate the ED on low suppression pool level and direct the MT bypass valves be opened to rapidly reduce pressure.		
	SRO	Determines that Suppression Pool level will not be able to be maintained above 19'2". Determines Emergency Depressurization is required. Enters PPM 5.1.3 and directs 7 ADS SRVs open.

		Re-enters PPM 5.5.1 concurrently with 5.1.3.
Cue: 2 minutes after being called to reset RCIC, report that RCIC will not reset.		
	RO	Opens 7 ADS SRVs to depressurize the reactor.
	SRO	Directs injection with systems to return RPV level to +13" to +54".
	RO	Returns RPV level to band as directed.
Comments: This scenario will be terminated when the reactor has been emergency depressurized and RPV level is stable/increasing.		

SRO TURNOVER INFORMATION

Initial conditions: The crew assumes the shift with the reactor at 90% power.

Turnover Information: HPCS-P-1 is OOS for motor bearing replacement. It is expected to be returned to service in two days. Tech. Spec. 3.5.1, condition B, was entered four hours ago. A reactivity brief for the power increase has been held and power is to be increased to 100% immediately following shift turnover.

SCENARIO OUTLINE
Columbia Generating Station October, 2004
SETUP INFORMATION

1. Ensure HPCS-P-1 is racked out and tagged out.