

TASK CONDITIONS:

1. You are the Unit NSO.
2. Unit 1 is at full power.
3. Unit 2 is at full power.

INITIATING CUES:

The US directs you to perform the weekly QPTR calculation using 1BwOSR 3.2.4.1 and the process computer.

TASK TITLE: Perform a QPTR Calculation with the Process Computer

JPM No.: **R-101**
TPO No.: 4.C.RK-01
TASK No.: R-RK-003, Perform a QPTR calculation and evaluate TS limits

REV: NRC 09-1
K&A No.: 2.1.19
K&A IMP: 3.9/3.8

EXAMINEE: _____

RO SRO (circle one)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 5, 6, 7
MINUTES

APPROX COMPLETION TIME: **15**

CRITICAL TIME: **NA**

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. 1BwOSR 3.2.4.1, Rev. 6, Unit One Quadrant Power Tilt Ratio (QPTR) Calculation

MATERIALS:

1. 1BwOSR 3.2.4.1
2. Calculator

TASK STANDARDS:

1. Perform 1BwOSR 3.2.4.1, Unit One Quadrant Power Tilt Ratio (QPTR) Calculation.

TASK CONDITIONS:

1. You are the Unit NSO.
2. Unit 1 is at full power with PDMS inoperable.
3. Unit 2 is at full power.

INITIATING CUES:

1. The US directs you to perform the weekly QPTR calculation using 1BwOSR 3.2.4.1 and the process computer.

RECORD START TIME _____

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	<p>Prepare for 1BwOSR 3.2.4.1 QPTR Calculation.</p> <p>Note: Give examinee the procedure with cover sheet.</p> <p>CUE: Prerequisites are met.</p>	<ul style="list-style-type: none"> Sign, record time and date on the surveillance cover sheet. VERIFY the applicable Prerequisites, Precautions, and Limitations and Actions are addressed. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
2.	<p>Determine Surveillance applicability.</p>	<p>Indicate the Applicability of this surveillance on the D-2 data sheet:</p> <ul style="list-style-type: none"> Block '7 Days' checked. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
3.	<p>Record Date and Time on Data Sheet D-2.</p>	<p>RECORD Date and Time on data sheet D-2.</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
4.	<p>Record power range NIs operability status.</p> <p>CUE: If asked, the Unit is in No LCOARs at this time.</p>	<p>On Data Sheet D-3, RECORD the following for power range NIs 41-44:</p> <ul style="list-style-type: none"> 'Y' block checked for each channel operable. 100% (or present power reading from each channel at 1PM07J). 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*5.	<p>Determine the Power Range NI Detector computer point readings using the Process Computer Points.</p> <ul style="list-style-type: none"> HMI trend page group 0001. OPCON. 	<p>DETERMINE the QPTR (detector voltages) using the Process Computer, by either selecting each point individually, or a group that contains each point and RECORD the present value:</p> <p>Upper Detectors (A):</p> <ul style="list-style-type: none"> N0041 (N41). N0043 (N42). N0045 (N43). N0047 (N44). <p>Lower Detectors (B):</p> <ul style="list-style-type: none"> N0042 (N41). N0044 (N42). N0046 (N43). N0048 (N44). 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

SIMULATOR SETUP INSTRUCTIONS

JPM NO: R-101

REQUIRED SIMULATOR MODE (S): 100% power steady state

MALFUNCTION #'S: N/A

COMMENTS:

1. Ensure that HMI is NOT on QPTR parameters.
2. Make a "KEY" in table below of the surveillance for the evaluator to reference with current simulator core load.

Key

Channel	N41	N42	N43	N44
Is the channel operable?	<input type="checkbox"/> Y <input type="checkbox"/> N			
Instrument reading	%	%	%	%
Upper Detectors (A)				
Computer point	N0041	N0043	N0045	N0047
Present computer point reading				
Average computer point reading				
Upper power tilt ratio ($\phi \delta 1.02$)	ϕ	ϕ	ϕ	ϕ
Lower Detectors (B)				
Computer point	N0042	N0044	N0046	N0048
Present computer point reading				
Average computer point reading				
Lowerr power tilt ratio ($\phi \delta 1.02$)	ϕ	ϕ	ϕ	ϕ

Key

JOB PERFORMANCE MEASURE

TASK CONDITIONS:

1. You are an active licensed RO/SRO for the past year.
2. Attached is your work schedule history for the 14 weeks during the third quarter of 2009.
3. All positions were appropriately logged in the SM log during this time period.

INITIATING CUES:

1. The Operations Support Manager asks that you complete your Active License Tracking Log for the third quarter of 2009, per OP-AA-105-102.

RO Work History:

				Hours	
	<u>Day</u>	<u>Date</u>	<u>Shift</u>	<u>Worked</u>	<u>Job Position/Assignment</u>
<u>Week 1</u>	M	6/29/09	D	12	Unit 1 NSO
	T	6/30/09	D	12	Unit 2 NSO
	W	7/1/09	D	12	Unit 2 Admin NSO
	Th	7/2/09	D	12	Extra NSO in control room
	F	7/3/09	N/A		Day Off
	S	7/4/09	N/A		Day Off
	S	7/5/09	N/A		Day Off
<u>Week 2</u>	M	7/6/09	D	12	Clearance Order Writer
	T	7/7/09	D	12	Clearance Order Writer
	W	7/8/09	D	12	Clearance Order Writer
	Th	7/9/09	D	12	Clearance Order Writer
	F	7/10/09	N/A		Day Off
	S	7/11/09	N/A		Day Off
	S	7/12/09	N/A		Day Off
<u>Week 3</u>	M	7/13/09	N/A		Day Off
	T	7/14/09	N/A		Day Off
	W	7/15/09	N/A		Day Off
	Th	7/16/09	N/A		Day Off
	F	7/17/09	D	12	Unit 1 Admin (relieved 2 hrs for NRC physical)
	S	7/18/09	D	12	Unit 1 NSO
	S	7/19/09	D	12	Unit 2 NSO
<u>Week 4</u>	M	7/20/09	N/A		Day Off
	T	7/21/09	N/A		Day Off
	W	7/22/09	N/A		Day Off
	Th	7/23/09	N/A		Day Off
	F	7/24/09	N	12	Unit 2 Admin (relieved 2 hrs for PHC meeting)
	S	7/25/09	N	12	Extra NSO in control room
	S	7/26/09	N	12	Unit 1 Admin NSO
<u>Week 5</u>	M	7/27/09	N/A		Day Off
	T	7/28/09	T	8	Requal Training
	W	7/29/09	T	8	Requal Training
	Th	7/30/09	T	8	Requal Training
	F	7/31/09	T	8	Requal Training
	S	8/1/09	N/A		Day Off
	S	8/2/09	N/A		Day Off
<u>Weeks 6 and 7</u>		8/3/09 thru			
		8/16/09	N/A		ON VACATION

RO Work History continued:

			Hours		
<u>Day</u>	<u>Date</u>	<u>Shift</u>	<u>Worked</u>		<u>Job Description</u>
<u>Week 8</u>					
M	8/17/09	N/A			Day Off
T	8/18/09	N/A			Day Off
W	8/19/09	N/A			Day Off
Th	8/20/09	N/A			Day Off
F	8/21/09	D	12		Clearance Order Writer
S	8/22/09	D	12		Unit 2 NSO
S	8/23/09	D	12		Unit 2 Admin NSO
<u>Week 9</u>					
M	8/24/09	N/A			Day Off
T	8/25/09	N/A			Day Off
W	8/26/09	N/A			Day Off
Th	8/27/09	N/A			Day Off
F	8/28/09	N	12		Extra NSO in control room
S	8/29/09	N	12		Unit 1 NSO
S	8/30/09	N	12		Unit 2 NSO
<u>Week 10</u>					
M	8/31/09	N/A			Day Off
T	9/1/09	T	8		Requal Training
W	9/2/09	T	8		Requal Training
Th	9/3/09	T	8		Requal Training
F	9/4/09	T	8		Requal Training
S	9/5/09	N/A			Day Off
S	9/6/09	N/A			Day Off
<u>Weeks 11 thru 13</u>		9/7/09 thru 9/27/09			ON VACATION
<u>Week 14</u>					
M	9/28/09	N/A			Day Off
T	9/29/09	N/A			Day Off
W	9/30/09	N/A			Day Off

SRO Work History:

	<u>Day</u>	<u>Date</u>	<u>Shift</u>	<u>Hours Worked</u>	<u>Job Position/Assignment</u>
<u>Week 1</u>	M	6/29/09	D	12	Unit 1 US
	T	6/30/09	D	12	Unit 1 US
	W	7/1/09	D	12	Unit 1 US
	Th	7/2/09	D	12	WEC Supervisor
	F	7/3/09	N/A		Day Off
	S	7/4/09	N/A		Day Off
	S	7/5/09	N/A		Day Off
<u>Week 2</u>	M	7/6/09	D	12	Clearance Order Group Supervisor
	T	7/7/09	D	12	Clearance Order Group Supervisor
	W	7/8/09	D	12	Clearance Order Group Supervisor
	Th	7/9/09	D	12	Clearance Order Group Supervisor
	F	7/10/09	N/A		Day Off
	S	7/11/09	N/A		Day Off
	S	7/12/09	N/A		Day Off
<u>Week 3</u>	M	7/13/09	N/A		Day Off
	T	7/14/09	N/A		Day Off
	W	7/15/09	N/A		Day Off
	Th	7/16/09	N/A		Day Off
	F	7/17/09	D	12	Field Supervisor
	S	7/18/09	D	12	Field Supervisor
	S	7/19/09	D	12	Field Supervisor
<u>Week 4</u>	M	7/20/09	N/A		Day Off
	T	7/21/09	N/A		Day Off
	W	7/22/09	N/A		Day Off
	Th	7/23/09	N/A		Day Off
	F	7/24/09	N	12	WEC Supervisor
	S	7/25/09	N	12	WEC Supervisor
	S	7/26/09	N	12	Unit 1 US
<u>Week 5</u>	M	7/27/09	N/A		Day Off
	T	7/28/09	T	8	Requal Training
	W	7/29/09	T	8	Requal Training
	Th	7/30/09	T	8	Requal Training
	F	7/31/09	T	8	Requal Training
	S	8/1/09	N/A		Day Off
	S	8/2/09	N/A		Day Off
<u>Weeks 6 and 7</u>		8/3/09 thru 8/16/09			ON VACATION

SRO Work History continued:

				Hours	
<u>Day</u>	<u>Date</u>	<u>Shift</u>	<u>Worked</u>		<u>Job Description</u>
<u>Week 8</u>	M	8/17/09	N/A		Day Off
	T	8/18/09	N/A		Day Off
	W	8/19/09	N/A		Day Off
	Th	8/20/09	N/A		Day Off
	F	8/21/09	D	12	Unit 2 US
	S	8/22/09	D	12	Unit 2 US
	S	8/23/09	D	12	Unit 2 US
<u>Week 9</u>	M	8/24/09	N/A		Day Off
	T	8/25/09	N/A		Day Off
	W	8/26/09	N/A		Day Off
	Th	8/27/09	N/A		Day Off
	F	8/28/09	N	12	WEC Supervisor
	S	8/29/09	N	12	WEC Supervisor
	S	8/30/09	N	12	WEC Supervisor
<u>Week 10</u>	M	8/31/09	N/A		Day Off
	T	9/1/09	T	8	Requal Training
	W	9/2/09	T	8	Requal Training
	Th	9/3/09	T	8	Requal Training
	F	9/4/09	T	8	Requal Training
	S	9/5/09	N/A		Day Off
	S	9/6/09	N/A		Day Off
<u>Weeks 11 thru 13</u>		9/7/09 thru 9/27/09			ON VACATION
<u>Week 14</u>	M	9/28/09	N/A		Day Off
	T	9/29/09	N/A		Day Off
	W	9/30/09	N/A		Day Off

TASK TITLE: Complete NRC Active License Maintenance Log

JPM No.: **R-109**
Task No.: R-AM-075
Objective No.: 4E.AM-75

REV: 2009 NRC
K/A No.: 2.1.4
K/A IMP: 3.3/3.8

EXAMINEE: _____

SRO

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 3, 4, 5, 6

APPROX COMPLETION TIME: 10 MINUTES

CRITICAL TIME: N/A

EVALUATION METHOD:

PERFORM
 SIMULATE

LOCATION:

IN PLANT
 SIMULATOR
 CLASSROOM

GENERAL REFERENCES:

1. OP-AA-105-102 NRC ACTIVE LICENSE MAINTENANCE.
2. 10CFR55.53(e)

MATERIALS:

1. OP-AA-105-102 NRC ACTIVE LICENSE MAINTENANCE.

TASK STANDARDS:

1. Determine shift activities that are credited toward active license maintenance.
2. Complete OP-AA-105-102 NRC ACTIVE LICENSE MAINTENANCE, Attachment 1 Active License Maintenance Tracking Log.

TASK CONDITIONS:

1. You are an active licensed RO/SRO for the past year.
2. Attached is your work schedule history for the 14 weeks that are partially or entirely within the third quarter of 2009.
3. All positions were appropriately logged in the SM log for during this time period.

INITIATING CUES:

1. The Operations Support Manager asks that you complete your Active License Tracking Log for the third quarter of 2009, per OP-AA-105-102.
2. Inform the Operations Support Manager when you have completed OP-AA-105-102, Attachment 1.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to OP-AA-105-102, NRC ACTIVE LICENSE MAINTENANCE. CUE: Provide examinee copy of OP-AA-105-102.	Refer to OP-AA-105-102: <ul style="list-style-type: none"> Determines Attachment 1 needs to be completed. 	SAT UNSAT N/A Comments:
2.	Complete upper section of Attachment 1.	<ul style="list-style-type: none"> From initiating cue, writes 3rd quarter of 2009. From initiating cue, writes examinee name and circles ACTIVE license status. 	SAT UNSAT N/A Comments:
*3.	Complete date column of table on Attachment 1. Note: Any date listed in June or October would not be within the 3rd quarter of the year, thereby incorrect.	<ul style="list-style-type: none"> Lists at least 5 dates of the shifts listed below, from attached schedule, that count as credited days toward license maintenance. <ul style="list-style-type: none"> RO (any 5 of 8) <ul style="list-style-type: none"> 7/1/09 D 12 2 7/18/09 D 12 1 7/19/09 D 12 2 7/26/09 N 12 1 8/22/09 D 12 2 8/23/09 D 12 2 8/29/09 N 12 1 8/30/09 N 12 2 SRO <ul style="list-style-type: none"> 7/1/09 D 12 1 7/26/09 D 12 1 8/21/09 D 12 2 8/22/09 D 12 2 8/23/09 D 12 2 	SAT UNSAT N/A Comments:
*4.	Complete shift column of table on Attachment 1.	<ul style="list-style-type: none"> List the shift worked (N or D as applicable) 	SAT UNSAT N/A Comments:
*5.	Complete length column of table on Attachment 1.	<ul style="list-style-type: none"> List the shift length (12 hours) 	SAT UNSAT N/A Comments:
*6.	Complete unit column of table on Attachment 1.	<ul style="list-style-type: none"> List the applicable unit 	SAT UNSAT N/A Comments:

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
7	Give completed Attachment 1 to evaluator.		SAT UNSAT N/A <u>Comments:</u>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- N/A

COMMENTS

- Provide copy of OP-AA-105-102 NRC ACTIVE LICENSE MAINTENANCE.
- Fill out Key for evaluator reference.

**ATTACHMENT 1
Active License Tracking Log
Page 1 of 1**

SHIFT COVERAGE FOR THE 3rd (1ST, 2ND, 3RD, 4TH) CALENDAR QUARTER
OF 2009 (YEAR)

Examinees Name
Name of License Holder
(Print)

ACTIVE / INACTIVE
License Status At Start
Quarter (circle one)

RECORD OF EIGHT/TWELVE HOUR SHIFTS SERVED DURING QUARTER

ENTER the date the shift ended, the shift, the shift length, the Unit, Position covered, circle Y or N for logged in the SM log and signature. If working an 8-hour or 8/12-hour schedule, enter a "1" for the midnight shift, "2" for the day shift, or a "3" for the afternoon shift (only enter shifts at least 8 hours length for which turnovers were conducted). Seven shifts at least 8-hours in length are required per quarter. If working a straight 12-hour schedule, enter a "N" for night shift or a "D" for day shift; only enter shifts at least 12 hours in length for which turnovers were conducted). Five 12-hour shifts are required per quarter. The quarterly shift watch requirement may be completed with a combination of complete 8- and 12-hour shifts (in a position required by the plant's Technical Specifications) at sites having a mixed shift schedule, and watches shall not be truncated when the minimum quarterly requirement (56 hours) is satisfied. (NUREG 1021, Revision 9)

RO KEY

	DATE	SHIFT	LENGTH	UNIT	POSITION			SM log	SIGNATURE
					(circle one)				
	7/1/09	D	12	2	FHS	SM	US	RO Y/N	<i>Examinees Signature</i>
	7/18/09	D	12	1	FHS	SM	US	RO Y/N	<i>Examinees Signature</i>
	7/19/09	D	12	2	FHS	SM	US	RO Y/N	<i>Examinees Signature</i>
	7/26/09	N	12	1	FHS	SM	US	RO Y/N	<i>Examinees Signature</i>
	8/22/09	D	12	2	FHS	SM	US	RO Y/N	<i>Examinees Signature</i>
	8/23/09	D	12	2	FHS	SM	US	RO Y/N	<i>Examinees Signature</i>
	8/29/09	N	12	1	FHS	SM	US	RO Y/N	<i>Examinees Signature</i>
	8/30/09	N	12	2	FHS	SM	US	RO Y/N	<i>Examinees Signature</i>

At least 5 of the 8 rows above.

**ATTACHMENT 1
Active License Tracking Log
Page 1 of 1**

SHIFT COVERAGE FOR THE 3rd (1ST, 2ND, 3RD, 4TH) CALENDAR QUARTER
OF 2009 (YEAR)

Examinees Name
Name of License Holder
(Print)

ACTIVE / INACTIVE
License Status At Start
Quarter (circle one)

RECORD OF EIGHT/TWELVE HOUR SHIFTS SERVED DURING QUARTER

ENTER the date the shift ended, the shift, the shift length, the Unit, position covered, circle Y or N for logged in the SM log and signature. If working an 8-hour or 8/12-hour schedule, enter a "1" for the midnight shift, "2" for the day shift, or a "3" for the afternoon shift (only enter shift length and hours length for which turnovers were conducted). Seven shifts at least 8-hours in length are required per quarter. If working a straight 12-hour schedule, enter a "N" for night shift or a "D" for day shift (only enter shifts at least 12 hours in length for which turnovers were conducted). Five 12-hour shifts are required per quarter. The quarterly shift watch requirement may be completed with a combination of combined 8- and 12-hour shifts (in a position required by the plant's Technical Specifications) at sites having a mixed shift schedule, and watches shall not be truncated when the minimum quarterly requirement (56 hours) is satisfied. (NUREG 1021, Revision 9)

DATE	SHIFT	LENGTH	UNIT	POSITION (circle one)			SM log	SIGNATURE
7/1/09	D	12	1	FHS	SM	US	RO Logged Y/N	<i>Examinees Signature</i>
7/26/09	D	12	1	FHS	SM	US	RO Logged Y/N	<i>Examinees Signature</i>
8/21/09	D	12	2	FHS	SM	US	RO Logged Y/N	<i>Examinees Signature</i>
8/22/09	D	12	2	FHS	SM	US	RO Logged Y/N	<i>Examinees Signature</i>
8/23/09	D	12	2	FHS	SM	US	RO Logged Y/N	<i>Examinees Signature</i>

JOB PERFORMANCE MEASURE

TASK CONDITIONS:

1. You are an extra operator on shift.
2. 2CV03F, Unit 2 RC Filter, needs to be replaced.
3. A worker tagout to isolate and drain 2CV03F, in accordance with BwOP CV-10, CV FILTERS ISOLATION AND RETURN TO SERVICE, step F.3, has been prepared by another operator.

INITIATING CUES:

1. Jim NSO asks you to peer check the clearance orders isolation points, sequence and OOS/RTS positions.
2. Inform Jim when you have completed the peer check.

TASK TITLE: Verify Worker Tagout Checklist.

JPM No.: **R-200**
Task No.: 4E.AM-06
Objective No.: R-AM-010

REV: NRC 09-1
K&A No.: 2.2.13
K&A IMP: 4.1/4.3

EXAMINEE: _____

RO SRO (circle one)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 4, 6

APPROX COMPLETION TIME: 30 MINUTES

CRITICAL TIME: N/A

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. OP-AA-109-101, CLEARANCE AND TAGGING, REV 1.
2. BwOP CV-10, CV FILTERS ISOLATION AND RETURN TO SERVICE, REV 18.
3. M-138, sheet 5B, DIAGRAM OF CVCS AND BTRS.
4. BwOP WX-197, CHANGING LIQUID RADWASTE FILTERS, Rev 19.

MATERIALS:

1. OP-AA-109-101, CLEARANCE AND TAGGING, REV 0.
2. BwOP CV-10, CV FILTERS ISOLATION AND RETURN TO SERVICE, REV 18.
3. M-138, sheet 5B, DIAGRAM OF CVCS AND BTRS.
4. BwOP WX-197, CHANGING LIQUID RADWASTE FILTERS, Rev 19.

TASK STANDARDS:

1. Verify isolation points correct for 2CV03F.
2. Determine 2CV8425 position incorrect for 2CV03F.
3. Determine the sequence of isolation points for 2CV03F is incorrect.

TASK CONDITIONS:

1. You are an extra operator on shift.
2. 2CV03F, Unit 2 RC Filter, needs to be replaced.
3. A worker tagout to isolate and drain 2CV03F, in accordance with BwOP CV-10, CV FILTERS ISOLATION AND RETURN TO SERVICE, step F.3, has been prepared by another operator.

INITIATING CUES:

1. The Unit Supervisor directs you to peer check the clearance orders isolation points, sequence and OOS/RTS positions.

CUE: Hand examinee partially completed Worker Tagout.

2. Inform Jim when you have completed the peer check.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	<p>Refer to BwOP CV-10, CV FILTERS ISOLATION AND RETURN TO SERVICE.</p> <p>CUE: Provide examinee copy of BwOP CV-10.</p>	Refer to BwOP CV-10, step F.3:	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
2.	<p>Refer to Drawing:</p> <ul style="list-style-type: none"> M-138, sheet 5B, DIAGRAM OF CVCS AND BTRS <p>CUE: Provide copy of M-138, sheet 5B.</p>	Refer to M-138, sheet 5B.	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
3.	Verify the clearance BOUNDARY for 2CV03F.	<p>Determines clearance boundary valves selected are correct:</p> <ul style="list-style-type: none"> 2CV129 C/S, Demin Hi Temp Divert Valve. 2CV8421, RC Filter Bypass Valve. 2CV8425, RC Filter Inlet Isol Valve. 2CV8422, RC Filter Outlet Isol Valve. 2CV8424, RC Filter Drain Valve. 2CV8423, RC Filter Vent Valve. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

	<p>EVALUATOR NOTE: The examinee may determine the clearance position is incorrect (JPM step 7) prior to determining the sequence is incorrect (JPM step 5), or the examinee may discover both errors simultaneously. The examinee must identify both errors to complete critical tasks 5 & 7.</p>		
	<p>EVALUATOR NOTE: The JPM contains corrected Worker Tagout checklist to be given to the examinee after the errors are identified.</p> <p>If the examinee first determines the incorrect sequence is listed on the Worker Tagout checklist prior to determining the incorrect position is listed, provide examinee JPM page 7.</p> <p>If the examinee first determines the incorrect position is listed on the Worker Tagout checklist, provide examinee JPM page 8.</p> <p>When the examinee has determined BOTH the incorrect sequence and position are listed on the Worker Tagout checklist, provide examinee JPM page 9.</p>		
	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*4.	<p>Determine the clearance SEQUENCE for the 2CV03F is incorrect.</p> <p>CUE: Acknowledge as Unit Supervisor and inform examinee the checklist sequence will be corrected.</p> <p>CUE: Hand examinee corrected worker tagout in accordance with the evaluator note above.</p>	<p>Determines clearance sequence is incorrect:</p> <ol style="list-style-type: none"> 1. 2CV129 C/S, Demin Hi Temp Divert Valve. 2. 2CV8421 RC Filter Bypass Valve. 3. 2CV8422 RC Filter Outlet Isol Valve. 4. 2CV8425 RC Filter Inlet Isol Valve. 5. 2CV8424 RC Filter Drain Valve. 6. 2CV8423 RC Filter Vent Valve. <ul style="list-style-type: none"> o Notifies SM and NSOs of sequencing error. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
5.	<p>Verify the tag type for 2CV03F.</p>	<p>Verifies clearance tag type:</p> <ul style="list-style-type: none"> • 2CV129 C/S, Demin Hi Temp Divert Valve – CI. • 2CV8421 RC Filter Bypass Valve - RI. • 2CV8425 RC Filter Inlet Isol Valve - RD. • 2CV8422 RC Filter Outlet Isol Valve - RD. • 2CV8424 RC Filter Drain Valve - RI. • 2CV8423 RC Filter Vent Valve - RI. 	

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*6.	<p>Determine the clearance POSITION for the 2CV03F is incorrect.</p> <p>CUE: Acknowledge as Unit Supervisor and inform examinee the checklist position will be corrected.</p> <p>CUE: Hand examinee corrected worker tagout in accordance with the evaluator note above.</p>	<p>Determines clearance position is incorrect:</p> <ul style="list-style-type: none"> • 2CV129 C/S, Demin Hi Temp Divert Valve – INFO. • 2CV8421 RC Filter Bypass Valve - INFO. • 2CV8425 RC Filter Inlet Isol Valve - CLOSED. • 2CV8422 RC Filter Outlet Isol Valve - OPEN. • 2CV8424 RC Filter Drain Valve - INFO. • 2CV8423 RC Filter Vent Valve - INFO. ○ Notifies SM and NSOs of position error. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- N/A

COMMENTS

- Provide copy of OP-AA-109-101, CLEARANCE AND TAGGING, REV 4, .
- Provide copy of BwOP CV-10, CV FILTERS ISOLATION AND RETURN TO SERVICE, REV 18.
- Provide copy of M-138, sheet 5B, DIAGRAM OF CVCS AND BTRS.

**ATTACHMENT 14 PART 1
WTO Form Hang/Lift Section
Page 1 of 1**

Exceptional C/O: Mode Dependent: Condition Dependent:
 Production Risk: Environmental Risk: Atmospheric Risk: Reactivity Risk:

WORKER TAGOUT# **PO9-005** JOB DESCRIPTION: **CHANGE 2CV03F**

WORKING DEPARTMENT: **OPS** W/O OR W/R: **12345** EQUIP. TAG# **2CV03F**

COMPONENT DESCRIPTION: **UNIT 2 RC FILTER**

FIRST APPROVAL: Jim NSO DATE/TIME: Today/One hour ago

SECOND APPROVAL: _____ DATE/TIME: _____

WTO AUTHORIZATION: _____ DATE/TIME _____

SPECIAL INSTRUCTIONS: YES: NO: (IF YES SEE ATTACHMENT 14 PART 2)

EQUIP. TAG/EQUIPMENT NAME	SEQ	TAG TYPE	POSITION	HUNG BY	VERIF. BY	SFTY. VERIF.	RTS SEQ	RTS POSITION	RTS BY	VERIF. BY
2CV129 C/S (DEMIN HI TEMP DIVERT VLV)	1	CI	INFO				3	AS REQUIRED		
2CV8421 RC FILTER BYPASS VLV	2	RI	INFO				1	OPEN		
2CV8425 RC FILTER INLET ISOL VLV	3	RD	CLOSED				2	CLOSED		
2CV8422 RC FILTER OUTLET ISOL VLV	4	RD	OPEN				2	CLOSED		
2CV8424 RC FILTER DRAIN VLV	5	RI	INFO				2	CLOSED		
2CV8423 RC FILTER VENT VLV	5	RI	INFO				2	CLOSED		

WTO PLACED: _____ DATE/TIME: _____

WTL COMPLETED WORK START: _____ DATE/TIME: _____

WTO FINAL CLEAR: WORK CREWMEMBER RELEASE: _____ DATE/TIME: _____

WTO CLEARED: _____ DATE/TIME: _____

(COPIES MAY BE MADE OF THIS FORM FOR ADDITIONAL ISOLATION POINTS)

**ATTACHMENT 14 PART 1
WTO Form Hang/Lift Section**

Page 1 of 1

Exceptional C/O: Mode Dependent: Condition Dependent:
 Production Risk: Environmental Risk: Atmospheric Risk: Reactivity Risk:

WORKER TAGOUT# **PO9-005** JOB DESCRIPTION: **CHANGE 2CV03F**

WORKING DEPARTMENT: **OPS** W/O OR W/R: **12345** EQUIP. TAG# **2CV03F**

COMPONENT DESCRIPTION: **UNIT 2 RC FILTER**

FIRST APPROVAL: **Jim NSO** DATE/TIME: **Today/One hour ago**

SECOND APPROVAL: _____ DATE/TIME: _____

WTO AUTHORIZATION: _____ DATE/TIME _____

SPECIAL INSTRUCTIONS: YES: NO: (IF YES SEE ATTACHMENT 14 PART 2)

EQUIP. TAG/EQUIPMENT NAME	SEQ	TAG TYPE	POSITION	HUNG BY	VERIF. BY	SFTY. VERIF.	RTS SEQ	RTS POSITION	RTS BY	VERIF. BY
2CV129 C/S (DEMIN HI TEMP DIVERT VLV)	1	CI	INFO				3	AS REQUIRED		
2CV8421 RC FILTER BYPASS VLV	2	RI	INFO				1	OPEN		
2CV8422 RC FILTER OUTLET ISOL VLV	3	RD	CLOSED				2	CLOSED		
2CV8425 RC FILTER INLET ISOL VLV	4	RD	CLOSED				2	CLOSED		
2CV8424 RC FILTER DRAIN VLV	5	RI	INFO				2	CLOSED		
2CV8423 RC FILTER VENT VLV	5	RI	INFO				2	CLOSED		

WTO PLACED: _____ DATE/TIME: _____

WTL COMPLETED WORK START: _____ DATE/TIME: _____

WTO FINAL CLEAR: WORK CREWMEMBER RELEASE: _____ DATE/TIME: _____

WTO CLEARED: _____ DATE/TIME: _____

(COPIES MAY BE MADE OF THIS FORM FOR ADDITIONAL ISOLATION POINTS)

ATTACHMENT 14 PART 1
WTO Form Hang/Lift Section
Page 1 of 1

Exceptional C/O: Mode Dependent: Condition Dependent:
 Production Risk: Environmental Risk: Atmospheric Risk: Reactivity Risk:

WORKER TAGOUT# **PO9-005** JOB DESCRIPTION: **CHANGE 2CV03F**

WORKING DEPARTMENT: **OPS** W/O OR W/R: **12345** EQUIP. TAG# **2CV03F**

COMPONENT DESCRIPTION: **UNIT 2 RC FILTER**

FIRST APPROVAL: **Jim NSO** DATE/TIME: **Today/One hour ago**

SECOND APPROVAL: _____ DATE/TIME: _____

WTO AUTHORIZATION: _____ DATE/TIME _____

SPECIAL INSTRUCTIONS: YES: NO: (IF YES SEE ATTACHMENT 14 PART 2)

EQUIP. TAG/EQUIPMENT NAME	SEQ	TAG TYPE	POSITION	HUNG BY	VERIF. BY	SFTY. VERIF.	RTS SEQ	RTS POSITION	RTS BY	VERIF. BY
2CV129 C/S (DEMIN HI TEMP DIVERT VLV)	1	CI	INFO				3	AS REQUIRED		
2CV8421 RC FILTER BYPASS VLV	2	RI	INFO				1	OPEN		
2CV8425 RC FILTER INLET ISOL VLV	3	RD	CLOSED				2	CLOSED		
2CV8422 RC FILTER OUTLET ISOL VLV	4	RD	CLOSED				2	CLOSED		
2CV8424 RC FILTER DRAIN VLV	5	RI	INFO				2	CLOSED		
2CV8423 RC FILTER VENT VLV	5	RI	INFO				2	CLOSED		

WTO PLACED: _____ DATE/TIME: _____

WTL COMPLETED WORK START: _____ DATE/TIME: _____

WTO FINAL CLEAR: WORK CREWMEMBER RELEASE: _____ DATE/TIME: _____

WTO CLEARED: _____ DATE/TIME: _____

(COPIES MAY BE MADE OF THIS FORM FOR ADDITIONAL ISOLATION POINTS)

JOB PERFORMANCE MEASURE

TASK CONDITIONS:

1. You are an extra NSO.
2. Both Units are at full power.
3. 1PR01J is operable.

INITIATING CUES:

1. The Unit Supervisor has handed you a Containment release package G-09-001, completed through section B, and has directed you to complete Section C. All previous sections of the release package have been successfully completed.
2. An Equipment Operator is standing by to obtain the 1FI-PR100 flowrate

TASK TITLE: Perform a Containment Release Channel Check

JPM No.: **R-301**
TPO No.: 4C.WQ-01
TASK No.: R-GW-001, Perform gaseous release

REV: **NRC 09-1**
K&A No.: 2.3.11
K&A IMP: 3.8/4.3

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) **9, 10**
MINUTES

APPROX COMPLETION TIME: **19**

CRITICAL TIME: **NA**

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. 1BwOS RETS 2.2.B-1, Rev 1, Unit One Pre-release Source and Channel Check of Containment Purge Effluent Monitor 1PR01J (1RE-PR001A/B/C)
2. BwRP 6110-13T1, Rev 18, Containment Release Form

MATERIALS:

1. BwRP 6110-13T1, Rev 18, Containment Release Form completed through section B.
2. 1BwOS RETS 2.2.B-1, Rev 1, Unit One Pre-release Source and Channel Check of Containment Purge Effluent Monitor 1PR01J (1RE-PR001A/B/C) with Predefine Cover Sheet

TASK STANDARDS:

1. Complete Section C of Containment Release Form in accordance with BwRP 6110-13T1.
2. Correctly operate the RM-11 for setpoint adjustment.

TASK CONDITIONS:

1. You are an extra NSO.
2. Both Units are at full power.
3. 1PR01J is operable.

INITIATING CUES:

1. The Unit Supervisor has handed you a Containment release package G-09-001, completed through section B, and has directed you to complete Section C. All previous sections of the release package have been successfully completed.

RECORD START TIME

Note: Provide the examinee with a copy of BwRP 6110-13T1 completed through Step B and 1BwOS RETS 2.2.B-1 with Predefine cover sheet.

When requested by the examinee, Independent Verification has been completed.

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to partially completed BwRP 6110-13T1, Section C Refer to 1BwOS RETS 2.2.B-1 CUE: Prerequisites are met.	<ul style="list-style-type: none"> • Locate and open BwRP 6110-13T1 • Determine 1BwOS RETS 2.2.B-1 needs to be performed next. • VERIFY the applicable Prerequisites, Precautions, and Limitations and Actions are addressed. 	SAT UNSAT N/A Comments:
2.	RECORD the Release Number from BwRP 6110-13T1	<ul style="list-style-type: none"> • Locate release number on page 1 of containment release form and record it in step 1.2 	SAT UNSAT N/A Comments:
3.	Locally obtain 1FI-PR100 Flowrate CUE: EO (any name) reports flowrate is 2.9 scfm.	<ul style="list-style-type: none"> • Record flowrate and name of EO is step 1.3 	SAT UNSAT N/A Comments:
4.	At the RM-11 Console (1PM14JB-1) VERIFY/SELECT Grid 2	<ul style="list-style-type: none"> • Press grid 2 key at RM-11 and verify grid 2 Process Air Monitor screen comes to view. 	SAT UNSAT N/A Comments:
5.	Perform source/channel check of 1RE-PR001A	<ul style="list-style-type: none"> • Press keys 1,2,0,1 in order and then press SEL key. • Obtain current activity reading of 1PA201 by depressing any trend, items or status key and record on surv. • Press the CHECK SOURCE key and verify key is backlit. • Verify CHECK SOURCE ENERGIZED is on status display. • Verify CHECK SOURCE FAILED is not indicated after backlit goes out. • Record cursor color of green. • Verify color not white magenta or dark blue. 	SAT UNSAT N/A Comments:

6.	Perform source/channel check of 1RE-PR001B	<ul style="list-style-type: none"> • Press keys 1,1,0,1 in order and then press SEL key. • Obtain current activity reading of 1PB101 and record on surv. • Press the CHECK SOURCE key and verify key is backlit. • Verify CHECK SOURCE ENERGIZED is on status display. • Verify CHECK SOURCE FAILED is not indicated after backlit goes out. • Record cursor color of green. • Verify color not white magenta or dark blue. 	SAT UNSAT N/A <u>Comments:</u>
7.	Perform source/channel check of 1RE-PR001C	<ul style="list-style-type: none"> • Press keys 1,3,0,1 in order and then press SEL key. • Obtain current activity reading of and record on surv. • Press the CHECK SOURCE key and verify key is backlit. • Verify CHECK SOURCE ENERGIZED is on status display. • Verify CHECK SOURCE FAILED is not indicated after backlit goes out. • Record cursor color of green. • Verify color not white magenta or dark blue. 	SAT UNSAT N/A <u>Comments:</u>
8.	Record original Setpoint of 1RE-PR001 Gas Channel	<ul style="list-style-type: none"> ○ Press grid 2 key at RM-11 and verify grid 2 Process Air Monitor screen comes to view. • Press keys 1,1,0,1 in order and then press SEL key. • Press CHANNEL ITEMS key • Record High Alarm setpoint • Record Alert Alarm setpoint • Initial and date step. 	SAT UNSAT N/A <u>Comments:</u>

*9	Change High alarm setpoint on 1PB101 Cue: When prompted by examinee for an independent verification, state "Another NSO has independently verified the set point change."	<ul style="list-style-type: none"> • Select SUPERVISOR MODE on RM-11 with selector key. ○ Press CHANNEL ITEMS key • Press 09 and SELECT • Press 683-4 (or 683-04) and ENTER • Initial and date step. 	SAT UNSAT N/A <u>Comments:</u>
*10	Change Alert alarm setpoint on 1PB101 Cue: When prompted by examinee for an independent verification, state "Another NSO has independently verified the set point change."	<ul style="list-style-type: none"> • Press 10 and SELECT • Press 683-5 (or 683-05) and ENTER • Initial and date step. 	SAT UNSAT N/A <u>Comments:</u>
11	Notify US of section C completion	<ul style="list-style-type: none"> • Notifies US that section C is complete. 	SAT UNSAT N/A <u>Comments:</u>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

JPM NO: N-099

REQUIRED SIMULATOR MODE (S): ANY

MALFUNCTION #'S: N/A

COMMENTS:

1. BwRP 6110-13T1 needs to be filled out through section B. Step D.7.b High Alarm Setpoint
2.84 x 10⁻⁴
Step A.5.d High Alarm Setpoint 6.83 x 10⁻⁴
Step A.5.d Alert Alarm Setpoint 6.83 x 10⁻⁵

2. Verify 1RE-PR001 setpoints as follows:
High Alarm (Channel Item 9) 6.06 x 10⁻⁴
Alert Alarm (Channel Item 10) 6.06 x 10⁻⁵
3. Place RM-11 on Grid 2.
4. Advance RM-11 printer to blank paper.

JOB PERFORMANCE MEASURE

TASK CONDITIONS:

1. You are an extra SRO on shift.
2. Unit 1 is recovering from an event that caused a suspected hydrogen bubble to accumulate in the reactor vessel head.
3. The crew is currently performing 1BwFR-I.3 RESPONSE TO VOIDS IN REACTOR VESSEL.
4. Attempts to condense the vessel head void have been unsuccessful and the TSC has directed the crew to perform a direct vessel vent.
5. Current plant conditions are as follows:
 - Containment temperature (dry bulb) = 160°F
 - Containment pressure = 3.5 psig
 - Containment hydrogen concentration =1%
 - RCS pressure = 1900 psig

INITIATING CUES:

1. The Shift Manager (Jon Doe) directs you to assist the Unit 1 SRO by calculating vessel vent time per 1BwFR-I.3, Attachment B.
2. Inform the Shift Manager when you have completed 1BwFR-I.3, Attachment B.

TASK TITLE: Determine Venting Time For Reactor Vessel Void

JPM No.: S-108

REV: NRC 09-1

Task No.: S-FR-017

K/A No.: 2.1.25

Objective No.: 8D.FR-012-A

K/A IMP: 4.2

EXAMINEE: _____

SRO

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 2, 3, 4, 5, 6

APPROX COMPLETION TIME: 10 MINUTES

CRITICAL TIME: NA

EVALUATION METHOD:

LOCATION:

PERFORM

IN PLANT

SIMULATE

SIMULATOR OR CLASSROOM

GENERAL REFERENCES:

- 1BwFR-I.3, RESPONSE TO VOIDS IN REACTOR VESSEL, Rev 201.

MATERIALS:

- 1BwFR-I.3, RESPONSE TO VOIDS IN REACTOR VESSEL, Attachment B.
- Calculator

TASK STANDARDS:

- Determine vessel venting time

TASK CONDITIONS:

- You are an extra SRO on shift.
- Unit 1 is recovering from an event that caused a suspected hydrogen bubble to accumulate in the reactor vessel head.
- The crew is currently performing 1BwFR-I.3 RESPONSE TO VOIDS IN REACTOR VESSEL.
- Attempts to condense the vessel head void have been unsuccessful and the TSC has directed the crew to perform a direct vessel vent.
- Current plant conditions are as follows:
 - Containment temperature (dry bulb) = 160°F
 - Containment pressure = 3.5 psig
 - Containment hydrogen concentration = 1%
 - RCS pressure = 1900 psig

INITIATING CUES:

- The Shift Manager (Jon Doe) directs you to assist the Unit 1 SRO by calculating vessel vent time per 1BwFR-I.3, Attachment B.
- Inform the Shift Manager when you have completed 1BwFR-I.3, Attachment B.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to 1BwFR-I.3 NOTE: Provide copy of 1BwFR-I.3 to examinee.	Refer to 1BwFR-I.3	SAT UNSAT N/A <u>Comments:</u>
*2.	Calculate containment temperature in Rankine.	Perform Attachment B, step 1 <ul style="list-style-type: none"> • Enter 160 in °F blank. • Add 460 to 160 and enter 620 in °R blank. 	SAT UNSAT N/A <u>Comments:</u>
*3.	Calculate containment air volume based on current temperature and pressure.	Perform Attachment B, step 2 <ul style="list-style-type: none"> • Enter 620 in °R blank. • Enter 3.5 in CNMT press blank. • Perform calculation and enter 2,750,968 (or approx. 2.75E6) in ft³ blank. 	SAT UNSAT N/A <u>Comments:</u>
*4.	Calculate maximum hydrogen volume that can be vented keeping cnmt concentration below 3%.	Perform Attachment B, step 3 <ul style="list-style-type: none"> • Enter 1 in cnmt hydrogen conc. blank. • Enter enter 2,750,968 (or approx. 2.75E6) in ft³ blank • Perform calculation and enter 55,019 (or approx. 5.5E4) in ft³ blank. 	SAT UNSAT N/A <u>Comments:</u>
*5.	Determine hydrogen flow rate from RCS vent.	Perform Attachment B, step 4 <ul style="list-style-type: none"> • Plot RCS pressure on Figure 1BwFR I.3-4 and determine flow rate will be 5850 scfm (range of 5800 to 5900) • Enter flow rate in step 4 SCFM blank. 	SAT UNSAT N/A <u>Comments:</u>
*6.	Calculate maximum venting time.	Perform Attachment B, step 5 <ul style="list-style-type: none"> • Enter 55,019 (or approx. 5.5E4) in ft³ blank. • Enter 5850 (5800 – 5900) in SCFM blank. • Calculate minutes and enter 9.4 (range of 9.3 to 9.5) in minutes blank. 	SAT UNSAT N/A <u>Comments:</u>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
7.	Report to SM results of venting calculation.	Notify SM that RCS venting can be performed for approx. 9.4 minutes.	SAT UNSAT N/A <u>Comments:</u>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

NOTE: JPM can be performed in any location. If JPM is performed in simulator, inform examinee to use given information in cue.

SIMULATOR SETUP INSTRUCTIONS

- N/A

COMMENTS:

TASK CONDITIONS:

1. You are the Unit 1 Unit Supervisor.
2. Unit 1 is at 100% power; all systems and controls are normally aligned.
3. A Unit 1 Containment release package has been initiated to lower containment pressure.

INITIATING CUES:

1. The U1 Assist NSO has completed Containment Release package G-09-001 through step C.1.f., and states that the package is ready for you.
2. Inform the U1 Admin NSO when the release package review is complete.

TASK TITLE: **Review Containment Release for Approval**

JPM No.: **S-300**
TPO No.: 8C.HP-002
TASK No.: S-HP-002: Authorize Gaseous (Containment
or Gas Decay Tank) Rad Waste Release

REV: **NRC 09-1**
K&A No.: 2.3.11
K&A IMP: 4.3

ADMIN: Radiation Control

EXAMINEE: _____ SRO

EVALUATOR: _____ DATE: _____

The Examinee: PASSED _____ this JPM. TIME STARTED: _____

FAILED _____ TIME FINISHED: _____

CRITICAL ELEMENTS: (*) **2, 4** JPM TIME: _____ MINUTES

CRITICAL TIME: **None** APPROX COMPLETION TIME: **30** MINUTES

EVALUATION METHOD: LOCATION:
 PERFORM IN PLANT
 SIMULATE SIMULATOR

GENERAL REFERENCES:

1. 1BwOS RETS 2.2.B-1, Rev 1, Unit One Pre-release Source and Channel Check of Containment Purge Effluent Monitor 1PR01J (1RE-PR001A/B/C)
2. BwRP 6110-13T1, Rev 16, Containment Release Form

MATERIALS:

1. Copy of partially completed BwRP 6110-13T1
2. Copy of completed 0BwOS RETS 2.2.1a
3. 1BwOS RETS 2.2.B-1

TASK STANDARDS:

1. Review BwRP 6110-13T1 and 0BwOS RETS 2.2.1a.
2. Determine release cannot proceed due to 1PR01J status.
3. Determine entry into RETS 2.2-1A required for 1PR01J.

TASK CONDITIONS:

1. You are the Unit 1 Unit Supervisor.
2. Unit 1 is at 100% power; all systems and controls are normally aligned.
3. A Unit 1 Containment release package has been initiated to lower containment pressure.

INITIATING CUES:

1. The U1 Assist NSO has completed Containment Release package G-09-001 through step C.1.f., and states that the package is ready for you. **(Cue: Hand release package and surveillance to examinee.)**
2. Inform the U1 Admin NSO when the release package review is complete.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	Circle Applicable
1.	<p>Refer to partially completed BwRP 6110-13T1, Section C</p> <p>Cue: (If asked) Gaseous Release in progress sign has been placed and the 1A VA exhaust fan is in operation.</p>	<ul style="list-style-type: none"> • Reads Step D, determines SRO approval required. • Reviews entire document 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*2.	<p>Review Section B</p> <p>Cue: (If asked) NSO verifies 1PB101 is WHITE.</p> <p>Cue: (If asked) Shift Manager acknowledges BwOS failure and an investigation is to be conducted.</p> <p>Cue: (if asked) RETS will be entered for 1PR01J.</p>	<p>Reviews steps C.1.a-f:</p> <ul style="list-style-type: none"> • Reviews 1BwOS RETS 2.2.B-1 • Notices 1PB101 is white (step 3.5 of 1BwOS RETS 2.2.B-1) which does not meet acceptance criteria 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
3.	<p>Review information and ensure rest of form filled out</p> <p>Note: Candidate may elect to proceed no further based on the surveillance failure. If so:</p> <p>Cue: Shift Manager acknowledges BwOS failure, but desires you check the rest of the release package to ensure it is properly filled out</p>	<p>Identify from review that the release form has no additional errors</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*4.	<p>Refuse to approve release until errors have been resolved.</p> <p>Cue: If examinee asks to review 0BwOS RETS 2.2.1a., provide a copy for review.</p>	<ul style="list-style-type: none"> • Determine release is unable to be performed (cannot be signed) until 1BwOS/1PR001J failure corrected ○ Reviews RETS 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

JPM NO: S-300

REQUIRED SIMULATOR MODE (S): None.

MALFUNCTION #S:

COMMENTS:

TASK CONDITIONS:

1. You are the Unit Supervisor on Unit 1.
2. 15 minutes ago Unit 1 experienced an automatic Rx trip from 100% power.
3. Aux Feed automatically initiated at the proper SG level.
4. The trip was caused by a spiking OTDT channel, while a second channel was in test.
5. All other equipment functioned as designed.
6. 1BwEP ES-0.1 is in progress.
7. No Emergency Plan thresholds have been met.

INITIATING CUES:

You have been directed by the SM to screen this event for reportability and complete the ENS notification worksheet for the event, if required.

TASK TITLE: Screen an Event for Reportability and Complete ENS Worksheet

JPM No.: **S-404**
TPO No.: 8.E.AM-102
TASK No.: S-AM-102: Screen Reportable or Significant Events for Reportability

REV: NRC 09-1
K&A No.: 2.4.30
K&A IMP: 4.1

EXAMINEE: _____

SRO

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 2, 3

APPROX COMPLETION TIME: **25 MINUTES**

CRITICAL TIME: N/A

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. LS-AA-1110, Rev. 7, Exelon Reportability Manual
2. EP-AA-114, Rev. 6, Notifications
3. LS-AA-1150, Rev. 0, Event Notification Worksheet

MATERIALS:

1. LS-AA-1110
2. LS-AA-1150

TASK STANDARDS:

1. Screen an event for reportability and complete the appropriate notification worksheet.

TASK CONDITIONS:

1. You are the Unit Supervisor on Unit 1.
2. 15 minutes ago Unit 1 experienced an automatic Rx trip from 100% power.
3. Aux Feed automatically initiated at the proper SG level.
4. The trip was caused by a spiking OTDT channel, while a second channel was in test.
5. All other equipment functioned as designed.
6. 1BwEP ES-0.1 is in progress.
7. No Emergency Plan thresholds have been met.

INITIATING CUES:

1. You have been directed by the SM to screen this event for reportability and complete the ENS notification worksheet, if required.

SIMULATOR SETUP INSTRUCTIONS

JPM NO: S-404

REQUIRED SIMULATOR MODE (S): N/A

MALFUNCTION #'S: N/A

COMMENTS: None

TASK CONDITIONS:

1. You are the Unit 1 NSO.
2. Unit 1 is at full power, all systems and controls are in automatic.

INITIATING CUES:

1. You have been directed to perform 1BwOSR 3.1.4.2, Unit One Movable Control Assemblies Quarterly Surveillance in the preferred order specified in surveillance.
2. ARO position is to remain the same.
3. System Engineering has determine that performance of BwVS 500-2, Checkout of the Bank Overlap Unit and System Verification is **not** required and support is available for removing Rod J-13 from double gripper hold.
4. Inform the Shift manager of your results.

TASK TITLE: Perform Movable Control Assemblies Quarterly Surveillance

JPM No.: **SIM 111**
TPO No.: 4C.GP-04
TASK No.: R-RD-004, Perform Critical Control
Rod Position Surveillance

REV: NRC 09-1
K&A No.: 001000A4.03
K&A IMP: 4.0/3.7

EXAMINEE: _____ RO SRO (Circle One)

EVALUATOR: _____ DATE: _____

The Examinee: PASSED _____ this JPM.

TIME STARTED:

FAILED _____ TIME FINISHED:

CRITICAL ELEMENTS: (*) **3, 4, 5**

JPM TIME: _____ MINUTES

CRITICAL TIME: **NA**

APPROX COMPLETION TIME: **30** MINUTES

EVALUATION METHOD:

PERFORM
 SIMULATE

LOCATION:

IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. Tech Spec 3.1.4
2. 1BwOSR 3.1.4.2, Rev.17, Unit One Movable Control Assemblies Quarterly Surveillance.

MATERIALS:

1. 1BwOSR 3.1.4.2, Unit One Movable Control Assemblies Quarterly Surveillance.
Ensure cover sheet is signed and due/late dates are modified.
2. Requires Reactivity Manager.

TASK STANDARDS:

1. Perform the required actions of 1BwOSR 3.1.4.2, Movable Control Assemblies Quarterly Surveillance.

TASK CONDITIONS:

1. You are the Unit 1 NSO.
2. Unit 1 is at full power, all systems and controls are in automatic.

INITIATING CUES:

1. You have been directed to perform 1BwOSR 3.1.4.2, Unit One Movable Control Assemblies Quarterly Surveillance.
2. ARO position is to remain the same.
3. System Engineering has determine that performance of BwVS 500-2, Checkout of the Bank Overlap Unit and System Verification is **not** required and support is available for removing Rod J-13 from double gripper hold.
4. Inform the Shift manager of your results.

RECORD START TIME

PERFORMANCE STEP	STANDARD	Circle applicable
<p>1. Refer to 1BwOSR 3.1.4.2. (CUE: Provide student with the marked up copy with cover sheet. No cue sheet is provided)</p> <p>(CUE: Visual inspection of all U1 Rod Drive cabinets is complete and satisfactory. All other prerequisites are met.)</p>	<p>Refer to 1BwOSR 3.1.4.2.</p> <ul style="list-style-type: none"> ○ Signs cover sheet • Verify all applicable prerequisites, precautions limitations and actions are addressed. ○ Places dots on expected alarms listed in limitations and actions and pre-reviews Bwar's. <ul style="list-style-type: none"> ○ 1-10-A6 ○ 1-10-B6 ○ 1-12-C1 ○ 1-10-A7 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
<p>2. Transfer Rod Control to Manual and Verify Tave is matched to Tref.</p> <p>(CUE: When examinee gets to step 2.3.a.1), tell them that performance of BwOP RD-7 will be delayed until SD bank B is to be tested.</p>	<ul style="list-style-type: none"> ○ Informs US that rod control will be placed in manual. • Transfer rod control to MANUAL. ○ Verifies rod speed at 48 stps/min • VERIFY/MAINTAIN Tave matched to Tref. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
<p>*3. Selects "SBE" bank select and records SD bank E position</p> <p>Cue: When necessary acknowledge alarms as US and verify SER pt 2153 is in alarm.</p>	<p>Perform the Rod Movement Verification as follows:</p> <ul style="list-style-type: none"> ○ Examinee reads note that as long as SB Rods are above 224 by bank demand /DRPI >222 Rod Insertion limits are met. ○ Examinee reads note for preferred order on SD banks. • Places rod bank select switch in "SBE" Position. • Examinee Records initial group step counter as found readings and DRPI readings for CBA on Table 2. ○ Reads note concerning ROD DEV POWER RNG TILT alarm. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

SIMULATOR SETUP INSTRUCTIONS

JPM NO: SIM-111

REQUIRED SIMULATOR MODE(S): 100% power steady state

MALFUNCTION #'S:

RD05H04 Stuck rod on Shutdown Bank E H4 (current rod height)

COMMENTS:

TASK CONDITIONS:

1. You are the Unit 1 Extra NSO.
2. Both Units are at power.
3. All systems and controls are normal for the present conditions.
4. **This is a time critical JPM.**

INITIATING CUES:

Annunciator 1-5-B2, ACCUM 1B PRESS HIGH/LOW, has been in for 30 minutes. The LCOAR for the 1B SI accumulator was entered 28 minutes ago. The Unit Supervisor has directed you to respond to the alarm and correct the condition.

TASK TITLE: **Raise SI Accumulator Pressure**

JPM Number: **SIM-207**
TPO No.: 4C.SI-04
Task No.: R-SI-003, Adjust SI accumulator pressure.

Rev: NRC 09-1
K&A No.: 006000A4.02
K&A Imp.: 4.0/3.8

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

Critical Elements: (*) **3, 4**

Approx. Completion Time: **16 minutes**

Critical Time: **32 minutes**

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. BwAR 1-5-B2, Rev. 6E3, ACCUM 1B PRESS HIGH/LOW
2. BwOP SI-8, Rev. 14, Raising SI Accumulator Pressure
3. TS 3.5.1

MATERIALS:

1. BwOP SI-8

TASK STANDARDS:

1. Restore SI Accumulator pressure to within Tech Spec limits

TASK CONDITIONS:

1. You are the Unit 1 Extra NSO.
2. Both Units are at power.
3. All systems and controls are normal for the present conditions.
4. **This is a time critical JPM.**

INITIATING CUES:

1. Annunciator 1-5-B2, ACCUM 1B PRESS HIGH/LOW, has been in for 30 minutes. The LCOAR for the 1B SI accumulator was entered 28 minutes ago. The Unit Supervisor has directed you to respond to the alarm and correct the condition.

RECORD START TIME _____

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	<p>Refer to BwAR 1-5-B2 and determine 1B SI accumulator pressure is low.</p> <p>CUE: If asked as US, confirm that 1BwOL 3.5.1 has been entered and you are directed to raise 1B SI accumulator pressure to 625 psig</p>	<p>Locate and open BwAR 1-5-B2 and perform the following:</p> <ul style="list-style-type: none"> ○ Monitor 1LI-952/953 for 1B accumulator level. ○ Monitor 1PI-962/963 to determine pressure is low. ○ Check SER points 2066 and 0603 in alarm. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
2.	<p>Refer to BwOP SI-8, Raising SI Accumulator Pressure.</p> <p>NOTE: After the student locates correct procedure, provide a copy and inform the student that all prerequisites, precautions and limitations and actions are met.</p>	<p>Locate and open BwOP SI-8.</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*3.	<p>Align N₂ Tube trailer per BwOP NT-9, step F.1 to pressurize the vent header up to the vent valve, 1SI8875B.</p> <p>CUE: N₂ tube trailer is aligned</p>	<p>Perform the following to pressurize the N₂ header up to the 1B SI accumulator vent valve, 1SI8875B:</p> <ul style="list-style-type: none"> ○ Dispatch EO to align N₂ tube trailer per BwOP NT-9, step F.1. <p>At 1PM06J:</p> <ul style="list-style-type: none"> ○ Verify / Close 1SI943. ● Open 1SI8880, N₂ Supply Isolation Valve. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

NOTE: With RCS Pressure > 1000 psig, DO NOT open more than one 1SI8875A/B/C/D at a time.

<p>*4.</p>	<p>Raise pressure in the 1B SI Accumulator to within Tech Spec limits.</p> <p>NOTE: Critical Time ends when accumulator pressure is greater than 602 psig.</p> <p>Time 1B SI accumulator pressure > 602 psig:_____</p> <p>Note: Previous cue required pressure rise to be stopped at 625 psig.</p>	<p>Raise pressure in the 1B SI Accumulator to within T.S limits as follows:</p> <ul style="list-style-type: none"> • Open 1SI8875B. ○ Monitor pressure rise on 1PI-962/963. ○ Verify Alarm 1-5-B2 clears. • Close 1SI8875B after clearing low pressure alarm but prior to receiving high pressure alarm. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
<p>5.</p>	<p>Exit LCOAR 3.5.1.</p> <p>CUE: US acknowledges pressure restored and exits LCOAR.</p>	<p>Inform US pressure is within the Tech Spec limit and LCOAR 1BwOL 3.5.1 may be exited.</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
<p>6.</p>	<p>Restores N₂ lineup</p> <p>CUE: EO reports N₂ tube trailer has been restored.</p>	<p>Restore N₂ lineup as follows:</p> <ul style="list-style-type: none"> • Close 1SI8880, N₂ Supply Isolation Valve. • Dispatch EO to restore N₂ tube trailer per BwOP NT-9, step F.2. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM

RECORD STOP TIME _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

JPM No: N-003a

REQUIRED SIMULATOR MODE (S): 100% power steady state preferred, however, Mode 1, 2, or 3 > 1000 psig will work with minor adjustments to the initiating cues.

MALFUNCTION #'S: NONE

COMMENTS:

EITHER:

1. Open 1SI8875B
2. Throttle open 1SICHV943 until 1B SI Accumulator pressure is slightly less than 602 psig.
3. Close 1SI8875B and 1SICHV943
4. Consider a snap to 0.
5. Ensure SER has alarm printed and on screen.

OR

1. Modify the pressure in the 1B SI Accumulator as follows:
MMP SIMN2ACC[2] 1203 (600 psig. NOTE HP alarm is at 637 psig, 1280 mass of N₂ at 5.807 e4
(**SIMACC[2]**) mass of water. 1262 mass is 628 psig.)

TASK CONDITIONS:

1. You are the Unit 1 NSO.
2. Unit 1 is at full power, all systems and controls are in automatic.
3. Maintenance has recently completed repairs to 1RY455A PZR PORV.
4. LCO 3.4.11 is in effect for 1RY455A inoperability.
5. Per the IST program, 1RY455A must be stroke tested prior to declaring it operable.

INITIATING CUES:

1. You have been directed to perform 1BwOSR 3.4.11.2, Pressurizer System Valve Stroke Surveillance, steps 1, 2 and 4.
2. Inform the Shift manager of your results.

TASK TITLE: Perform Pressurizer PORV Valve Stroke

JPM No.: **SIM 304**
TPO No.: 4C.RY-29
TASK No.: R-RY-023, Perform a Reactor Coolant System relief valve 18 month surveillance

REV: NRC 09-1
K&A No.: 010000A4.03
K&A IMP: 4.0/3.8

EXAMINEE: _____ RO SRO (Circle One)

EVALUATOR: _____ DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED:

TIME FINISHED:

CRITICAL ELEMENTS: (*) **2,3,4,6**

JPM TIME: _____ MINUTES

CRITICAL TIME: **NA** APPROX COMPLETION TIME: **15** MINUTES

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. Tech Spec 3.4.11
2. 1BwOSR 3.4.11.2, Pressurizer System PORV Valve Stroke Surveillance.

MATERIALS:

1. 1BwOSR 3.4.11.2, Pressurizer System PORV Valve Stroke Surveillance. Ensure cover sheet is signed and due/late dates are modified.
2. Requires digital stop watch.

TASK STANDARDS:

1. Perform the required actions of 1BwOSR 3.4.11.2, Pressurizer System PORV Valve Stroke Surveillance.

TASK CONDITIONS:

1. You are the Unit 1 NSO.
2. Unit 1 is at full power, all systems and controls are in automatic.
3. Maintenance has recently completed repairs to 1RY455A PZR PORV.
4. LCO 3.4.11 is in effect for 1RY455A inoperability.
5. Per the IST program, 1RY455A must be stroke tested prior to declaring it operable.

INITIATING CUES:

1. You have been directed to perform 1BwOSR 3.4.11.2, Pressurizer System Valve Stroke Surveillance, steps 1, 2 and 4.
2. Inform the Shift Manager of your results.

RECORD START TIME

PERFORMANCE STEP	STANDARD	Circle applicable
<p>1. Refer to 1BwOSR 3.4.11.2.</p> <p>(CUE: Provide student with the marked up copy with cover sheet.)</p>	<ul style="list-style-type: none"> • Refer to 1BwOSR 3.4.11.2. • Signs cover sheet • Verify all applicable prerequisites, precautions limitations and actions are addressed. • Checks cover sheet for IST coordinator listed for review of results. ○ Places dots on expected alarms and pre-reviews AR's. <ul style="list-style-type: none"> ○ 1-12-B2 • Obtains stopwatch. ○ Records stopwatch data on position checklist. • Records and initials as found positions. <ul style="list-style-type: none"> • 1RY455A • 1RY456 • 1RY8000A • 1RY8000B 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
<p>* 2. At 1PM05J, closes 1RY8000A</p>	<ul style="list-style-type: none"> • Closes 1RY8000A 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
<p>* 3. Perform OPEN stroke of 1RY455A (in accordance with steps outlined in Attachment A).</p>	<ul style="list-style-type: none"> • Perform the following: <ul style="list-style-type: none"> • Verify close 1RY455A • Simultaneously start the stopwatch and open 1RY455A. • Stop the stopwatch when 1RY455A indicates open. • Record the Stroke Open Test Time. • Verify 1RY455A indicates open on 1PM06J. • Verify the open test time is within the ALERT and OPERABILITY Limits. • Check the YES block in the VER OPER section to indicate that 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

	<p>1RY455A has been verified operable.</p> <ul style="list-style-type: none"> Initial in open stroke block provided. 	
<p>* 4. Perform CLOSE stroke of 1RY455A (in accordance with steps outlined in Attachment B).</p>	<ul style="list-style-type: none"> Perform the following: <ul style="list-style-type: none"> Verify open 1RY455A Simultaneously start the stopwatch and close 1RY455A. Stop the stopwatch when 1RY455A indicates closed. Record the Stroke Close Test Time. Verify 1RY455A indicates closed on 1PM06J. Verify the close test time is within the ALERT and OPERABILITY Limits. Check the YES block in the VER OPER section to indicate that 1RY455A has been verified operable. Initial in closed stroke block provided. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

PERFORMANCE STEP	STANDARD	Circle applicable
5. Initial step 2.3	<ul style="list-style-type: none"> Verifies 1RY455A has been stroked through one complete cycle and initial in space provided. 	SAT UNSAT N/A <u>Comments:</u>
<p>* 6. At 1PM05J, opens 1RY8000A</p> <p>(Cue: If asked, cue examinee that 1RY8000A is to be returned to as found condition)</p>	<ul style="list-style-type: none"> Opens 1RY8000A 	SAT UNSAT N/A <u>Comments:</u>
<p>7. Complete as left position checklist.</p> <p>(Cue: Another NSO has performed the verifications of as left positions)</p>	<ul style="list-style-type: none"> Records and initials as left positions. <ul style="list-style-type: none"> 1RY455A 1RY8000A Obtains verification of as left positions 	SAT UNSAT N/A <u>Comments:</u>
8. Inform US of surveillance completion.	<ul style="list-style-type: none"> Signs surveillance cover sheet. Informs US that surveillance is complete. 	SAT UNSAT N/A <u>Comments:</u>

(CUE:) THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

JPM NO: SIM-304

REQUIRED SIMULATOR MODE(S): 100% power steady state

MALFUNCTION #'S:

None

COMMENTS:

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Both Units are at 100% power.
3. Unit 2 has placed the 2A SX pump in service and requests that Unit 1 swap operating SX trains. 1B SX pump has been shutdown for 2 weeks.
4. An EO has been briefed and is standing by to assist in the field.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to start the 1B SX pump and shutdown the 1A SX pump per BwOP SX-7.
2. Another NSO will monitor the remainder of the Main Control Board panels and address alarms as necessary.
3. Inform the Unit 1 Unit Supervisor when you have completed the pump swap.

TASK TITLE: Swap Essential Service Water Pumps

JPM No.: **N-072a**
TPO No.: 4C.SX-03
TASK No.: R-SX-002/003, Startup/shutdown an Essential Service Water pump

REV: **NRC 09-1**
K&A No.: 076000A4.01
K&A IMP: 2.9/2.9

TRAINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Trainee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*)5, 7, 8

COMPLETION TIME: **22 MINUTES**

CRITICAL TIME: N/A

ALTERNATE PATH: YES @

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR
 CONTROL ROOM

GENERAL REFERENCES:

1. BwOP SX-7, Rev. 18, Swapping Essential Service Water Pumps

MATERIALS:

1. BwOP SX-7, Rev. 18, Swapping Essential Service Water Pumps

TASK STANDARDS:

1. 1A SX pump is restarted with high vibration indicated in the piping

TASK CONDITIONS:

1. You are the Assist NSO.
2. The Unit is at power.
3. Unit 2 is at full power.
4. Unit 2 has placed the 2A SX pump in service and requests that Unit 1 swap operating SX trains. 1B SX pump has been shutdown for 2 weeks.
5. An EO has been briefed and is standing by to assist in the field.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to start the 1B SX pump and shutdown the 1A SX pump per BwOP SX-7.
2. Another NSO will monitor the remainder of the Main Control Board panels and address alarms as necessary.
3. Inform the Unit 1 Unit Supervisor when you have completed the pump swap.

RECORD START TIME _____

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	<p>Refer to BwOP SX-7, SWAPPING ESSENTIAL SERVICE WATER PUMPS.</p> <p>CUE: Provide copy of BwOP SX-7. CUE: All Prerequisites, Precautions, Limitations and Actions have been met.</p>	<p>Refer to BwOP SX-7, SWAPPING ESSENTIAL SERVICE WATER PUMPS.</p> <ul style="list-style-type: none"> • VERIFY all applicable Prerequisites, Precautions, and Limitations and Actions are satisfactorily addressed. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
2.	<p>Verify 1B SX pump suction valve open.</p> <p>CUE: If requested, EO reports that 1SX001B is open.</p>	<p>Perform the following at 1PM06J:</p> <ul style="list-style-type: none"> • Determine 1SX001B, SX pump 1B suction valve, is open. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

EVALUATOR NOTE: The examinee may verify 1PR02J/3J are in operation prior to placing the 1B and 1D RCFCs coils in service.

3.	<p>Verify RCFC 1B and 1D inlet and outlet valves open.</p> <p>CUE If asked, US does not desire to use a jumper.</p>	<p>Perform the following:</p> <ul style="list-style-type: none"> • Verify/Open 1SX016B/1SX027B. Or ○ Place Jumper to simulate valve position per Attachment A 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
4.	<p>Start 1A and 1B SX pump Aux. Oil pumps.</p> <p>Note: Simulator operator to start both aux. oil pumps when called.</p>	<p>Direct EO to locally start 1A and 1B SX pump Aux. Oil pumps. (1SX01PA/B-C)</p> <ul style="list-style-type: none"> • At 1PM06J verify 1A and 1B SX pump Aux. Oil pump run lights lit. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*5.	<p>Start 1B SX pump.</p> <p>CUE: If contacted as Unit 2 operator, acknowledge upcoming SX pump swap.</p> <p>CUE: If dispatched as EO to monitor 1B SX pump start locally, report satisfactory start of 1B SX pump shortly after pump started.</p> <p>CUE: As Unit Supervisor, acknowledge reports of annunciators due to SX pump start/stop as they occur.</p>	<p>Perform the following at 1PM06J:</p> <ul style="list-style-type: none"> ○ Announce pump swap over plant page • Start 1B SX pump by taking the control switch to close until pump starts. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

6.	<p>Check running amps on both SX pumps approximately equal.</p> <p>Check running SX pump discharge pressure < 112#.</p>	<p>Perform the following at 1PM06J:</p> <ul style="list-style-type: none"> • Monitor ammeters for 1A and 1B SX pumps. • Determine 1A and 1B SX pumps ammeters approximately equal. • Monitor 1PI-SX007 and 1PI-SX008 <p>Determines 1A and 1B SX pumps discharge pressures both < 112 psig</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*7.	<p>Stops 1A SX pump.</p> <p>CUE: As Unit Supervisor, acknowledge reports of annunciators due to SX pump start/stop as they occur.</p>	<p>Stops 1A SX pump by placing the control switch to TRIP.</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
ALTERNATE PATH START			
*8.	<p>CUE: U-2 reports that the 2A SX pump has tripped and U-2 has re-started the 2B SX pump.</p> <p>CUE: EO reports high vibration in the 1A train suction header of SX.</p> <p>Another NSO will complete this procedure.</p>	<ul style="list-style-type: none"> • Re-Starts the 1A SX pump 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

JPM NO: SIM-407S

REQUIRED SIMULATOR MODE (S): At power

MALFUNCTION #'S: N/A

COMMENTS:

1. Remote functions for SX pumps aux. oil pumps:
 - 1A SX pump aux. oil pump: **RF SW03 ON / OFF**
 - 1B SX pump aux. oil pump: **RF SW04 ON / OFF**
2. Remove SX Pump Trends from the HMI.

JOB PERFORMANCE MEASURE

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Unit 1 is in mode 1 with all systems properly aligned.
3. 1BwOSR 3.6.6.2 REACTOR CONTAINMENT FAN COOLER SURVEILLANCE has been initiated and completed through step F.1

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to perform 1BwOSR 3.6.6.2 REACTOR CONTAINMENT FAN COOLER SURVEILLANCE steps F.2 and F.3.
2. All fans are to be return to as found condition when surveillance runs are completed.
3. Another NSO will monitor the remainder of the Main Control Board panels and address alarms as necessary.
4. Inform the Unit 1 US when steps F.2 and F.3 are complete.

TASK TITLE: Perform RCFC Surveillance.

JPM No.: SIM-507

TPO No: 4C.VP-06

TASK No.: R-VP-007 Start-up a RCFC

REV: NRC 09-1

K/A No.: 022000A4.01

K/A IMP: 3.6/3.6

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 3, 6

APPROX COMPLETION TIME: 20 MINUTES

CRITICAL TIME: NA

EVALUATION METHOD:

LOCATION:

PERFORM

IN PLANT

SIMULATE

SIMULATOR

GENERAL REFERENCES:

- 1BwOSR 3.6.6.2, REACTOR CONTAINMENT FAN COOLER SURVEILLANCE, Rev. 18.
- BwOP VP-5, REACTOR CONTAINMENT FAN COOLER START-UP, Rev. 57.
- BwOP VP-6, REACTOR CONTAINMENT FAN COOLER SHUTDOWN, Rev. 55.

MATERIALS:

- Copy of BwOP VP-5, Rev. 57.
- Copy of BwOP VP-6, Rev. 55.
- 1BwOSR 3.6.6.2 completed through step F.1

TASK STANDARDS:

- Perform RCFC Fan Swap
- Determine 1C RCFC Low Speed Breaker Trips upon start.
- Recognize Tech Spec required actions for 1D RCFC low speed breaker malfunction.

TASK CONDITIONS:

- You are the Unit 1 Assist NSO.
- Unit 1 is in mode 1 with all systems properly aligned.
- 1BwOSR 3.6.6.2 REACTOR CONTAINMENT FAN COOLER SURVEILLANCE has been initiated and completed through step F.1

INITIATING CUES:

- The Unit 1 Unit Supervisor has directed you to perform 1BwOSR 3.6.6.2 REACTOR CONTAINMENT FAN COOLER SURVEILLANCE steps F.2 and F.3.

CUE: Hand examinee copy of 1BwOSR 3.6.6.2

- All fans are to be return to as found condition when surveillance runs are completed.
- Another NSO will monitor the remainder of the Main Control Board panels and address alarms as necessary.
- Inform the Unit 1 US when steps F.2 and F.3 are complete.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to 1BwOSR 3.6.6.2. CUE: All prerequisites, precautions, and limitations and actions are met.	Refer to 1BwOSR 3.6.6.2.	SAT UNSAT N/A <u>Comments:</u>
2.	Stop 1A and 1C RCFC High Speed Breakers per BwOP VP-6: CUE: All prerequisites, precautions, and limitations and actions are met.	Refer to BwOP VP-6 <ul style="list-style-type: none"> Determine step F.1 is applicable step. Perform the following at 1PM06J: <ul style="list-style-type: none"> Place 1VP01CA, High Speed Brk to trip. Place 1VP01CC, High Speed Brk to trip. 	SAT UNSAT N/A <u>Comments:</u>
*3.	Start 1A and 1C RCFC Low Speed Breakers per BwOP VP-5: CUE: All prerequisites, precautions, and limitations and actions are met.	Refer to BwOP VP-5 <ul style="list-style-type: none"> Determine step F.2 is applicable step. After waiting at least 20 seconds from securing fans, Perform the following at 1PM06J: <ul style="list-style-type: none"> Place 1VP01CA, Low Speed Brk to start. Place 1VP01CC, Low Speed Brk to start. 	SAT UNSAT N/A <u>Comments:</u>
4.	Record Train A run time <u>Time Compression</u> CUE: 15 Minutes has elapsed since start of last train A fan. The current time is now _____ (15 min later)	<ul style="list-style-type: none"> Record start time of last train A fan started Record current time (from cue) Calculate and record total A train low speed run time 	

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
7.	<p>Notify US of malfunction.</p> <p>CUE: US acknowledges 1D RCFC brk malfunction and will evaluate Tech Specs for applicability.</p> <p>Cue: (SRO only)(If necessary) ask as US what TS is required to be entered.</p>	<p>Notify US of 1D RCFC brk malfunction and need to evaluate LCO entry.</p> <p>(SRO only) Recognizes 3.6.6 condition C is applicable.</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOPT TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish conditions of Mode 1, steady state, normal alignment.
- **IMF CH01D**

COMMENTS:

- Provide copy of 1BwOSR 3.6.6.2 completed through step F.1
- Provide copy of BwOP VP-5 and BwOP VP-6.

TASK CONDITIONS:

1. You are an extra NSO.
2. Unit 1 has experienced a loss of Offsite power while in mode 3.
3. Unit 1 EDGs are carrying the ESF buses, but the Non-ESF buses are still de-energized.
4. The crew is currently performing 1BwOA ELEC-4
5. Unit 2 is at full power.

INITIATING CUES:

The US has directed you to re-energize 4KV Non-ESF bus 144 per step 7 of 1BwOA ELEC-4. Another NSO will monitor the remainder of the control panels.

TASK TITLE: Crosstie of ESF and Non-ESF Bus

JPM No.: **SIM-611**
TPO No.: 4D.OA-60, 61
TASK No.: R-OA-024, Energize an Electrical bus

REV: NRC 09-1
K&A No.: 062000A4.01
K&A IMP: 3.3/3.1

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 3,4

APPROX COMPLETION TIME 6 MINUTES

CRITICAL TIME: NA

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

- 1BWOA ELEC-4, Rev 104, Loss of Offsite Power Unit 1, Step 7.

MATERIALS:

- 1BWOA ELEC-4, Rev 104, Loss of Offsite Power Unit 1, Step 7.

TASK STANDARDS:

- Perform the required actions of 1BWOA ELEC-4, Step 7, to crosstie an ESF and Non-ESF Bus.

TASK CONDITIONS:

- You are an extra NSO.
- Unit 1 has experienced a loss of Offsite power while in mode 3.
- Unit 1 EDGs are carrying the ESF buses, but the Non-ESF buses are still de-energized.
- The crew is currently performing 1BWOA ELEC-4
- Unit 2 is at full power.

INITIATING CUES:

The US has directed you to re-energize 4KV Non-ESF bus 144 per step 7 of 1BWOA ELEC-4.
Another NSO will monitor the remainder of the control panels.

RECORD START TIME _____

Note: After examinee locates procedure, provide a copy.

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	1BwOA ELEC-4, Step 7	Locate and open 1BwOA ELEC-4, Step 7	SAT UNSAT N/A <u>Comments:</u>
2.	Determine ESF Bus 142 is energized.	<p>DETERMINE ESF Bus 142 is energized:</p> <ul style="list-style-type: none"> ○ Bus 142 live light is LIT ○ Bus 142 voltage normal on 1EIAP086 	SAT UNSAT N/A <u>Comments:</u>
*3.	<p>Prepare to Cross tie ESF to Non-ESF buses.</p> <p>CUE: (IF ASKED) Previously dispatched EO reports 0A Service Bldg. chiller in pull out.</p>	<p>Prepare to crosstie ESF and Non-ESF bus:</p> <p>At 1PM02J, PLACE in PULL OUT all breakers on bus 144:</p> <ul style="list-style-type: none"> • ACB 1441 • ACB 1442 • ACB 1445RA • ACB 1445XY • ACB 1445ZW • ACB 1445BC PZR HTR • ACB 1445VU <p>Check Bus lockout alarms NOT LIT</p> <ul style="list-style-type: none"> • 1-22-A1 • 1-22-A2 <p>At 0PM01J, PLACE 0B WS pump in PTL.</p> <p>At 0PM02J, PLACE 1B CNMT Chiller PTL.</p> <p>At 1PM02J, OPEN all 480-volt LOW side breakers for bus 144.</p> <ul style="list-style-type: none"> • ACB 034R1 • ACB 034P1 • ACB 134X1 • ACB 134Y1 • ACB 134Z1 • ACB 034W1 • ACB 134V1 • PZR HTR GRP B (1PM05J) • PZR HTR GRP c (1PM05J) 	SAT UNSAT N/A <u>Comments:</u>

*4.	Energize bus 144 from bus 142 via the crosstie breaker. CUE: Acknowledge as US that bus 144 is crosstied to bus 142 and inform examinee that another operator will continue with the procedure.	CLOSE Non-ESF to ESF crosstie breaker: <ul style="list-style-type: none"> • 1421 Inform US that bus 144 is crosstied to bus 142.	SAT UNSAT N/A <u>Comments:</u>
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CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

JPM NO: SIM-611

REQUIRED SIMULATOR MODE (S): Mode 3 IC.

MALFUNCTION #S:

1. Fault SAT 142-1 via **IMF ED04A**

COMMENTS:

1. Perform actions of 1BwOA ELEC-4 through step 6.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO standing in for the Unit 1 NSO while he is on break.
2. Unit 1 is in mode 3, following a reactor trip (reactor trip breakers are open).

INITIATING CUES:

Respond to changing conditions on 1PM05J.

TASK TITLE: Respond to a Source Range NI Failure

JPM No.: **SIM-710**
TPO No.: 4D.OA-13
TASK No.: R-OA-053, Respond to a loss of Source Range Instrumentation

REV:
K&A No.: 015000A2.02
K&A IMP: 3.1/3.5

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 2, 6, 9, 11

APPROX COMPLETION TIME 15 MINUTES

CRITICAL TIME: NA

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

- 1BwOA INST-1, Attachment C, Rev. 103, Nuclear Instrumentation Malfunction.

MATERIALS:

- 1BwOA INST-1, Attachment C, Rev. 103.

TASK STANDARDS:

- Respond to a failed source range instrument.

TASK CONDITIONS:

- You are the Unit 1 Assist NSO standing in for the Unit 1 NSO while he is on break.
- Unit 1 is in mode 3, following a reactor trip (reactor trip breakers are open).

INITIATING CUES:

- Respond to changing conditions on 1PM05J.

RECORD START TIME _____

Note: Give the examinee a few minutes to familiarize himself with 1PM05J conditions. Cue the simulator operator to insert the SR NI failure when ready.

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to 1BwOA INST-1, Attachment C CUE: After the examinee reports condition, tell them that the US is busy with a higher priority task and instructs the examinee to perform the appropriate procedure for the NI failure. After examinee locates procedure provide a copy. As US, acknowledge procedure entry and E-plan eval. Direct the NSO to continue with actions of 1BwOA INST-1.	Locate and Open 1BwOA INST-1 to Attachment C	SAT UNSAT N/A Comments:
2.	Check if SR is required	Determines power level < P6. CHECKS P6 permissive light (1-BP-3.2) is LIT.	SAT UNSAT N/A Comments:
*3.	Re-align audio count rate channel.	Determine audio count rate is selected to failed channel: AT 1PM07J, selects SR N32 on Audio Count Rate Channel Selector.	SAT UNSAT N/A Comments:
4.	Determines mode 3 actions.	DETERMINE unit is in mode 3 from cue and plant indications.	SAT UNSAT N/A Comments:
*5	Performs required actions for SR failure. Cue: When examinee indicates that SR drawer must be opened, give cue that "The Two Phi Meter has been placed in Test".	Bypass and Block N31 inputs: <ul style="list-style-type: none"> At 1PM07J, PLACE Level Trip Switch for N31 in BYPASS. At 1PM07J, PLACE High Flux at Shutdown Switch for N31 in BLOCK At 1PM07J (inside N31 drawer), PLACE Two Phi Meter Test Switch for N31 in TEST. 	SAT UNSAT N/A Comments:

6.	<p>Refer to Tech Specs.</p> <p>Cue: US acknowledges that Tech Specs may be applicable and will evaluate.</p> <p>Cue: (SRO only) If evaluator desires a tech spec evaluation by examinee, prompt them to determine proper Tech Spec entry.</p>	<p>Refers to Tech Specs:</p> <p>Informs US that Tech Specs may be applicable.</p> <p>(SRO only) (If prompted) Recognize no tech spec applies due to reactor trip breakers being open. (rods are not capable of rod withdrwl)</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
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CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

JPM NO: SIM-710

REQUIRED SIMULATOR MODE (S): IC-9, Mode 3, RX startup in progress with SD banks withdrawn.

MALFUNCTION #'S:

1. **IMF NI03A**

COMMENTS:

1. Ensure audio count rate drawer is aligned to N31 prior to beginning JPM and volume level is raised to appropriate level to detect failure.
2. At examiner' cue, fail SR N31 low.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Both units are at full power

INITIATING CUES:

1. Respond to annunciator 1-2-E4 "CC SURGE TANK AUTO MAKE-UP ON".

TASK TITLE: Respond to a Component Cooling Surge Tank Level Drop

JPM No.: **SIM-803**
TPO No.: 4D.OA-10
TASK No.: R-OA-027, Respond to a CC system
Malfunction.

REV: NRC 09-1
K&A No.: 008000A2.02
K&A IMP: 3.2/3.5

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 1a, 7

APPROX COMPLETION TIME 18 MINUTES

CRITICAL TIME: NA

EVALUATION METHOD:
 PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

- 1BwOA PRI-6, Rev. 101, Component Cooling Malfunction.
- BwAR 1-2-E4, Rev. 1E3a, "CC SURGE TANK AUTO MAKE-UP ON".
- BwAR 1-2-A5, Rev. 8a, "CC Surge Tank level high low"

MATERIALS:

- 1BwOA PRI-6, Rev. 101, Component Cooling Malfunction.
- BwAR 1-2-E4, Rev. 1E3a, "CC SURGE TANK AUTO MAKE-UP ON".
- BwAR 1-2-A5, Rev. 8a, "CC Surge Tank level high low"

TASK STANDARDS:

- Respond to a loss of level in the Component Cooling System.

TASK CONDITIONS:

- You are the Unit 1 Assist NSO.
- Both units are at full power

INITIATING CUES:

- Respond to annunciator 1-2-E4 "CC SURGE TANK AUTO MAKE-UP ON".

RECORD START TIME _____

Note: When ready to start, cue the simulator operator to start the slow draining of the CC surge tank per the setup comments.

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to BwAR 1-2-E4	Locate and Open BwAR 1-2-E4	SAT UNSAT N/A Comments:
*1a	Dispatch EO to open manual makeup isolation. Note: This step needs to be performed if auto makeup is isolated, otherwise it is N/A.	DISPATCH an Operator to OPEN 1CC9454A(WM) and/or 1CC9454B(PW)	SAT UNSAT N/A Comments:
2.	Verify auto make-up occurs as required	Verify Auto make-up occurs as required: <ul style="list-style-type: none"> ○ Verify 1CC183 opens at 50%, closes at 55% ● Verify 1CC182 opens at 45%, closes at 55% 	SAT UNSAT N/A Comments:
3.	Verify Immediate and subsequent operator actions	<ul style="list-style-type: none"> ● VERIFY surge tank level rises while makeup in progress ● Determine cause of make-up ● Refer to 1BwOA PRI-6 	SAT UNSAT N/A Comments:
4.	Enter 1BwOA PRI-6 CUE: After the examinee reports condition, tell them that the US is busy with a higher priority task and instructs the examinee to perform the appropriate procedure for the CC leak. After examinee locates procedure and goes to Attachment B, provide a copy of Attachment B As, US acknowledge procedure entry, and EP call	Locate and Open 1BwOA PRI-6: <ul style="list-style-type: none"> ● Determine level is > 13%, but not stable ● GO TO Attachment B 	SAT UNSAT N/A Comments:
5.	Check CC Surge Tank Level dropping and auto make up occurring as necessary	CHECK CC Surge Tank Level Decreasing and Auto Make-up occurring as necessary: <ul style="list-style-type: none"> ○ At \leq 45% level, 1CC182 OPEN from PW ● At \leq 50% level, 1CC183 OPEN from WM 	SAT UNSAT N/A Comments:

6.	<p>Check Seal Water HX for CC System out-leakage</p> <p>Note: If examinee isolates the Seal Water HX, conclude the JPM</p>	<p>CHECK Seal Water HX for out-leakage source as follows:</p> <ul style="list-style-type: none"> • DETERMINE Seal Water HX is not leaking by evaluating no unexpected VCT level increase 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*7.	<p>Locate the CC System out-leakage source and isolate</p> <p>CUE: If contacted as radwaste operator about sump levels, tell examinee that no sump levels changes are noted.</p> <p>CUE: As local operators dispatched report that it appears that the relief valve (0CC9425A) on the 0A Waste Gas Compressor HX is lifting and won't reseal (audible flow noise and leakage from relief valve body).</p> <p>When directed to isolate CC from the 0A GW compressor, ask for isolation valve numbers. After being told 0CC9480A and B need to be closed, cue the simulator operator to stop the leak, and report the valves closed and the flow noise has stopped.</p>	<p>Dispatch operators to locate and isolate the out-leakage source as follows:</p> <ul style="list-style-type: none"> ○ Contact Rad Waste for sump indication ○ CC HXs ○ SFP HXs • GW Compressor HXs ○ BR evaporators ○ PD pp oil clrs ○ CC System reliefs ○ RCP motor brg oil clrs ○ Cnmt pen clg coils ○ CC rad monitors ○ HRSS sample clrs ○ Aux Bldg gen area ○ Isolate CC System between units per BwOP CC-8 <p>Determine isolation points for CC leakage from P&ID M-66 sheet 4D, valves 0CC9480A and 0CC9480B.</p>	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
8.	<p>Monitor CC Surge Tank level and determine leak is isolated</p> <p>CUE: If SER not working cue that the pt. (1434) is clear</p> <p>As US acknowledge location and isolation of leak. Tell examinee another NSO will complete 1BwOA PRI-6.</p>	<p>MONITOR CC Surge Tank Level and DETERMINE leak is isolated:</p> <ul style="list-style-type: none"> • Observe level indications steady on 1PM06J ○ SER pt. cleared ○ Annunciator 1-2-E4 and 1-2-A5 cleared • Auto Make-up stops ○ Inform US of leak location and successful isolation 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

TASK CONDITIONS:

3. You are the Unit 1 Assist NSO.
4. Both units are at full power

INITIATING CUES:

2. Respond to annunciator 1-2-E4 "CC SURGE TANK AUTO MAKE-UP ON".

SIMULATOR SETUP INSTRUCTIONS

JPM NO: N-082

REQUIRED SIMULATOR MODE (S): 100% power steady state

MALFUNCTION #'S: N/A

COMMENTS:

1. Use **IRF CC15** to drain CC surge tank to 51%, then secure draining.
2. When JPM starts, drain CC Surge tank by opening CC drain valve using **IRF CC15**. Do not allow level to approach 13%.
3. When dispatched to check GW compressor, report relief lifting on 0A GW compressor and will not reseal.
4. IF asked to isolate relief 0CC9425A, ask for valve numbers. When given 0CC9480A and B, shut the drain valve (**IRF CC15 0**), and report the relief is isolated.
5. Use Monitored Parameter **CCMSTKS** to adjust CC surge tank mass (**1500**)

TASK CONDITIONS:

1. You are an extra NSO.
2. Unit 1/2 NSOs are responding to a steamline break inside containment after a safety injection.
3. Conditions have deteriorated to the point that an entry into 1/2BwFR-H.1, Loss of Secondary Heat Sink, has been made.

INITIATING CUES:

The Unit Supervisor has directed you to perform the actions of 1/2BwFR-H.1 step 7.f.

TASK TITLE: Perform Local Reset of Feedwater Isolation Signal

JPM No.: **IP-200**
TPO No.: 4.D.EF-03
TASK No.: R-EF-003, Reset the Engineered Safety Features

REV: NRC 09-1
K&A No.: 013000A4.02
K&A IMP: 4.1/4.0

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 3, 4
MINUTES

APPROX COMPLETION TIME: **17**

CRITICAL TIME: **NA**

EVALUATION METHOD:
PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. 1/2BwFR-H.1, Rev. 200, WOG 2, Response to Loss of Secondary Heat Sink

MATERIALS:

1. Keys for 1/2PA27J and 1/2PA28J
2. Laser pointer (recommended)
3. 1/2BwFR-H.1, step 7

TASK STANDARDS:

1. Correctly RESET Feedwater Isolation Signal as required by 1/2BwFR-H.1, step 7.

TASK CONDITIONS:

1. You are an extra NSO.
2. Unit 1/2 NSOs are responding to a steamline break inside containment after a safety injection.
3. Conditions have deteriorated to the point that an entry into 1/2BwFR-H.1, Loss of Secondary Heat Sink, has been made.

INITIATING CUES:

1. The Unit Supervisor has directed you to perform the actions of 1/2BwFR-H.1 step 7.f.

RECORD START TIME _____

Note: Prompt the use of a laser pointer to identify components located inside electrical cabinets.

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to 1/2BwFR H.1, step 7.f. CUE: Hand a copy of 1/2BwFR-H.1, step 7 to the student.	Refer to 1/2BwFR H.1, step 7.f.	SAT UNSAT N/A <u>Comments:</u>
2.	Obtain keys for and locate Safeguards Cabinets 1/2PA27J and 1/2PA28J.	Obtains keys for and proceed to Safeguards Cabinets 1/2PA27J and 1/2PA28J: <ul style="list-style-type: none"> • Obtain keys for Cabinets 1/2PA27J and 1/2PA28J from the Shift Office. • Proceed to 1/2PA27J/ 1/2PA28J (U-1/2 AEER). 	SAT UNSAT N/A <u>Comments:</u>

Note: JPM steps 3 and 4 may be performed in any order. Prompt use of laser pointer vs. breaking the plane of cabinet.

*3.	De-energize Feedwater Isolation Relays by removing fuses at 1/2PA27J. CUE: Fuse FU-24 is removed. Fuse FU-27 is removed.	At 1/2PA27J, de-energize Feedwater Isolation Relays by removing: <ul style="list-style-type: none"> • Fuse FU-24. • Fuse FU-27. 	SAT UNSAT N/A <u>Comments:</u>
*4.	De-energize Feedwater Isolation Relays by removing fuses at 1/2PA28J. CUE: Fuse FU-24 is removed. Fuse FU-27 is removed.	At 1/2PA28J, de-energize Feedwater Isolation Relays by removing: <ul style="list-style-type: none"> • Fuse FU-24. • Fuse FU-27. 	SAT UNSAT N/A <u>Comments:</u>

Note: If the student elects to contact the Control Room to verify “FW ISOL ACTD” relay lights NOT LIT, then provide the following cue (otherwise N/A JPM step 5):
CUE:The US reports the FW ISOL ACTD relay lights are NOT LIT.
CUE:This completes the JPM.

5.	Verify FW ISOL ACTD relay lights – NOT LIT. CUE: The FW ISOL ACTD relay lights are NOT LIT. CUE: As US acknowledge completion of step 7.f.	VERIFY the FW ISOL ACTD relay lights are NOT LIT as follows: <ul style="list-style-type: none"> • At 1/2PM06J, observe FW ISOL ACTD relay lights NOT LIT. • Report completion of step 7.f of 1/2BwFR H.1. 	SAT UNSAT N/A <u>Comments:</u>
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CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

JPM NO: IP-200

REQUIRED SIMULATOR MODE (S): N/A In-plant.

MALFUNCTION #'S: N/A

COMMENTS:

TASK CONDITIONS:

1. You are an extra NSO.
2. Unit 1/2 has just tripped in conjunction with an electrical fire in Unit 1/2 Electrical Equipment Room.
3. 1/2A AF pump is unavailable for operation due to maintenance.
4. 1/2B AF pump did not auto start, nor will it manually start with the MCR switch or the RSP switch.
5. 1/2B AF pump MCR indications are considered unreliable due to the fire.
6. Another EO is available to monitor the 1/2B AF pump governor linkage during the startup.

INITIATING CUES:

1. The US has directed you to perform a local emergency start of the 1/2B AF pump at 1/2AF01J per BwOP AF-7. All Prerequisites, Precautions, and Limitations and Actions have been met, and steps 1-8 are complete.

TASK TITLE: Local Start of 1/2B AF Pump

JPM No.: **IP-410S**
TPO No.: 4.C.AF-02
TASK No.: R-AF-012, Operate the diesel driven
Auxiliary Feedwater Pumps

REV:
K&A No.: 061000A2.04
K&A IMP: 3.4/3.8

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 4, 8
MINUTES

APPROX COMPLETION TIME: **28**

CRITICAL TIME: **NA**

EVALUATION METHOD:
PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. BwOP AF-7, Rev. 32, Auxiliary Feedwater Pump B (Diesel) Startup on Recirc
2. BwOP AF-7T1, Rev. 5, Diesel Driven Auxiliary Feedwater Pump Operating Log

MATERIALS:

1. BwOP AF-7
2. BwOP AF-7T1

TASK STANDARDS:

1. Perform a local emergency start of 1/2B AF pump.

TASK CONDITIONS:

1. You are an extra NSO.
2. Unit 1/2 has just tripped in conjunction with an electrical fire in Unit 1/2 Aux Electrical Equipment Room.
3. 1/2A AF pump is unavailable for operation due to maintenance.
4. 1/2B AF pump did not auto start, nor will it manually start with the MCR switch or the RSP switch.
5. 1/2B AF pump MCR indications are considered unreliable due to the fire.
6. Another EO is available to monitor the 1/2B AF pump governor linkage during the startup.

INITIATING CUES:

1. The US has directed you to perform a local emergency start of the 1/2B AF pump at 1/2AF01J per BwOP AF-7. All Prerequisites, Precautions, and Limitations and Actions have been met, and steps 1-8 are complete.
2. Report status of 1/2B AF pump to US after local start.

RECORD START TIME

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to BwOP AF-7. CUE: Give a marked up copy of BwOP AF-7 to the student.	Locate and open BwOP AF-7.	SAT UNSAT N/A Comments:
2.	Perform actions at 1/2AF01J. CUE: Reset pushbutton has been depressed. Select Switch is in Auto. Engine Ready light is lit. Governor switch is off.	Perform the following at 1/2AF01J: <ul style="list-style-type: none"> • PUSH the Reset Pushbutton to clear circuit. • VERIFY the Select Switch is in AUTO position. • VERIFY "Engine Ready" light is LIT. • VERIFY Diesel Governor Switch is in OFF position. 	SAT UNSAT N/A Comments:
3.	Verify the Air Box Trip is reset. CUE: Air Box Trip annunciator is not lit. Another EO reports Air Box Trip lever is in normal position, limit switch is made up.	VERIFY the Air Box Trip is Reset as follows: <ul style="list-style-type: none"> • CHECK "AIR BOX TRIP" annunciator NOT LIT. - OR - • Air Box Trip Lever (on back side of engine) in Normal position. 	SAT UNSAT N/A Comments:
*4.	Start Lube Oil systems. CUE: Gear box lube oil pump control switch is in start. Aux lube oil pump control switch is in start. Lube Oil within sightglass. After the student locates inlet and outlet pressure gages, indicate that the inlet is 28 psig, and the outlet is 28 psig.	START Lube Oil Auxiliary Systems as follows at the local control panel: <ul style="list-style-type: none"> • Aux FW Pp 1/2B Gear Box Lube Oil Pp, 1/2AF01PB-C. • Aux FW Pp 1/2B Lube Oil Pp, 1/2AF01PB-A ○ VERIFY Lube Oil inventory in pump sump is within sightglass. ○ VERIFY Lube Oil Filter Differential Pressure is < 4 psid. 	SAT UNSAT N/A Comments:
5.	Verify/place VC in M/U mode per BwOP VC-5, at SM discretion. CUE: Another operator has performed BwOP VC-5.	Verify/place VC in M/U mode per BwOP VC-5, at SM discretion.	SAT UNSAT N/A Comments:

6.	<p>Align AF system discharge flowpath.</p> <p>CUE: As US, if asked, direct that step 17 not be performed.</p>	<p>ALIGN 1/2B AF pump discharge flowpath in accordance with US direction:</p> <ul style="list-style-type: none"> • Contact US to determine if CLOSURE of B Train 1/2AF013s or 1/2AF004B will be necessary. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
7.	<p>Start 1/2B AF pump locally.</p> <p>CUE: Per task conditions, an EO is standing by.</p> <p>CUE: Engine start switch is in Manual and the 'Ready to Start light' is not lit. Start pushbutton is being depressed and held.</p> <p><u>THE ENGINE DOES NOT CRANK</u></p> <p>Engine starting light is <u>NOT</u> lit.</p> <p>Engine running light is <u>NOT</u> lit.</p> <p>Start pushbutton is released.</p> <p>Alternate Battery Bank is Selected</p> <p>Reset Pushbutton is Depressed.</p> <p>Start pushbutton is being depressed and held.</p> <p>THE ENGINE STILL DOES NOT CRANK</p>	<p>START 1/2B AF Pump locally at 1/2AF01J as follows:</p> <ul style="list-style-type: none"> ○ Verify personnel in position at front of diesel to monitor governor linkage during start. • PLACE the Engine Start Control Switch to MANUAL. • DEPRESS and HOLD the START pushbutton. ○ VERIFY Engine Starting Light indicates starting sequence is in process. ○ VERIFY Engine Running Light is ILLUMINATED when speed indicates 350 RPM. ○ RELEASE the START pushbutton. • Select the Alternate battery bank • Push Reset Pushbutton • DEPRESS and HOLD the START pushbutton. • Report to US failure of 1/2B AF Pump to start locally 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

*8.	<p>Start 1/2B AF pump from 2AF03J.</p> <p>CUE: US instructs you to start the 1/2B AF pump from 1/2AF03J using the START WITH BYPASS hand switch position Position.</p> <p>Additional EO reports 1/2B AF pump has started</p> <p>RUNNING light is LIT</p>	<p>Perform the following:</p> <ul style="list-style-type: none"> ○ Contacts additional EO to inspect 1/2B AF pump during start. • At 1/2AF01J, ensures Engine Selector Switch is in AUTO by observation • At 1/2AF03J, places 1/2HS-AF157 in START WITH BYPASS position. • At 1/2AF01J, verifies RUNNING light is LIT at 1/2HS-AF157 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
9.	<p>CUE:</p> <p>Another EO will complete BwOP AF-7 and take over monitoring the 1/2B AF pump.</p>	<ul style="list-style-type: none"> • Reports to US successful start of 1/2B AF pump. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

SIMULATOR/ SETUP INSTRUCTIONS

JPM NO: IP-410S

MARK UP PROCEDURE BwOP AF-7 WITH APPROPRIATE UNIT DESIGNATORS

REQUIRED SIMULATOR MODE (S): N/A, IN PLANT

MALFUNCTION #'S: N/A

COMMENTS:

TASK CONDITIONS:

1. You are an extra NSO.
2. Unit 1/2 has just tripped in conjunction with an electrical fire in Unit 1/2 Electrical Equipment Room.
3. 1/2A AF pump is unavailable for operation due to maintenance.
4. 1/2B AF pump did not auto start, nor will it manually start with the MCR switch or the RSP switch.
5. 1/2B AF pump MCR indications are considered unreliable due to the fire.
6. Another EO is available to monitor the 1/2B AF pump governor linkage during the startup.

INITIATING CUES:

1. The US has directed you to perform a local emergency start of the 1/2B AF pump at 1/2AF01J per BwOP AF-7. All Prerequisites, Precautions, and Limitations and Actions have been met, and steps 1-8 are complete.

TASK TITLE: Local Start of 1/2B AF Pump

JPM No.: **IP-410S**
TPO No.: 4.C.AF-02
TASK No.: R-AF-012, Operate the diesel driven
Auxiliary Feedwater Pumps

REV:
K&A No.: 061000A2.04
K&A IMP: 3.4/3.8

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.

TIME STARTED: _____

FAILED _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 4, 8
MINUTES

APPROX COMPLETION TIME: **28**

CRITICAL TIME: **NA**

EVALUATION METHOD:
PERFORM
 SIMULATE

LOCATION:
 IN PLANT
 SIMULATOR

GENERAL REFERENCES:

1. BwOP AF-7, Rev. 32, Auxiliary Feedwater Pump B (Diesel) Startup on Recirc
2. BwOP AF-7T1, Rev. 5, Diesel Driven Auxiliary Feedwater Pump Operating Log

MATERIALS:

1. BwOP AF-7
2. BwOP AF-7T1

TASK STANDARDS:

1. Perform a local emergency start of 1/2B AF pump.

TASK CONDITIONS:

1. You are an extra NSO.
2. Unit 1/2 has just tripped in conjunction with an electrical fire in Unit 1/2 Aux Electrical Equipment Room.
3. 1/2A AF pump is unavailable for operation due to maintenance.
4. 1/2B AF pump did not auto start, nor will it manually start with the MCR switch or the RSP switch.
5. 1/2B AF pump MCR indications are considered unreliable due to the fire.
6. Another EO is available to monitor the 1/2B AF pump governor linkage during the startup.

INITIATING CUES:

1. The US has directed you to perform a local emergency start of the 1/2B AF pump at 1/2AF01J per BwOP AF-7. All Prerequisites, Precautions, and Limitations and Actions have been met, and steps 1-8 are complete.
2. Report status of 1/2B AF pump to US after local start.

RECORD START TIME

	PERFORMANCE STEP	STANDARD	Circle applicable
1.	Refer to BwOP AF-7. CUE: Give a marked up copy of BwOP AF-7 to the student.	Locate and open BwOP AF-7.	SAT UNSAT N/A Comments:
2.	Perform actions at 1/2AF01J. CUE: Reset pushbutton has been depressed. Select Switch is in Auto. Engine Ready light is lit. Governor switch is off.	Perform the following at 1/2AF01J: <ul style="list-style-type: none"> • PUSH the Reset Pushbutton to clear circuit. • VERIFY the Select Switch is in AUTO position. • VERIFY "Engine Ready" light is LIT. • VERIFY Diesel Governor Switch is in OFF position. 	SAT UNSAT N/A Comments:
3.	Verify the Air Box Trip is reset. CUE: Air Box Trip annunciator is not lit. Another EO reports Air Box Trip lever is in normal position, limit switch is made up.	VERIFY the Air Box Trip is Reset as follows: <ul style="list-style-type: none"> • CHECK "AIR BOX TRIP" annunciator NOT LIT. - OR - • Air Box Trip Lever (on back side of engine) in Normal position. 	SAT UNSAT N/A Comments:
*4.	Start Lube Oil systems. CUE: Gear box lube oil pump control switch is in start. Aux lube oil pump control switch is in start. Lube Oil within sightglass. After the student locates inlet and outlet pressure gages, indicate that the inlet is 28 psig, and the outlet is 28 psig.	START Lube Oil Auxiliary Systems as follows at the local control panel: <ul style="list-style-type: none"> • Aux FW Pp 1/2B Gear Box Lube Oil Pp, 1/2AF01PB-C. • Aux FW Pp 1/2B Lube Oil Pp, 1/2AF01PB-A ○ VERIFY Lube Oil inventory in pump sump is within sightglass. ○ VERIFY Lube Oil Filter Differential Pressure is < 4 psid. 	SAT UNSAT N/A Comments:
5.	Verify/place VC in M/U mode per BwOP VC-5, at SM discretion. CUE: Another operator has performed BwOP VC-5.	Verify/place VC in M/U mode per BwOP VC-5, at SM discretion.	SAT UNSAT N/A Comments:

6.	<p>Align AF system discharge flowpath.</p> <p>CUE: As US, if asked, direct that step 17 not be performed.</p>	<p>ALIGN 1/2B AF pump discharge flowpath in accordance with US direction:</p> <ul style="list-style-type: none"> • Contact US to determine if CLOSURE of B Train 1/2AF013s or 1/2AF004B will be necessary. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
7.	<p>Start 1/2B AF pump locally.</p> <p>CUE: Per task conditions, an EO is standing by.</p> <p>CUE: Engine start switch is in Manual and the 'Ready to Start light' is not lit. Start pushbutton is being depressed and held.</p> <p><u>THE ENGINE DOES NOT CRANK</u></p> <p>Engine starting light is <u>NOT</u> lit.</p> <p>Engine running light is <u>NOT</u> lit.</p> <p>Start pushbutton is released.</p> <p>Alternate Battery Bank is Selected</p> <p>Reset Pushbutton is Depressed.</p> <p>Start pushbutton is being depressed and held.</p> <p>THE ENGINE STILL DOES NOT CRANK</p>	<p>START 1/2B AF Pump locally at 1/2AF01J as follows:</p> <ul style="list-style-type: none"> ○ Verify personnel in position at front of diesel to monitor governor linkage during start. • PLACE the Engine Start Control Switch to MANUAL. • DEPRESS and HOLD the START pushbutton. ○ VERIFY Engine Starting Light indicates starting sequence is in process. ○ VERIFY Engine Running Light is ILLUMINATED when speed indicates 350 RPM. ○ RELEASE the START pushbutton. • Select the Alternate battery bank • Push Reset Pushbutton • DEPRESS and HOLD the START pushbutton. • Report to US failure of 1/2B AF Pump to start locally 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

*8.	<p>Start 1/2B AF pump from 2AF03J.</p> <p>CUE: US instructs you to start the 1/2B AF pump from 1/2AF03J using the START WITH BYPASS hand switch position Position.</p> <p>Additional EO reports 1/2B AF pump has started</p> <p>RUNNING light is LIT</p>	<p>Perform the following:</p> <ul style="list-style-type: none"> ○ Contacts additional EO to inspect 1/2B AF pump during start. • At 1/2AF01J, ensures Engine Selector Switch is in AUTO by observation • At 1/2AF03J, places 1/2HS-AF157 in START WITH BYPASS position. • At 1/2AF01J, verifies RUNNING light is LIT at 1/2HS-AF157 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
9.	<p>CUE:</p> <p>Another EO will complete BwOP AF-7 and take over monitoring the 1/2B AF pump.</p>	<ul style="list-style-type: none"> • Reports to US successful start of 1/2B AF pump. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME _____

COMMENTS:

SIMULATOR/ SETUP INSTRUCTIONS

JPM NO: IP-410S

MARK UP PROCEDURE BwOP AF-7 WITH APPROPRIATE UNIT DESIGNATORS

REQUIRED SIMULATOR MODE (S): N/A, IN PLANT

MALFUNCTION #'S: N/A

COMMENTS: