

AS-GIVEN OPERATING

Facility: <u>Waterford Unit 3</u>		Date of Examination: <u>October 4-7, 1999</u>
Examination Level (circle one): <u>RO</u> / SRØ		Operating Test Number: <u>1</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1 Conduct of Operations	Procedure Usage	What are the three conditions where referring to the Annunciator Response Procedure is not required when an annunciator is received?
		What are the requirements concerning procedure usage and step sequencing?
	Plant Parameter Verification	JPM: Technical Specification Logs Requiring Containment Pressure Calculation
A.2 Equipment Control	Clearance Review	JPM: Perform Licensed Operator Review of a Clearance
A.3 Radiation Control	Radiation Work Permits	JPM: Entry into the RCA with TLD control questions
A.4 Emergency Plan	Emergency Plan Implementing Procedures	JPM: Toxic Chemical Emergency Actions

A large, stylized handwritten signature in black ink, appearing to read 'B. J. ...' or similar, is written below the table.

Administrative Topic A1

Question (closed book)

What are the requirements concerning procedure usage and step sequencing?

Answer

The steps in operating procedures shall be addressed in the sequence they are written.

- Procedure steps are normally written to be performed in sequence unless stated otherwise in a procedural note or in the limitations section of the procedure.
- Valve and breakers listed after bullets (•) following a step may be done in any order.
- Logs and valve/breaker lineups are specialized lists which are not required to be performed in sequence.
- Surveillance procedures which test multiple components in multiple systems are written such that steps act as independent subsections and may be performed in any order as plant conditions dictate. Supporting substeps shall be performed in sequence.

Examiner may prompt sub-sections of answer if not recalled from memory. Procedure may be used for final bulleted item. All items required for pass.

Reference

OP-100-001, Duties and Responsibilities of Operators on Duty

<u>K/A</u>	<u>Importance</u>
2.1.2	3.0
2.1.5	2.3

What are the requirements concerning procedure usage and step sequencing?

Administrative Topic A1

Question (closed book)

What are the 3 conditions where referring to the Annunciator Response Procedure is not required when an annunciator is received.

Answer (2 of 3 required)

1. Expected alarms due to planned Operation and Maintenance evolutions (hanging clearances, surveillance testing, troubleshooting, etc.)
2. Repeated alarms that occur during the shift. (The ARP must be referred to the first time the alarm annunciates except for expected alarms.)
3. Annunciators that merely indicate local alarm panel trouble and that require no action other than contacting the NAO to investigate.

Reference

OP-100-001, Duties and Responsibilities of Operators on Duty

<u>K/A</u>	<u>Importance</u>
2.1.1	3.7
2.1.2	3.0
2.1.5	2.3

What are the 3 conditions where referring to the Annunciator Response Procedure is not required when an annunciator is received.

Waterford 3 Job Performance Measure Examination

TECH SPEC LOGS REQUIRING CONTAINMENT PRESSURE CALCULATION

JOB: RO **PLANT SYSTEM:** PPA **TASK MODE:** Surv **TASK NUMBER:** 1
DESCRIPTION: TECH SPEC LOGS REQUIRING CONTAINMENT PRESSURE CALCULATION
REVISION: 0 **REVISION DATE:** 8/2/99
TIME: 15
TIME CRITICAL TASK: **ALTERNATE PATH:**
REFERENCE: **REVISION:** **CHANGE:** **DATE:** **EVALUATION METHOD:**
OP-903-001 22 3 7/26/99 Perform
NRC KA NUMBER: **RO** **SRO**
2-1-33 3.4 4
2-1-19 3 3

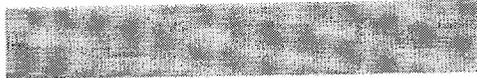
Trainee



Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

INITIAL CONDITIONS

- PLANT IS IN MODE 3
- CONTAINMENT PURGE WAS STARTED AT 0545

TASK STANDARD

COMPLETE OP-903-001, TECHNICAL SPECIFICATION SURVEILLANCE LOGS, PAGE 1 OF ATTACHMENT 11.1 AND ATTACHMENT 11.16

TOOLS AND EQUIPMENT

NONE

PERSONNEL SAFETY CONSIDERATIONS

NONE

INITIATING CUE

YOU ARE THE DAYSHIFT PNPO AND ITS TIME FOR THE 12-20 TECH SPEC LOGS TO BE TAKEN

TERMINATING CUE

OP-903-001, TECHNICAL SPECIFICATION SURVEILLANCE LOGS, PAGE 1 OF ATTACHMENT 11.1 AND ATTACHMENT 11.16 ARE COMPLETE

CONSEQUENCES OF INADEQUATE PERFORMANCE

MISSED TECH SPEC SURVEILLANCE

HUMAN INTERFACES

NONE

TASK SPECIFIC SKILLS / KNOWLEDGE

NONE

Waterford 3 Job Performance Measure Examination

Directions To Examinee:

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

INITIAL CONDITIONS

- PLANT IS IN MODE 3
- CONTAINMENT PURGE WAS STARTED AT 0545

INITIATING CUE

YOU ARE THE DAYSHIFT PNPO AND ITS TIME FOR THE 12-20 TECH SPEC LOGS TO BE TAKEN

Waterford 3 Job Performance Measure Examination

TASK ELEMENTS

Perform the task in accordance with OP-903-001, Technical Specification Surveillance Logs, attachment 11.1 (page 1) and attachment 11.16 Readings are to taken from the simulator control panels and PMC terminals.

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-
1. (C) RECORD DATA SPECIFIED ON ATTACHMENT 11.1, MODE 1-4 TECHNICAL SPECIFICATION SURVEILLANCE LOG.

CUES

THIS WILL BE PERFORMED ON THE SIMULATOR; ALL VALUES ARE AS READ.

STANDARDS

1. THE OPERATOR COMPLETES PAGE 1 OF ATTACHMENT 11.1
2. THE OPERATOR REALIZES THE NEED TO PERFORM ATTACHMENT 11.16, CONTAINMENT PRESSURE CALCULATION
3. THE OPERATOR COMPLETES ATTACHMENT 11.16

2

END OF TASK

11.1 MODES 1 - 4 TECHNICAL SPECIFICATION SURVEILLANCE LOGS

DATE

DESCRIPTION	NOTE	MODE	T. S.	COMP #	LIMIT	UNITS	04-12	12-20	20-04
ACCW Temperature:	36.0	1 - 4	4.7.4.a	PMC					
A Train				A46201	≤ 86.4	°F	83.5		
B Train				A46301	≤ 86.4	°F	83.6		
Wet Bulb Air Temp:	46.0	1 - 4		PMC					
Pri Twr 33' Air Temp				C48521	≥ 40	°F	85.1	AS READ	
Wet Tower A & B Fans 1-4				CP - 33	Auto or Off	Auto,Off,NA	AUTO	AS READ	
Wet Tower A & B Fans 5-8				CP - 33	Auto or Off	Auto,Off,NA	AUTO	AS READ	
CNTMT Air Temperature:		1 - 4	4.6.1.5	CP - 18					
A CFC Inlet Temp				CCS-5150AS	N/A	°F	110		
C CFC Inlet Temp				CCS-5155AS	N/A	°F	108		
B CFC Inlet Temp				CCS-5150BS	N/A	°F	112		
D CFC Inlet Temp				CCS-5155BS	N/A	°F	STBY		
Average CFC Inlet Temp	2.0				≥ 96 to ≤ 114	°F	110		
Annulus Negative Press		1 - 4	4.6.6.2.a	CP - 18					
Annulus to Ambient D/P				ANP-IDPI-5075	> 5	INWC	8.0	AS READ	
CNTMT Liquid Leak Rate	16.0	1 - 4	4.4.5.2.1.c	SP-IFR-6710	< 1 Increase	GPM	1.0	AS READ	
CNTMT Internal Press :		1 - 4	4.6.1.4	CP - 18					
CNTMT to Ambient D/P	26.0			CAP-IDPI-5171	0 ≤ D/P < 27	INWC	10.0	AS READ	
Calculated CNTMT Pres	26.1			Step 5	> 14.375	PSIA	N/A	FROM 11.16	
Loss of Power - Channel Functional Relay Test:	15.0	1 - 3	4.3.2.1 Tbl 4.3-2	CP - 1					
A TRN Prim 4KV/480V	15.1		(6.a,6.b)	27-3/A3,27-3	Operable	√	√		
			(6.a,6.b)	27-2/A3,27-2	Operable	√	√		
			(6.a,6.b)	27-1/A3,27-1	Operable	√	√		
A TRN Backup 4KV	15.2		(6.c)	27-3E/A3	Operable	√	√		
			(6.c)	27-2E/A3	Operable	√	√		
			(6.c)	27-1E/A3	Operable	√	√		
REMARKS:									

11.16 CONTAINMENT PRESSURE CALCULATION

11.16.1 Barometric Pressure as measured by PMC (PID C48516).
If local reading used, then record M&TE data on TS Logs
 Remarks and WA^① BP = 30.00 INHG

11.16.2. Containment to Ambient Differential Pressure
 (PMC PID-A51000). C/A = -3.4 INWC

11.16.3. Convert Barometric Pressure (BP) from INHG to PSIA
 by performing the following:

$$BP(PSIA) = [BP (INHG) \times 0.4912 \text{ PSIA/INHG}]$$

$$BP(PSIA) = [\frac{30.00}{14.74} \text{ INHG} \times 0.4912 \text{ PSIA/INHG}]$$

11.16.4. Convert Containment to Ambient Differential Pressure (C/A) from
 INWC to PSIA by performing the following:

$$C/A(PSIA) = [C/A (INWC) \times 0.0361 \text{ PSIA/INWC}]$$

$$C/A(PSIA) = [\frac{-3.4}{-0.123} \text{ INWC} \times 0.0361 \text{ PSIA/INWC}]$$

11.16.5. Calculate Absolute Containment Internal Pressure (CP) by performing
 the following:

$$CP(PSIA) = BP(PSIA) + C/A(PSIA)$$

$$CP(PSIA) = \frac{14.74}{14.62} \text{ PSIA} + \frac{-0.123}{\text{PSIA}}$$

11.16.6. Attach this Attachment to Attachment 11.1, Mode 1-4 Technical
 Specification Surveillance Log.

① - Add 0.05 INHG to local reading to obtain a value equivalent to Met Tower PMC point.

Waterford 3 Job Performance Measure Examination

PERFORM LICENSED OPERATOR REVIEW OF A CLEARANCE

JOB: RO **PLANT SYSTEM:** PPA **TASK MODE:** Admin **TASK NUMBER:** 8
DESCRIPTION: PERFORM LICENSED OPERATOR REVIEW OF A CLEARANCE
REVISION: 0 **REVISION DATE:** 8/2/99
APPROVAL: **APPROVAL DATE:**
TIME: 30
TIME CRITICAL TASK: **ALTERNATE PATH:** X
REFERENCE: **REVISION:** **CHANGE:** **DATE:** **EVALUATION METHOD:**
UNT-005-003 16 00 12/1/98 Perform
NRC KA NUMBER: **RO** **SRO**
2-2-13 3.6 3.8
2-1-24 2.8 3.1

Trainee



Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Directions To Examinee:

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

INITIAL CONDITIONS

A CLEARANCE HAS BEEN WRITTEN ON HPSI PUMP AB FOR A COMPONENT OUTAGE THAT INCLUDES SUCTION GASKET REPLACEMENT AND SEAL COOLER CLEANING

TASK STANDARD

FIND ALL 3 CRITICAL ERRORS WITH THE PROVIDED TAGOUT

TOOLS AND EQUIPMENT

NONE

PERSONNEL SAFETY CONSIDERATIONS

NONE

INITIATING CUE

THE CRS DIRECTS THE OPERATOR TO REVIEW THE PROVIDED CLEARANCE

TERMINATING CUE

THE OPERATOR FINDS 3 ERRORS WITH THE CLEARANCE

CONSEQUENCES OF INADEQUATE PERFORMANCE

1. PERSONNEL INJURY
2. EQUIPMENT DAMAGE

HUMAN INTERFACES

CRS

TASK SPECIFIC SKILLS / KNOWLEDGE

NONE

Directions To Examinee:

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

INITIAL CONDITIONS

A CLEARANCE HAS BEEN WRITTEN ON HPSI PUMP AB FOR A COMPONENT OUTAGE THAT INCLUDES SUCTION GASKET REPLACEMENT AND SEAL COOLER CLEANING

INITIATING CUE

THE CRS DIRECTS THE OPERATOR TO REVIEW THE PROVIDED CLEARANCE

TASK ELEMENTS

Perform the task in accordance with UNT-005-003, Clearance Request, Approval and Release.

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-
1. (C) USING SECTION 5.1, CLEARANCE PREPARATION, AS A GUIDELINE, VERIFY THE CLEARANCE HAS BEEN PREPARED TO ADEQUATELY PROVIDE PLANT AND PERSONNEL SAFETY FOR WORK ACTIVITIES LISTED.

CUES

NO CHANGES ARE TO BE MADE TO THE PROTECTIVE TAGGING COMPUTER PROGRAM. PROVIDE OPERATOR WITH THE CLEARANCE

Standards

OPERATOR MUST FIND 3 ERRORS ON THE PROVIDED CLEARANCE.

The provided clearance contains the following errors:

1. CRITICAL The breaker listed for tag 3 is the motor heater breaker instead of the motor breaker. Listed UNID is SI EBKR3AB-3A and should be SI EBKR3AB-3.
2. CRITICAL The sequence of valves operated lists tags 10-13 as sequence 19, meaning these 4 valves can be operated in any order among the 4 valves. Both discharge valves must be closed prior to closing the 2 suction valves to prevent possible damage to suction side components and piping.
3. CRITICAL SI vent UNID is listed as SI MVAAA2034 AB and should be SI MVAAA2031 AB.
4. Reference document CWD-3002 does not pertain to HPSI AB.
5. Work document 404399 is for work on Nitrogen Pump B. Workers for this job will not be protected by this tagout.

CLEARANCE INSTALLATION AUTHORIZATION FORM

COMPONENT TO BE TAGGED: SI MPMP0002 AB PUMP HIGH PRESSURE SAFETY INJECTION PUMP AB	CLEARANCE NUMBER: WF-99-1024 EOS NUMBER: N/A WORK DOCUMENT: 404399
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PURPOSE OF CLEARANCE:
 CLEAN AND INSPECT COOLER. CHANGE MOTOR AND PUMP LUBE. CHANGE SUCTION GASKET.

SPECIAL INSTRUCTIONS: DRAW XREF: CWD-3002, G-160 ST3, B289 ST17

HPSI AB OUTAGE
 COORDINATE WITH RAD WASTE TO STAGE DRAIN RIGS.

******FOR TRAINING USE ONLY, NOT TO BE USED FOR ACTUAL PLANT OPERATIONS******

CLEARANCE WF-99-1024		TAG INSTALLATION SECTION					INFORMATION ONLY	
TAG TYPE	TAG #	DEVICE AND COMPONENT NAME	LOCATION	TAGGED POSITION	TAGGED SEQ	RESTORED POSITION	REMOVAL SEQ	DEVICE STATUS
L	1	SI ECS0002 AB C/S HIGH PRESSURE SAFETY INJECTION PUMP AB C/S		STOP/NEUTRAL	1			Not Hanging
T	2	SI EDISC3AB 3 KNIFSW HPSI PMP AB DC CONTROL POWER KNIFE SWITCH		OPEN	2	CLOSED		Not Hanging
T	3	SI EBKR3AB 3A CKTBRK HPSI PUMP AB MOTOR HEATER	RAB +21 11A J	RACKED DOWN / REMOVED	3	ON		Not Hanging
T	4	CC MVAAA934 AB VALVE HPSI PUMP AB CCW INLET ISOLATION	RAB -35 6A K	CLOSED	13	LOCKED OPEN		Not Hanging
T	5	CC MVAAA942 AB VALVE HPSI PUMP AB CCW OUTLET ISOLATION	RAB -35 6A K	CLOSED	14	LOCKED OPEN		Not Hanging
T	6	CC MVAAA937 AB VALVE HPSI PUMP AB CCW INLET DRAIN	RAB -35 7A K	OPEN / THROTTLED	15	CLOSED		Not Hanging
T	7	CC MVAAA938 AB VALVE HPSI PUMP AB CCW OUTLET DRAIN	RAB -35 6A K	OPEN / THROTTLED	16	CLOSED		Not Hanging

→ Special Attention Requested

* No Tag

CLEARANCE WF-99-1024		TAG INSTALLATION SECTION					INFORMATION ONLY	
TAG TYPE	TAG #	DEVICE AND COMPONENT NAME	LOCATION	TAGGED POSITION	TAGGED SEQ	RESTORED POSITION	REMOVAL SEQ	DEVICE STATUS
T	8	SI MVA000205 AB VALVE HPSI PUMP AB MIN FLOW TO RECIRC A LINE STOP CHECK	RAB -35 6A K	CLOSED	17	LOCKED OPEN		Not Hanging
T	9	SI MVA000245 VALVE HPSI PUMP AB MIN FLOW TO RECIRC B LINE STOP CHECK	RAB -35 6A K	CLOSED	18	LOCKED CLOSED		Not Hanging
T	10	SI MVA000212 A VALVE HPSI PUMP AB DISCHARGE TO HPSI A ISOLATION	RAB -35 9A K	CLOSED	19	LOCKED CLOSED		Not Hanging
T	11	SI MVA000212 B VALVE HPSI PUMP AB DISCHARGE TO HPSI B ISOLATION	RAB -35 9A K	CLOSED	19	LOCKED CLOSED		Not Hanging
T	12	SI MVA000202 A VALVE HPSI PUMP AB SUCTION FROM HPSI A ISOLATION	RAB -35 9A J	CLOSED	19	LOCKED CLOSED		Not Hanging
T	13	SI MVA000202 B VALVE HPSI PUMP AB SUCTION FROM HPSI B ISOLATION	RAB -35 8A L	CLOSED	19	LOCKED CLOSED		Not Hanging
T	14	SI MVA0002032 AB VALVE HPSI PUMP AB SUCTION VENT	RAB -35 6A J	OPEN / THROTTLED	20	CLOSED		Not Hanging
T	15	SI MVA0002034 AB VALVE HPSI PUMP AB SUCTION RELIEF	RAB -35 8A K	OPEN / THROTTLED	21			Not Hanging
T	16	SI MVA0002033 AB VALVE HPSI PUMP AB DISCHARGE PX ROOT	RAB -35 6A J	OPEN / THROTTLED	22	CLOSED		Not Hanging

□ CONTINUATION SHEET(S)

→ Special Attention Requested

* No Tag

Waterford 3 Job Performance Measure Examination

Entry into RCA (CAA)

JOB: NAO **PLANT SYSTEM:** RAD **TASK MODE:** Norm **TASK NUMBER:** 1
DESCRIPTION: Entry into RCA (CAA)
REVISION: 0 **REVISION DATE:** 8/4/99
TIME: 5
TIME CRITICAL TASK: **ALTERNATE PATH:**
REFERENCE: **REVISION:** **CHANGE:** **DATE:** **EVALUATION METHOD:**
UNT-005-022 11 02 7/29/98 Perform
NRC KA NUMBER: **RO** **SRO**
2-3-1 2.6 3
2-3-5 2.3 2.5

Trainee



Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

INITIAL CONDITIONS

ANOTHER TASK IS TO PERFORMED IN THE RCA

TASK STANDARD

SUCCESSFUL ENTRY INTO THE RCA
ANSWER FOLLOW UP QUESTION

TOOLS AND EQUIPMENT

ELECTRIC DOSIMETER

PERSONNEL SAFETY CONSIDERATIONS

1. EATING, SMOKING, AND CHEWING ARE PROHIBITED IN THE RCA.
DRINKING IS ONLY ALLOWED BY SPECIFIC HEALTH PHYSICS
PERMISSION.
2. RADIATION OVEREXPOSURE

INITIATING CUE

OPERATOR IS DIRECTED IN TO THE RCA TO PERFORM A SPECIFIC TASK

TERMINATING CUE

SUCCESSFUL ENTRY INTO THE RCA
ANSWERS FOLLOW UP QUESTION

CONSEQUENCES OF INADEQUATE PERFORMANCE

1. POSSIBLE RADIATION OVEREXPOSURE
2. VIOLATION OF PLANT RADIOLOGICAL PROCEDURES

HUMAN INTERFACES

HEALTH PHYSICS TECHNICIAN

TASK SPECIFIC SKILLS / KNOWLEDGE

NONE

Waterford 3 Job Performance Measure Examination

Directions To Examinee:

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

INITIAL CONDITIONS

ANOTHER TASK IS TO PERFORMED IN THE RCA

INITIATING CUE

OPERATOR IS DIRECTED IN TO THE RCA TO PERFORM A SPECIFIC TASK

Waterford 3 Job Performance Measure Examination

TASK ELEMENTS

Perform the task in accordance with UNT-005-022, Controlled Access Area Entry/Exit.

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1. (C) REVIEW RADIATION WORK PERMIT OR STANDING RWP, IF APPROPRIATE.

CUES

COMPUTER WILL PROMPT IF STANDING RADIATION WORK PERMIT HAS CHANGED SINCE WORKER LAST ENTERED THE CAA.

Standards

1. ENSURE PROPER DOSIMETER FOR RWP.
2. ENSURE TLD AND ELECTRONIC DOSIMETER ARE PROPERLY WORN IN CLOSE PROXIMITY TO EACH OTHER, ON THE FRONT OF THE BODY BETWEEN THE WAIST AND SHOULDERS.
3. TLD BETA WINDOW SHOULD BE FACING OUT, AWAY FROM THE BODY.
4. ELECTRONIC DOSIMETER FRONT FACING OUT, AWAY FROM THE BODY.

-
-
2. (C) ENSURE THE PERSONNEL THEY ARE ESCORTING ARE FAMILIAR WITH AND ADHEREING TO PROCEDURE AND RWP REQUIREMENTS.

CUES

NONE

Standards

1. ENSURE THE PERSONNEL THEY ARE ESCORTING LOCATE APPROPRIATE RWP AND ELECTRONIC DOSIMETER.

-
-
3. (C) LOG INTO THE CAA USING THE ACCESS CONTROL COMPUTER OR MANUAL INDIVIDUAL DOSE TRACKING CARD, AS DIRECTED BY HEALTH PHYSICS

CUES

NONE

Standards

1. PROPERLY LOGGED INTO THE ACCESS CONTROL COMPUTER
2. COMPLETED ENTRY PORTION OF MANUAL INDIVIDUAL DOSE TRACKING CARD IF ACCESS CONTROL COMPUTER WAS NOT AVAILABLE.

Waterford 3 Job Performance Measure Examination

Follow up questions for Admin JPM A.3

What is your dosimeter alarm set at?

50 mrem/hour and 200 mrem

What actions are required if you drop your dosimeter?

Exit the RCA (CAA) and notify Health Physics

Waterford 3 Job Performance Measure Examination

Toxic Chemical Emergency

JOB: RO **PLANT SYSTEM:** EP **TASK MODE:** OffNorm **TASK NUMBER:** 1
DESCRIPTION: Toxic Chemical Emergency
REVISION: 1 **REVISION DATE:** 9/27/99
APPROVAL: **APPROVAL DATE:**
TIME: 5
TIME CRITICAL TASK: **ALTERNATE PATH:**
REFERENCE: **REVISION:** **CHANGE:** **DATE:** **EVALUATION METHOD:**
EP-004-010 07 00 12/31/98 Perform
NRC KA NUMBER: **RO** **SRO**
2-4-39 3.3 3.1
2-4-44 2.1 4

Trainee



Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

Toxic Chemical Emergency

Directions To Examinee:

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

INITIAL CONDITIONS

Mode 1, 100 % power

TASK STANDARD

Make proper response evaluation IAW EP-004-010

TOOLS AND EQUIPMENT

None

PERSONNEL SAFETY CONSIDERATIONS

None

INITIATING CUE

You have just been informed over the TIC radio that Union Carbide has had a Vinyl Chloride pipe fail at 09:50. They also reported that the leak had not yet been isolated. It is currently 09:56 and the wind direction is 135° with a wind speed of 4 mph. Broad Range Gas Detectors A and B are reading normal. The CRS directs you to determine required actions per EP-004-010, Toxic Chemical contingency Procedure.

Provide student with EP-004-010, attachment 7.1

TERMINATING CUE

Student determines the need to SHELTER personnel and declare an ALERT per tab C

CONSEQUENCES OF INADEQUATE PERFORMANCE

Personel exposure to harmful chemicals

HUMAN INTERFACES

CRS

TASK SPECIFIC SKILLS / KNOWLEDGE

None

INITIAL CONDITIONS

Mode 1, 100 % power

INITIATING CUE

You have just been informed over the TIC radio that Union Carbide has had a Vinyl Chloride pipe fail at 09:50. They also reported that the leak had not yet been isolated.

It is currently 09:56 and the wind direction is 135° with a wind speed of 4 mph.
Broad Range Gas Detectors A and B are reading normal.

The CRS directs you to determine required actions per EP-004-010, Toxic Chemical contingency Procedure.

EMERGENCY COMMUNICATIONS CHECKLIST

NOTE: Information Received via the St. Charles Industrial Hotline, TICC Radio or Other Credible Source

1. ST. CHARLES PARISH TOXIC CHEMICAL EVENT CLASSIFICATION:
UNUSUAL EVENT _____ ALERT _____
SITE AREA EMERGENCY _____ GENERAL EMERGENCY _____

2. Name of the Release Source: Union Carbide

3. Name/Affiliation Communicator: _____

4. Incident Facts: FIRE _____ GAS RELEASE _____ EXPLOSION _____
SPILL _____ OTHER _____ PIPE FAILURE _____

Substance Involved: VINYL CHLORIDE
(Request that they spell it!)

Quantity Involved: UNKNOWN

DOT ID & Guide # (if available): 1086 (116P)

FLAMMABLE _____ TOXIC _____ OTHER _____

5. Recommended Action: _____

6. Release Start Time: 09:50

7. ESTIMATED DURATION: UNKNOWN
ACTUAL DURATION: _____

8. Message Received By: YOU
(Signature)

10/5/99 09:56
(Date) (Time)

Verification Call Back #: _____
(if needed to establish credibility)

Waterford 3 Job Performance Measure Examination

Toxic Chemical Emergency

TASK ELEMENTS

Perform the task in accordance with EP-004-010, Toxic Chemical contingency Procedure

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-
1. (C) If a toxic chemical release is in progress, refer to Attachment 7.2.

Cues

Provide operator with attach. 7.1, Emergency Communications Checklist.
Meteorological conditions are wind speed 4 mph, direction 135°.

Standards

Operator goes to attach. 7.2, Toxic Chemical Diagnostic Flowchart

2. (C) On attachment 7.2, "Toxic Chemicals within EAB?"

Cues

None

Standards

From turnover, Broad Range Gas Monitors are reading normal. Operator selects "N".

3. (C) On attachment 7.2, "W3 5 mi or less from release point?"

Cues

None

Standards

From attach 7.3 or 7.4, Waterford is 1.25 miles from release point. Answer "Y".

4. (C) On attachment 7.2, "Large or Unknown Hazzard?"

Cues

None

Standards

From attachment 7.3, chemical is a large hazzard. Answer "Y".

5. (C) From attachment 7.2, "Release secured and not posing a threat to site personnel or operations?"

Cues

None

Standards

From turnover, release still in progress. Answer "N".

Waterford 3 Job Performance Measure Examination

Toxic Chemical Emergency

6. (C) From attachment 7.2, "W3 Downwind of the release?"

Cues

None

Standards

From attachment 7.4, Worst case wind direction is 120° . Downwind is considered $\pm 45^\circ$ (90° - 180°). Wind is from 135° . Waterford is downwind from the release. Answer "Y".

7. (C) From attachment 7.2, "Response time greater than 30 minutes?"

Cues

None

Standards

Using attachment 7.4 section 2.0,

A.

$[\text{Distance} \div \text{Wind Speed}] * 60 = \text{Plume Travel Time}$

$[1.25 \text{ miles} \div 4 \text{ mph}] * 60 = 18.75 \text{ mins}$

B.

$\text{Plume Travel Time} + \text{Release Start Time} = \text{Plume Arrival Time}$

$18.75 \text{ mins} + 09:50 = 10:09$

C.

$\text{Plume Arrival Time} - \text{Current Time} = \text{Response Time}$

$10:09 - 09:56 = 13 \text{ mins}$

$\text{Arrival Time} < 30 \text{ minutes}$. Answer "N"

8. (C) From attachment 7.2, "Shelter, Alert, Tab C".

Cues

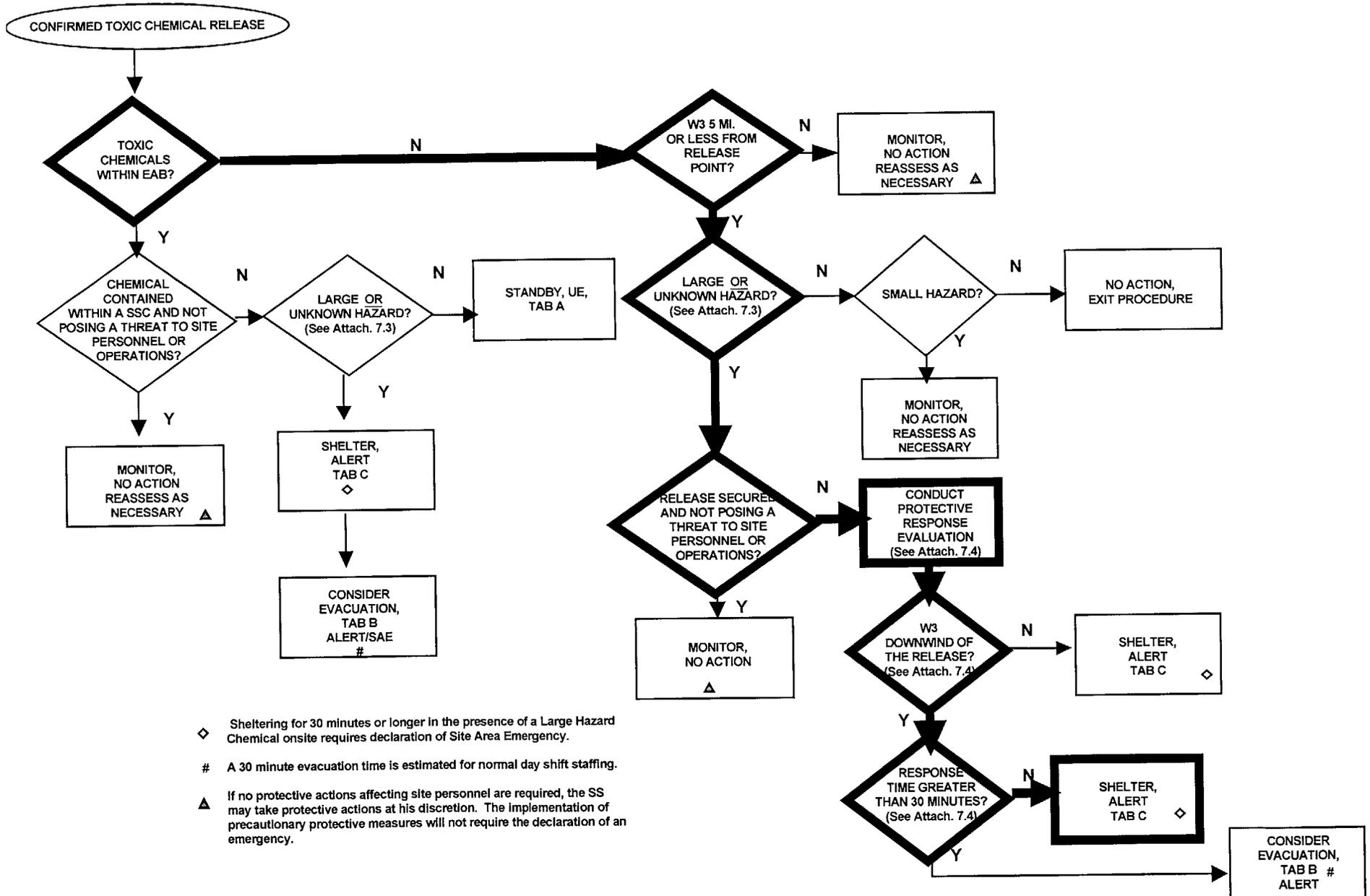
None

Standards

Operator informs CRS recommended actions are to Shelter and declare an Alert per tab C.

(C) End of Task

TOXIC CHEMICAL DIAGNOSTIC FLOWCHART



Facility: Waterford III

Date of Examination: 10/4/99

Exam Level (circle one): RO / SRO(I) / SRO(U)

Operating Test No.: 1

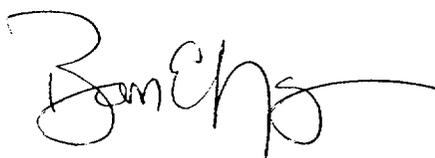
B.1 Control Room Systems

System / JPM Title	Type Code*	Safety Function
a. Makeup to the VCT Using the Auto Makeup Mode	D, S	2
b. Start a Reactor Coolant Pump (High Vibration Occurs on Startup)	M, S, A, L	4
c. Reset SIAS/CIAS	M, C, L	7
d. Perform Actions of the PNPO During a Reactor Power Cutback Event (3 CEAs fail to drop)	M, S, A	1
e. Align a LPSI Pump to Replace a CS Pump	N, C, L	5
f. Unload , Stop, and Return EDG A(B) to Standby (Oil Leak)	M, S, A,	6
g. Restore from Control Room Isolation	M, S	8

B.2 Facility Walk-Through

a. Operate the Atmospheric Dump Valves Locally	D, L	4
b. Aligning Essential Chiller A/B to Replace Essential Chiller A(B)	M, R	8
c. Startup A Safety Related Battery Charger (High Voltage Shutdown)	D, A	6

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





Waterford 3 Job Performance Measure Examination

MAKEUP TO THE VCT USING THE AUTO MAKEUP MODE

JOB: RO **PLANT SYSTEM:** CVC **TASK MODE:** Norm **TASK NUMBER:** 9

DESCRIPTION: MAKEUP TO THE VCT USING THE AUTO MAKEUP MODE

REVISION: 4 **REVISION DATE:** 8/5/99

TIME: 15

TIME CRITICAL TASK: **ALTERNATE PATH:**

REFERENCE:	REVISION:	CHANGE:	DATE:	EVALUATION METHOD:
OP-002-005	14	08	2/21/99	SIMULATOR

NRC KA NUMBER: **RO** **SRO**

3.2-004-A3.01 3.5 3.7

3.2-004-A4.07 3.9 3.7

3.2-004-A4.04 3.2 3.6

Trainee



Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

MAKEUP TO THE VCT USING THE AUTO MAKEUP MODE

Directions To Examinee:

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

INITIAL CONDITIONS

1. THE PLANT IS IN MODE 3
2. RCS BORON CONCENTRATION IS 1346 PPM
3. BAMT CONCENTRATION IS 5000 PPM

INITIATING CUE

YOU ARE DIRECTED BY THE CRS TO ALIGN THE CVC SYSTEM FOR AUTOMATIC MAKEUP TO THE VCT.

Waterford 3 Job Performance Measure Examination

MAKEUP TO THE VCT USING THE AUTO MAKEUP MODE

INITIAL CONDITIONS

1. THE PLANT IS IN MODE 3
2. RCS BORON CONCENTRATION IS 1346 PPM
3. BAMS CONCENTRATION IS 5000 PPM

TASK STANDARD

1. VCT MAKEUP HAS BEEN ALIGNED FOR AUTOMATIC MAKEUP MODE

TOOLS AND EQUIPMENT

NONE

PERSONNEL SAFETY CONSIDERATIONS

NONE

INITIATING CUE

YOU ARE DIRECTED BY THE CRS TO ALIGN THE CVC SYSTEM FOR AUTOMATIC MAKEUP TO THE VCT.

TERMINATING CUE

1. VCT MAKEUP HAS BEEN ALIGNED FOR AUTOMATIC

CONSEQUENCES OF INADEQUATE PERFORMANCE

1. ABNORMAL VCT LEVEL
2. INADVERTENT BORATION OR DILUTION OF RCS

HUMAN INTERFACES

1. SS/CRS

TASK SPECIFIC SKILLS / KNOWLEDGE

NONE

Waterford 3 Job Performance Measure Examination

MAKEUP TO THE VCT USING THE AUTO MAKEUP MODE

TASK ELEMENTS

Perform the task in accordance with OP-002-005, Section 8.7 and Attachment 11.5. All components operated during the performance of this JPM are located on CP-4.

1 INFORM SS/CRS PRIOR TO PERFORMING THIS SECTION.

CUES:

1. WHEN OPERATOR NOTIFIES SS/CRS, PERFORM PARAPHRASED REPEATBACK.

STANDARDS:

1.1 THE OPERATOR INFORMS THE SS OR CRS THAT HE IS COMMENCING ALIGNMENT FOR AUTOMATIC MAKEUP TO THE VCT.

2 (C) DETERMINE THE REQUIRED BLEND FLOW RATE FOR DESIRED RCS BORIC ACID CONCENTRATION BY ONE OF THE FOLLOWING:

- ATT. 11.5, VCT MAKEUP (MANUAL OR AUTOMATIC)

OR

- SS/CRS DISCRETION

2.1 IF ATT. 11.5 WAS PERFORMED, THEN RECORD BORIC ACID AND PMU TOTALIZER READINGS ON ATT. 11.5.

CUES:

1. CUE THE OPERATOR THAT THE CRS REQUESTS THE OPERATOR USE ATTACHMENT 11.5 TO DETERMINE BLEND FLOW RATE USING 50 GPM AS THE PMU FLOW RATE.
2. INITIAL CONDITIONS PROVIDE CUES FOR RCS AND BORIC ACID MAKEUP TANK BORON CONCENTRATIONS.

STANDARDS:

1. THE OPERATOR CORRECTLY CALCULATES THE REQUIRED BLEND FLOW RATES.
2. THE OPERATOR RECORDS PMU AND BORIC ACID TOTALIZER READINGS ON ATT. 11.5

3 (C) PLACE BORIC ACID FLOW CONTROLLER, BAM-IFIC-210Y, IN AUTO.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR DEPRESSES THE AUTO PUSHBUTTON ON CONTROLLER BAM-IFIC-210Y AND VERIFIES THAT RED AUTO LIGHT ILLUMINATES.

Waterford 3 Job Performance Measure Examination

MAKEUP TO THE VCT USING THE AUTO MAKEUP MODE

4 (C) SET BORIC ACID FLOW CONTROLLER, BAM-IFIC-210Y, SETPOINT POTENTIOMETER TO ACHIEVE > 3 GPM FLOW RATE.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR ROTATES THE SETPOINT POTENTIOMETER ON BAM-IFIC-210Y TO RAISE THE BORIC ACID FLOW SETPOINT TO THE VALUE CALCULATED IN ATT.11.5 OF OP-002-005.
2. THE OPERATOR ENSURES THAT SETPOINT IS > 3 GPM.

5 (C) PLACE PRIMARY MAKEUP FLOW CONTROLLER PMU-IFIC-210X IN AUTO.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR DEPRESSES THE AUTO PUSHBUTTON ON CONTROLLER PMU-IFIC-210X AND VERIFIES THAT RED AUTO LIGHT ILLUMINATES.

6 (C) SET PRIMARY MAKEUP FLOW CONTROLLER PMU-IFIC-210X SETPOINT POTENTIOMETER TO ACHIEVE > 10 GPM FLOW RATE.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR ROTATES THE SETPOINT POTENTIOMETER ON PMU-IFIC-210X TO RAISE THE PMU FLOW SETPOINT TO THE VALUE USED IN ATT.11.5 OF OP-002-005.
2. THE OPERATOR ENSURES THAT SETPOINT IS > 10 GPM.

7 (C) PLACE MAKEUP MODE SELECTOR SWITCH TO AUTO.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR ROTATES THE MAKEUP MODE SELECTOR SWITCH TO THE AUTO POSITION.

Waterford 3 Job Performance Measure Examination

MAKEUP TO THE VCT USING THE AUTO MAKEUP MODE

8 CHECK VCT LEVEL PERIODICALLY TO VERIFY MAKEUP SYSTEM IS MAINTAINING PROPER VCT LEVEL.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR VERIFIES THAT THE AUTO MAKEUP SYSTEM CONTROLS VCT LEVEL BETWEEN 37% AND 51%.
2. IF MAKEUP IS INITIATED THE OPERATOR VERIFIES THE SELECTED BAM PUMP STARTS, CVC-510 OPENS, AND CONTROLLERS ARE CONTROLLING FLOWS AT RESPECTIVE SETPOINTS OR TAKES MANUAL CONTROL AND ADJUSTS FLOW TO SETPOINT VALUE.

9 (C) WHEN THE AUTO MAKEUP MODE TO THE VCT IS NO LONGER DESIRED, THEN PERFORM THE FOLLOWING: PLACE MAKEUP MODE SELECTOR SWITCH IN MANUAL.

CUES:

1. AFTER LEVEL IN THE VCT HAS RISEN BY AT LEAST 2%, THEN CUE THE OPERATOR THAT AUTOMATIC MAKEUP IS NO LONGER DESIRED.
2. SIMULATOR PROVIDES CUES FOR POSITION OF MAKEUP MODE SELECTOR SWITCH.

STANDARDS:

1. THE OPERATOR ROTATES THE MAKEUP MODE SELECTOR SWITCH TO THE MANUAL POSITION.

10 (C) WHEN THE AUTO MAKEUP MODE TO THE VCT IS NO LONGER DESIRED, THEN PERFORM THE FOLLOWING: VERIFY CLOSED VCT MAKEUP VALVE, CVC-510.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR VERIFIES THAT THE GREEN LIGHT IS ILLUMINATED AND THAT THE RED LIGHT IS EXTINGUISHED ON THE C/S FOR CVC-510.
2. IF CONDITIONS OF STANDARD ONE ARE NOT SATISFIED, THE OPERATOR TAKES THE C/S FOR CVC-510 TO CLOSE AND VERIFIES THE CONDITIONS OF STANDARD ONE ARE MET.

Waterford 3 Job Performance Measure Examination

MAKEUP TO THE VCT USING THE AUTO MAKEUP MODE

-
-
- 11 WHEN THE AUTO MAKEUP MODE TO THE VCT IS NO LONGER DESIRED, THEN PERFORM THE FOLLOWING: VERIFY SELECTED BORIC ACID PUMP OFF.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR VERIFIES THE GREEN LIGHT IS ILLUMINATED AND THE RED LIGHT IS EXTINGUISHED ON THE C/S FOR THE SELECTED BAM PUMP.
2. IF THE CONDITIONS OF STANDARD ONE ARE NOT MET, THE OPERATOR PLACES THE C/S FOR THE SELECTED BAM PUMP TO OFF AND VERIFIES THE CONDITIONS OF STANDARD ONE ARE MET.

-
-
- 12 (C) WHEN THE AUTO MAKEUP MODE TO THE VCT IS NO LONGER DESIRED, THEN PERFORM THE FOLLOWING: PLACE PMU CONTROLLER, PMU-IFIC-0210X, IN MANUAL AND ADJUST OUTPUT AND SETPOINT POTENTIOMETER TO ZERO.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR DEPRESSES THE MANUAL PUSHBUTTON ON PMU-IFIC-0210X AND VERIFIES THE RED MANUAL PUSHBUTTON ILLUMINATES.
2. THE OPERATOR LOWERS THE OUTPUT OF THE CONTROLLER BY DEPRESSING THE DECREASE OUTPUT PUSHBUTTON ON PMU-IFIC-0210X UNTIL THE PROCESS OUTPUT METER READS ZERO.

-
-
- 13 WHEN THE AUTO MAKEUP MODE TO THE VCT IS NO LONGER DESIRED, THEN PERFORM THE FOLLOWING: VERIFY PMU FLOW CONTROL VALVE, PMU-144, IS CLOSED.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR VERIFIES THAT THE GREEN LIGHT IS ILLUMINATED AND THE RED LIGHT IS EXTINGUISHED ON THE VALVE POSITION INDICATOR FOR PMU-144.

Waterford 3 Job Performance Measure Examination

MAKEUP TO THE VCT USING THE AUTO MAKEUP MODE

-
-
- 14 (C) WHEN THE AUTO MAKEUP MODE TO THE VCT IS NO LONGER DESIRED, THEN PERFORM THE FOLLOWING: PLACE BORIC ACID CONTROLLER, BAM-IFIC-0210Y, IN MANUAL AND ADJUST OUTPUT AND SETPOINT POTENTIOMETER TO ZERO.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

3. THE OPERATOR DEPRESSES THE MANUAL PUSHBUTTON ON BAM-IFIC-0210Y AND VERIFIES THE RED MANUAL PUSHBUTTON ILLUMINATES.
4. THE OPERATOR LOWERS THE OUTPUT OF THE CONTROLLER BY DEPRESSING THE DECREASE OUTPUT PUSHBUTTON ON BAM-IFIC-0210Y UNTIL THE PROCESS OUTPUT METER READS ZERO.

-
-
- 15 WHEN THE AUTO MAKEUP MODE TO THE VCT IS NO LONGER DESIRED, THEN PERFORM THE FOLLOWING: VERIFY BAM HEADER FLOW CONTROL VALVE, BAM-141, IS CLOSED.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR VERIFIES THAT THE GREEN LIGHT IS ILLUMINATED AND THE RED LIGHT IS EXTINGUISHED ON THE VALVE POSITION INDICATOR FOR BAM-141.

-
-
- 16 IF INITIAL READINGS WERE RECORDED IN STEP 2.1 (STEP 2 OF THIS JPM), THEN RECORD BORIC ACID AND PMU TOTALIZER READINGS ON ATT. 11.5 WHEN THE DESIRED AMOUNT OF MAKEUP IS ACHIEVED.

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR READS INFORMATION FROM TOTALIZERS AND FILLS IN ATT. 11.5.

-
-
- 17 END OF TASK

11.5 VCT MAKEUP (MANUAL OR AUTOMATIC)

KEY

1. Record the following data:

BAMT Concentration (CBAMT) 5000 PPM

RCS Boron Conc. or (CRCS) 1346 PPM

VCT Concentration

2. Record the desired Primary Water flow rate (FPW):

FPW = 50 GPM

3. Calculate the required Boric Acid flow rate (FBA):

$$FBA = FPW \times \frac{CRCS}{CBAMT - CRCS} = \frac{50 \text{ GPM} \times (1346 \text{ PPM})}{(5000 \text{ PPM}) - (1346 \text{ PPM})}$$

* FBA = 18.4 GPM

Performed by: *Arthur M. West* 10/3/99
Signature & Date

Verified by: _____
Signature & Date

* This value can be cross checked with the Plant Data Book (RCS Boration Volumes, Section 2.2.9; RCS Dilution Volumes, Section 2.2.10, or Boron Makeup Ratio, Section 2.2.11) to ensure a reasonable value has been obtained.

	<u>Before</u>	<u>After</u>
4. Boric Acid Totalizer:	_____	_____
Primary Makeup Water Totalizer:	_____	_____



Waterford 3 Job Performance Measure Examination

START A REACTOR COOLANT PUMP

JOB: RO **PLANT SYSTEM:** RCP **TASK MODE:** NORM **TASK NUMBER:** 1
DESCRIPTION: START A REACTOR COOLANT PUMP
REVISION: 4 **REVISION DATE:** 8/5/99
TIME: 20 MIN

TIME CRITICAL TASK: **ALTERNATE PATH:** X
REFERENCE: **REVISION:** **CHANGE:** **DATE:** **EVALUATION METHOD:**
OP-001-002 11 00 6/2/98 SIMULATOR

NRC KA NUMBER:	RO	SRO
3.4-003-A4.02	2.9	2.9
2-1-32	3.4	3.8
2-1-30	3.9	3.4
2-1-23	3.9	4
2-1-20	4.3	4.2
2-1-19	3	3
3.4-003-A1.04	2.6	2.5
3.4-003-A4.05	3.1	3
3.4-003-A4.06	2.9*	2.9
3.4-003-A4.08	3.2	2.9
3.4-003-A4.03	2.8	2.5

Trainee



Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

START A REACTOR COOLANT PUMP

Directions To Examinee:

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

INITIAL CONDITIONS

- 1 RCS PRESSURE IS APPROXIMATELY 2250 PSIA
- 2 RCS TEMPERATURE IS APPROXIMATELY 545°F
- 3 A NUCLEAR AUXILIARY OPERATOR (NAO) IS IN CONTAINMENT TO OBSERVE THE START OF THE RCP

INITIATING CUE

YOU ARE DIRECTED BY THE CRS TO START REACTOR COOLANT PUMP
2A IN ACCORDANCE WITH THE NORMAL OPERATING PROCEDURE.

Waterford 3 Job Performance Measure Examination

START A REACTOR COOLANT PUMP

INITIATING CUE

YOU ARE DIRECTED BY THE CRS TO START REACTOR COOLANT PUMP
2A IN ACCORDANCE WITH THE NORMAL OPERATING PROCEDURE.

INITIAL CONDITIONS

- 4 RCS PRESSURE IS APPROXIMATELY 2250 PSIA
- 5 RCS TEMPERATURE IS APPROXIMATELY 545°F
- 6 A NUCLEAR AUXILIARY OPERATOR (NAO) IS IN CONTAINMENT TO OBSERVE THE START OF THE RCP

TASK STANDARD

1. DESIRED RCP RUNNING
2. (ALT) EXAMINEE SECURES AFFECTED RCP OR INFORMS SS/CRS OF ALARM AND FOLLOWS ANNUNCIATOR RESPONSE PROCEDURE GUIDANCE

TOOLS AND EQUIPMENT

NONE

PERSONNEL SAFETY CONSIDERATIONS

ROTATING EQUIPMENT

TERMINATING CUE

1. REACTOR COOLANT PUMP RUNNING
2. (ALT) SS/CRS IS INFORMED OF HIGH VIBRATION ALARM PROBLEM

Waterford 3 Job Performance Measure Examination

START A REACTOR COOLANT PUMP

TASK ELEMENTS

Perform the task in accordance with OP-001-002, section 6.1. All controls and indications used during this JPM are located on CP-2, CP-7, CP-18, or the PMC.

-
-
- 1 IF ONE OR MORE SEALS FAIL, THEN REFER TO OP-901-130, REACTOR COOLANT PUMP MALFUNCTION.

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. OPERATOR MONITORS RCP SEALS DURING RCP STARTUP.
2. OPERATOR REFERS TO OP-901-130 IF ONE OR MORE SEALS FAIL.

-
-
- 2 IF A DILUTED POCKET OF RCS WATER IS SUSPECTED IN THE RCS, THEN VERIFY OP-901-104, INADVERTANT POSITIVE REACTIVITY ADDITION, HAS BEEN PERFORMED.

Cues:

1. WHEN OPERATOR ADDRESSES STEP, THEN CUE THE OPERATOR THAT NO DILUTED POCKET OF WATER IS SUSPECTED.

Standards:

1. OPERATOR VERIFIES THAT NO EVOLUTION WAS PERFORMED THAT COULD CAUSE A DILUTED POCKET OF WATER OR VERIFIES ACTIONS OF OP-901-104 WERE CARRIED OUT BEFORE PROCEEDING.

-
-
- 3 IF AT NORMAL RCS PRESSURE, THEN VERIFY CBO OF 1.2-1.8 GPM BY MONITORING APPROPRIATE RCP MIMIC OR APPROPRIATE PMC POINT IAW ATT. 11.2.

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. OPERATOR VERIFIES RCS PRESSURE AT APPROXIMATELY 2250 PSIA.
2. OPERATOR VERIFIES CBO IS WITHIN ACCEPTABLE BAND BY METHODS LISTED ABOVE.
3. OPERATOR SKIPS THIS STEP IF NOT AT NORMAL RCS PRESSURE.

Waterford 3 Job Performance Measure Examination

START A REACTOR COOLANT PUMP

4 IF NOT AT NORMAL RCS PRESSURE, THEN VERIFY APPROXIMATE CBO FLOW IAW ATT. 11.4.

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. OPERATOR VERIFIES RCS PRESSURE AND SKIPS THIS STEP IF RCS PRESSURE NORMAL.
2. IF RCS PRESSURE IS NOT NORMAL THEN THE OPERATOR USES CURRENT RCS PRESSURE TO DETERMINE EXPECTED CBO FLOW PER LISTED ATTACHMENT.

5 VERIFY PROPER UPPER OIL RESERVOIR OF 65-90% ON APPROPRIATE RCP MIMIC, APPROPRIATE PMC POINT OR LOCAL INDICATION.

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. OPERATOR VERIFIES OIL LEVEL IAW AT LEAST ONE OF THE LISTED INDICATORS.

6 VERIFY PROPER LOWER OIL RESERVOIR OF 65-90% ON APPROPRIATE RCP MIMIC, APPROPRIATE PMC POINT OR LOCAL INDICATION.

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. OPERATOR VERIFIES OIL LEVEL IAW AT LEAST ONE OF THE LISTED INDICATORS.

7 PRIOR TO STARTING THE 4TH RCP, VERIFY OP-903-107, PLANT PROTECTION SYSTEM CHANNEL _A_B_C_D FUNCTIONAL TEST, SECTION 7.23, REACTOR COOLANT LOW FLOW TRIP OPERATING BYPASS, HAS BEEN PERFORMED WITHIN THE LAST 92 DAYS.

Cues:

1. CUE THE OPERATOR THAT ALL CHANNELS HAVE BEEN COMPLETED WITHIN THE REQUIRED INTERVAL.

Standards:

1. THE OPERATOR VERIFIES COMPLETION OF THE SURVEILLANCES THROUGH THE CRS OR USES WMS TO RETRIEVE THE INFORMATION.

Waterford 3 Job Performance Measure Examination

START A REACTOR COOLANT PUMP

-
-
- 8 VERIFY CCW FLOW AT CP-2 TO SEAL WATER COOLER FOR APPROPRIATE RCP BY CHECKING ASSOCIATED INLET AND OUTLET VALVES INDICATE OPEN:
- CC-6651A, RCP 1A SEAL COOLER CCW INLET ISOLATION
 - CC-679A, RCP 1A SEAL COOLER CCW OUTLET ISOLATION
 - CC-6651B, RCP 1B SEAL COOLER CCW INLET ISOLATION
 - CC-679B, RCP 1B SEAL COOLER CCW OUTLET ISOLATION
 - **CC-666A, RCP 2A SEAL COOLER CCW INLET ISOLATION**
 - **CC-680A, RCP 2A SEAL COOLER CCW OUTLET ISOLATION**
 - CC-666B, RCP 2B SEAL COOLER CCW INLET ISOLATION
 - CC-680B, RCP 2B SEAL COOLER CCW OUTLET ISOLATION
- AT SS/CRS DISCRETION, VERIFY CCW FLOW ON LOCAL INDICATORS

Cues:

1. VALVE POSITION CUES PROVIDED BY SIMULATOR
2. IF ASKED, CUE THE OPERATOR THAT CRS DOES NOT REQUIRE VERIFICATION OF LOCAL INDICATION.

Standards:

1. OPERATOR VERIFIES VALVE POSITION INDICATION ON CP-2.

-
-
- 9 TEST ALL ANNUNCIATORS ON CP-2 AND CP-18 AND VERIFY ALL RCP ALARMS ILLUMINATE.

Cues:

1. SIMULATOR PROVIDES CUES FOR CP-2 ANNUNCIATORS.
2. WHEN THE OPERATOR COMPLETES THE TEST OF CP-2 ANNUNCIATORS, CUE THE OPERATOR THAT ALLARMS HAVE BEEN TESTED SATISFACTORILY ON CP-18.

Standards:

1. THE OPERATOR DEPRESSES THE ANNUNCIATOR TEST BUTTON ON THE APPROPRIATE PANEL AND VERIFIES ALL RCP ALARMS FOR RCP TO BE STARTED FAST FLASH.
2. THE OPERATOR DEPRESSES THE ANNUNCIATOR ACKNOWLEDGE BUTTON ON THE APPROPRIATE PANEL AND VERIFIES ALL RCP ALARMS FOR RCP TO BE STARTED SLOW FLASH.
3. THE OPERATOR DEPRESSES THE ANNUNCIATOR CLEAR BUTTON ON THE APPROPRIATE PANEL AND VERIFIES ALL ALARMS FOR RCP TO BE STARTED EXTINGUISH.

Waterford 3 Job Performance Measure Examination

START A REACTOR COOLANT PUMP

10 VERIFY APPROPRIATE RCP HIGH VIBRATION ALARM ON CP-2 IS CLEAR:

- REACTOR CLG PUMP 1A HI VIBRATION (A-4, PANEL H)
- REACTOR CLG PUMP 1B HI VIBRATION (A-6, PANEL H)
- **REACTOR CLG PUMP 2A HI VIBRATION (A-8, PANEL H)**
- REACTOR CLG PUMP 2B HI VIBRATION (A-10, PANEL H)

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. THE OPERATOR VERIFIES ALARM WINDOW FOR APPROPRIATE RCP IS EXTINGUISHED.

11 (C) START RCP OIL LIFT PUMP A OR B FOR RCP TO BE STARTED BY PLACING ASSOCIATED CONTROL SWITCH AT CP-2 TO ON.

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. THE OPERATOR PLACES ONE RCP LIFT OIL PUMP FOR THE RCP TO BE STARTED TO THE ON POSITION.
2. THE OPERATOR VERIFIES THE LIFT OIL PUMP STARTS BY VERIFYING RED LIGHT ILLUMINATES ON C/S.

12 IF A SECOND RCP OIL LIFT PUMP IS REQUIRED TO CLEAR RCP BRG LIFT OIL PRESS LO ANNUNCIATORS ON CP-2, THEN THE OPS SUPERINTENDENT AND DUTY PLANT MANAGER SHALL BE NOTIFIED PRIOR TO STARTING THE RCP.

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. THE OPERATOR PLACES THE IDLE RCP LIFT OIL PUMP FOR THE RCP TO BE STARTED TO THE ON POSITION.
2. THE OPERATOR VERIFIES THE LIFT OIL PUMP STARTS BY VERIFYING RED LIGHT ILLUMINATES ON C/S.
3. DUTY PLANT MANAGER AND OPS SUPERINTENDENT NOTIFIED IF SECOND PUMP IS REQUIRED TO CLEAR ANNUNCIATOR.

Waterford 3 Job Performance Measure Examination

START A REACTOR COOLANT PUMP

13 VERIFY PROPER H.P. OIL LIFT SYSTEM PRESSURE BY OBSERVING THAT FOLLOWING ANNUNCIATORS CLEAR:

- RCP 1A BRG LIFT OIL PRESS LO (D-3, PANEL H)
- RCP 1B BRG LIFT OIL PRESS LO (D-5, PANEL H)
- **RCP 2A BRG LIFT OIL PRESS LO (D-7, PANEL H)**
- RCP 2B BRG LIFT OIL PRESS LO (D-9, PANEL H)

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. THE OPERATOR VERIFIES THAT THE APPROPRIATE ANNUNCIATOR IS EXTINGUISHED.
2. THE OPERATOR DOES NOT CONTINUE WITH RCP START IF ANNUNCIATOR IS ILLUMINATED.

14 (C) VERIFY RCS PRESSURE AND TEMPERATURE ARE WITHIN LIMITS OF ATTACHMENT 11.1.

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. THE OPERATOR OBTAINS CURRENT PRESSURE AND TEMPERATURE INFORMATION FROM THE CONTROL BOARDS OR THE PMC.
2. THE OPERATOR REFERS TO PRESSURE/TEMPERATURE LIMITS GRAPH TO VERIFY CURRENT TEMPERATURE AND PRESSURE ARE WITHIN THE CURVES FOR RCP OPERATION.
3. THE OPERATOR DOES NOT CONTINUE WITH THE RCP START IF PRESSURE AND TEMPERATURE ARE OUTSIDE LIMITS OF CURVES FOR RCP OPERATION.

15 PRIOR TO STARTING THE RCP MAKE A COPY OF THE PMC MIMIC FOR THE RCP TO BE STARTED.

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. THE OPERATOR DISPLAYS THE APPROPRIATE RCP MIMIC ON CRT 1 OR 2 ON THE CRS DESK.
2. THE OPERATOR PRINTS THE PMC MIMIC TO THE PRINTER ON THE CRS DESK.

Waterford 3 Job Performance Measure Examination

START A REACTOR COOLANT PUMP

-
-
- 16 VERIFY A DIFFERENTIAL TEMPERATURE OF < 100°F BETWEEN RCS COLD LEG TEMPERATURE AND STEAM GENERATOR WATER TEMPERATURE PRIOR TO STARTING THE FIRST RCP ON EACH LOOP TO PROVIDE LOW TEMPERATURE OVERPRESSURE AND REACTIVITY PROTECTION.

Cues:

1. SIMULATOR PROVIDES CUES

Standards:

1. THE OPERATOR VERIFIES DIFFERENTIAL TEMPERATURE OF < 100°F BY COMPARING TEMPERATURE OF APPROPRIATE COLD LEG TO TEMPERATURE ON OUTLET OF APPROPRIATE STEAM GENERATOR ON THE PMC MIMIC MS1 OR STEAM TEMPERATURE RECORDER ON CP-1.
2. THE OPERATOR DETERMINES THIS STEP IS NOT APPLICABLE FOR THE SECOND RCP STARTED IN A LOOP.

-
-
- 17 REFER TO ATTACHMENT 11.3 WHILE PERFORMING STEPS 18-29.

Cues:

1. PROCEDURE PROVIDES CUE

Standards:

1. OPERATOR PERIODICALLY REFERS TO THE LISTED ATTACHMENT WHILE PERFORMING APPLICABLE STEPS

-
-
- 18 VERIFY THE ASSOCIATED RCP LIFT OIL PUMP OPERATING AT NORMAL PRESSURE FOR A MINIMUM OF 2 MINUTES PRIOR TO STARTING THE RCP.

Cues:

1. CUE THE OPERATOR THAT 2 MINUTES HAVE ELAPSED SINCE THE ASSOCIATED RCP BRG LIFT OIL PRESS LO ALRM CLEARED.

Standards:

1. THE OPERATOR WAITS AT LEAST TWO MINUTES BETWEEN CLEARING THE LIFT OIL LO PRESS ALARM AND STARTING THE RCP.

Waterford 3 Job Performance Measure Examination

START A REACTOR COOLANT PUMP

-
-
- 21 (C) **ALT:** IF EXCESSIVELY HIGH VIBRATION, UNUSUAL NOISES, OR SHARP RATES OF BEARING TEMPERATURE RISE OCCUR, THEN SECURE THE RCP.

Cues:

1. SIMULATOR PROVIDES CUES FOR RCP 2A HI VIBRATION ALARM, AND VIBRATION/LOOSE PARTS TROUBLE ALARM.
2. IF ASKED, CUE THE OPERATOR THAT THE NAO REPORTS A LOUD METAL-TO METAL IMPACT SOUND FROM THE ANTI-REVERSE ROTATION DEVICE AND THE RCP IS VISIBLY VIBRATING AFTER RCP 2A HIGH VIBRATION AND VIBRATION/LOOSE PARTS TROUBLE ALARMS ACTUATE.
3. IF THE OPERATOR ATTEMPTS TO CHECK THE VIBRATION/LOOSE PARTS PANEL, CUE THE OPERATOR THE PANEL INDICATES AN RCP 2A IMPACT EVENT ALARM AND THE AUDIO MONITOR INDICATES A CYCLIC BANGING NOISE.
4. IF THE OPERATOR REQUESTS A NAO VERIFY VIBRATION AT THE RCP VIBRATION PANEL, CUE THE OPERATOR THAT THE RCP 2B UPPER MOTOR BEARING DANGER ALARM LIGHT IS ON AND WILL NOT RESET.
5. IF THE OPERATOR RECOMMENDS STOPPING THE PUMP TO THE CRS, CUE THE OPERATOR THAT THE CRS CONCURS.

Standards:

1. THE OPERATOR VERIFIES THE HIGH VIBRATION CONDITION USING AT LEAST ONE CORROBORATING INDICATION.
2. THE OPERATOR VERIFIES A BEARING LIFT OIL PUMP IS RUNNING FOR THE ASSOCIATED RCP.
3. THE OPERATOR TAKES ACTION TO STOP THE PUMP BY TAKING THE CONTROL SWITCH FOR THE ASSOCIATED RCP TO STOP.
4. THE OPERATOR VERIFIES ASSOCIATED RCP MOTOR BREAKER OPENS BY VERIFYING GREEN LIGHT ILLUMINATED ON ASSOCIATED CONTROL SWITCH ON CP-2.

Waterford 3 Job Performance Measure Examination

START A REACTOR COOLANT PUMP

19 NOTIFY THE SS/CRS PRIOR TO STARTING RCP

Cues:

1. WHEN OPERATOR NOTIFIES CRS PERFORM EXPECTED PARAPHRASED REPEATBACK OF INFORMATION.

Standards:

1. THE OPERATOR USES CLOSED LOOP COMMUNICATION.
2. THE OPERATOR PERFORMS COMMUNICATION WITH SS/CRS PRIOR TO STARTING THE RCP.

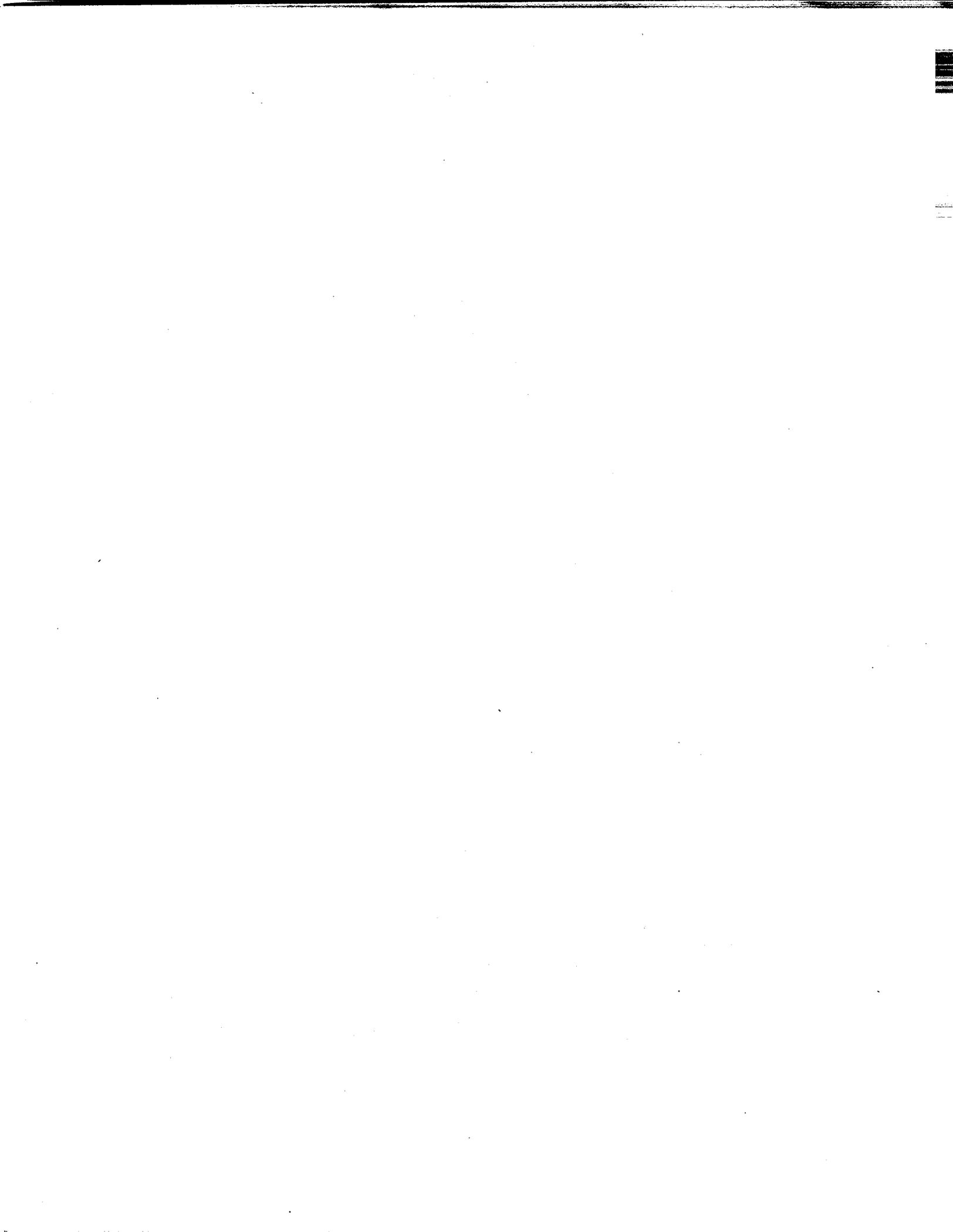
20 (C) START DESIRED REACTOR COOLANT PUMP BY PLACING SELECTED CONTROL SWITCH AT CP-2 TO START.

Cues:

1. SIMULATOR PROVIDES CUES FOR RCP PUMP START.

Standards:

1. THE OPERATOR HOLDS THE RCP SWITCH IN START UNTIL CCW FLOW INTERLOCK IS MET AND RCP STARTS.



Waterford 3 Job Performance Measure Examination

RESET AN INADVERTANT SIAS/CIAS

JOB: RO **PLANT SYSTEM:** PPS **TASK MODE:** Emerg **TASK NUMBER:** 38

DESCRIPTION: RESET AN INADVERTANT SIAS/CIAS

REVISION: 0 **REVISION DATE:** 8/9/99

TIME: 10

TIME CRITICAL TASK: **ALTERNATE PATH:**

REFERENCE:	REVISION:	CHANGE:	DATE:	EVALUATION METHOD:
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OP-901-504	01	00	11/8/95	Simulate
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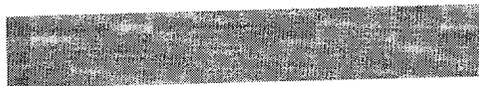
OP-902-001	08	00	9/8/98	
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NRC KA NUMBER:	RO	SRO
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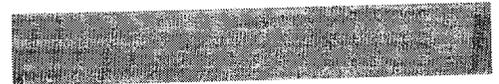
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3.2-006-A4.08	4.2	4.3
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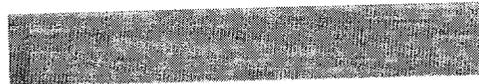
Trainee



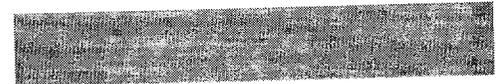
Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

RESET AN INADVERTANT SIAS/CIAS

Directions To Examinee:

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

INITIAL CONDITIONS

1. AN INADVERTANT SIAS/CIAS HAS OCCURRED.
2. THE REACTOR IS TRIPPED.
3. STANDARD POST TRIP ACTIONS ARE COMPLETE AND OP-902-001 IS BEING IMPLEMENTED.
4. RCS PRESSURE IS 2100 PSIA AND TRENDING TO 2250 PSIA.
5. LOW PZR PRESSURE TRIP SETPOINT IS AT 1684 PSIA ON ALL FOUR CHANNELS OF PPS.
6. CONTAINMENT PRESSURE IS 15.0 PSIA AND STABLE.

INITIATING CUE

THE CRS DIRECTS YOU TO RESET SIAS AND CIAS IN ACCORDANCE WITH OP-901-504, SECTION E1, STEPS 14-16.

Waterford 3 Job Performance Measure Examination

RESET AN INADVERTANT SIAS/CIAS

Directions To Examinee:

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

INITIAL CONDITIONS

1. AN INADVERTANT SIAS/CIAS HAS OCCURRED.
2. THE REACTOR IS TRIPPED.
3. STANDARD POST TRIP ACTIONS ARE COMPLETE AND OP-902-001 IS BEING IMPLEMENTED.
4. RCS PRESSURE IS 2100 PSIA AND TRENDING TO 2250 PSIA.
5. LOW PZR PRESSURE TRIP SETPOINT IS AT 1684 PSIA ON ALL FOUR CHANNELS OF PPS.
6. CONTAINMENT PRESSURE IS 15.0 PSIA AND STABLE.

TASK STANDARD

THE SIAS AND CIAS SIGNALS ARE RESET.

TOOLS AND EQUIPMENT

1. PPS RESET KEYS

PERSONNEL SAFETY CONSIDERATIONS

NONE

INITIATING CUE

THE CRS DIRECTS YOU TO RESET SIAS AND CIAS IN ACCORDANCE WITH OP-901-504, SECTION E1, STEPS 14-16.

TERMINATING CUE

SIAS AND CIAS ARE RESET.

CONSEQUENCES OF INADEQUATE PERFORMANCE

1. NORMAL LETDOWN AND CHARGING CAN NOT BE RESTORED.
2. UNNECESSARY WEAR ON SAFETY RELATED COMPONENTS USED FOR ACCIDENT MITIGATION.

Waterford 3 Job Performance Measure Examination

RESET AN INADVERTANT SIAS/CIAS

HUMAN INTERFACES

1. SS/CRS

TASK SPECIFIC SKILLS / KNOWLEDGE

NONE

Waterford 3 Job Performance Measure Examination

RESET AN INADVERTANT SIAS/CIAS

TASK ELEMENTS

Perform the task in accordance with OP-901-504, Section E1, Steps 9-16. All steps are performed from CP-10, CP-33, or CP-2.

(STEPS 1-3 WILL BE PERFORMED FOR EACH INDIVIDUAL PPS CHANNEL AND REPEATED UNTIL ALL FOUR CHANNELS ARE RESET) RESET SIAS AND CIAS ON ALL FOUR CHANNELS AS FOLLOWS:

1 (C) ON CP-10 PLACE RESET PERMISSIVE SWITCH TO UNLK POSITION.

Cues:

1. WHEN THE OPERATOR LOCATES KEY AND KEYSWITCH AND DEMONSTRATES OPERATION OF KEYSWITCH, CUE THE OPERATOR THE SWITCH IS IN THE UNLOCK POSITION.

Standards

1. THE OPERATOR LOCATES THE KEY FOR THE UNLOCK KEYSWITCH IN KEY CABINET ON SIDE OF NPO DESK.
2. THE OPERATOR LOCATES THE KEYSWITCH FOR THE APPLICABLE CHANNEL OF PPS ON CP-10.
3. THE OPERATOR POSITIONS THE KEYSWITCH TO THE UNLK POSITION.

Waterford 3 Job Performance Measure Examination

RESET AN INADVERTANT SIAS/CIAS

2 (C) DEPRESS SIAS AND CIAS RESET PUSH BUTTONS.

Cues:

1. AFTER THE OPERATOR LOCATES AND DEMONSTRATES DEPRESSING THE SIAS PUSHBUTTON AND LOCATES LIGHT INDICATION, THEN CUE THE OPERATOR THAT LIGHT IS ILLUMINATED.
 - CHANNEL A – RED LIGHT
 - CHANNEL B - YELLOW LIGHT
 - CHANNEL C – GREEN LIGHT
 - CHANNEL D – BLUE LIGHT
2. AFTER THE OPERATOR LOCATES AND DEMONSTRATES DEPRESSING THE CIAS PUSHBUTTON AND LOCATES LIGHT INDICATION, THEN CUE THE OPERATOR THAT LIGHT IS ILLUMINATED.
 - CHANNEL A – RED LIGHT
 - CHANNEL B - YELLOW LIGHT
 - CHANNEL C – GREEN LIGHT
 - CHANNEL D – BLUE LIGHT

Standards

1. THE OPERATOR LOCATES THE SIAS AND CIAS RESET PUSHBUTTONS ON THE APPLICABLE CHANNEL OF PPS AT CP-10.
2. THE OPERATOR DEPRESSES THE SIAS PUSHBUTTON AND VERIFIES LIGHT INDICATION.
3. THE OPERATOR DEPRESSES THE CIAS PUSHBUTTON AND VERIFIES LIGHT INDICATION.

3 (C) PLACE RESET PERMISSIVE SWITCH TO LK POSITION.

Cues:

1. AFTER OPERATOR LOCATES AND DEMONSTRATES OPERATION OF KEYSWITCH, THEN CUE THE OPERATOR THAT THE SWITCH IS IN THE LOCKED POSITION.

Standards

1. THE OPERATOR LOCATES THE KEYSWITCH ON APPLICABLE CHANNEL OF PPS AT CP-10.
2. THE OPERATOR PLACES THE SWITCH TO THE LK POSITION.

Waterford 3 Job Performance Measure Examination

RESET AN INADVERTANT SIAS/CIAS

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-
- 4 (C) RESET SIAS AND CIAS ACTUATION LOGIC ON BOTH TRAINS AS FOLLOWS: ON CP-33 DEPRESS THE SIAS AND CIAS RESET PUSH BUTTONS. VERIFY TRIP PATH INDICATORS LIT ON ENGINEERED SAFETY FEATURES SYSTEM MIMIC AT CP-10.

Cues:

1. AFTER THE OPERATOR DEMONSTRATES THE ABILITY TO LOCATE AND OPERATE THE SIAS PUSHBUTTONS AND THEN LOCATES AND VERIFIES THE LIGHT INDICATION, CUE THE OPERATOR THAT BOTH WHITE LIGHTS FOR SIAS ARE ILLUMINATED.
2. AFTER THE OPERATOR DEMONSTRATES THE ABILITY TO LOCATE AND OPERATE THE CIAS PUSHBUTTONS AND THEN LOCATES AND VERIFIES THE LIGHT INDICATION, CUE THE OPERATOR THAT BOTH WHITE LIGHTS FOR CIAS ARE ILLUMINATED.

Standards

1. THE OPERATOR LOCATES AND DEPRESSES BOTH PUSHBUTTONS FOR SIAS AT CP-33.
2. THE OPERATOR LOCATES AND DEPRESSES BOTH PUSHBUTTONS FOR CIAS AT CP-33.
3. THE OPERATOR VERIFIES BOTH WHITE LIGHTS ARE ILLUMINATED SIAS ON ESFAS MIMIC AT CP-10.
4. THE OPERATOR VERIFIES BOTH WHITE LIGHTS ARE ILLUMINATED CIAS ON ESFAS MIMIC AT CP-10.

Waterford 3 Job Performance Measure Examination

RESET AN INADVERTANT SIAS/CIAS

5

VERIFY FOLLOWING ALARMS HAVE CLEARED:

- SIAS TRAIN A LOGIC INITIATED (CABINET K, G-19)
- SIAS TRAIN B LOGIC INITIATED (CABINET K, G-20)
- CIAS TRAIN A LOGIC INITIATED (CABINET K, E-19)
- CIAS TRAIN B LOGIC INITIATED (CABINET K, E-20)

Cues:

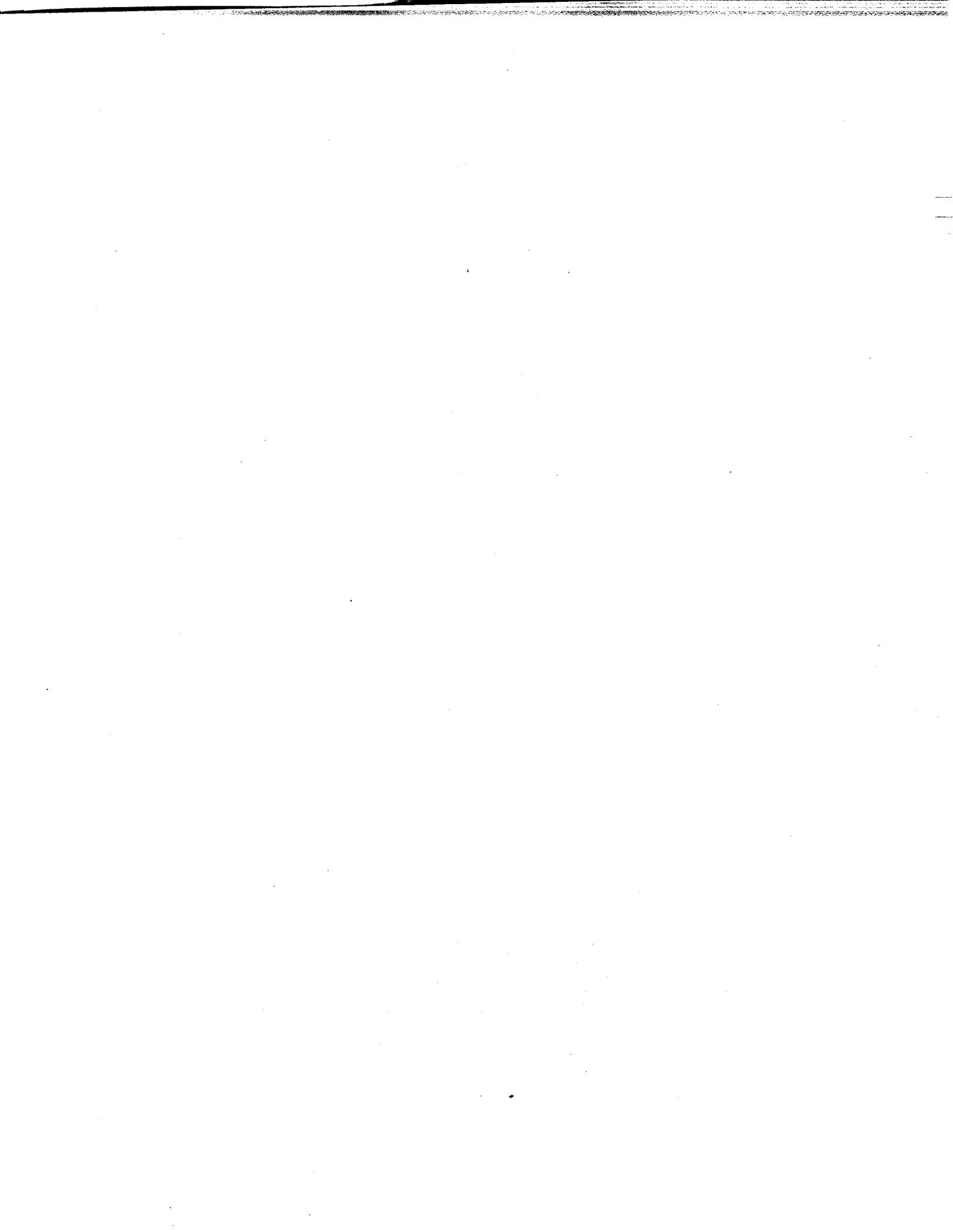
1. WHEN THE OPERATOR LOCATES THE INDIVIDUAL ALARMS AT CP-2, THEN CUE THE OPERATOR THAT THE ALARMS ARE SLOW FLASHING.
2. WHEN THE OPERATOR LOCATES THE CLEAR PUSHBUTTON ON CP-2 AND DEMONSTRATES DEPRESSING THE PUSHBUTTON, THEN CUE THE OPERATOR THAT THE LIGHTS ARE EXTINGUISHED.

Standards

1. THE OPERATOR LOCATES THE INDIVIDUAL ALARMS AT CP-2 AND VERIFIES LIGHTS ARE EXTINGUISHED OR SLOW FLASHING.
2. IF SLOW FLASHING, THE OPERATOR DEPRESSES THE CLEAR PUSHBUTTON ON CP-2 AND VERIFIES THE LIGHTS ARE EXTINGUISHED.

6

END OF TASK



Waterford 3 Job Performance Measure Examination

PERFORM ACTIONS OF THE PNPO DURING A REACTOR
POWER CUTBACK EVENT

JOB: RO **PLANT SYSTEM:** RXC **TASK MODE:** OffNorm **TASK NUMBER:** 1
DESCRIPTION: PERFORM ACTIONS OF THE PNPO DURING A REACTOR POWER CUTBACK EVENT
REVISION: 0 **REVISION DATE:** 9/15/99
TIME: 5 MIN

TIME CRITICAL TASK: X **ALTERNATE PATH:** X
REFERENCE: **REVISION:** **CHANGE:** **DATE:** **EVALUATION METHOD:**
OP-901-101 03 1 8/16/99 Simulator
OP-901-102 03 1 8/16/99

NRC KA NUMBER: **RO** **SRO**
3.1-001-A2.03 3.5 4.2
4.2-A1-AA1.05 4.3 4.2
4.2-A1-A2.03 4.5 4.8
4.2-A1-AK1.07A 3.5 3.8

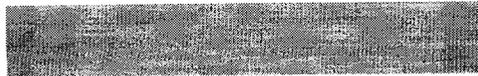
Trainee



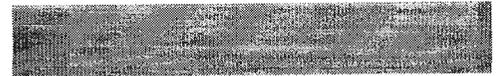
Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

PERFORM ACTIONS OF THE PNPO DURING A REACTOR
POWER CUTBACK EVENT

Directions To Examinee:

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

INITIAL CONDITIONS

1. PLANT IS AT 100% POWER.
2. THE CORE BURNUP IS 245 EFPD.
3. YOU ARE THE PRIMARY NUCLEAR PLANT OPERATOR (PNPO).

INITIATING CUE

AN EVENT IS ABOUT TO OCCUR. YOU ARE TO PERFORM THE REQUIRED ACTIONS OF THE PNPO. THIS TASK IS TIME CRITICAL.

Waterford 3 Job Performance Measure Examination

PERFORM ACTIONS OF THE PNPO DURING A REACTOR POWER CUTBACK EVENT

Directions To Examinee:

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

INITIAL CONDITIONS

1. PLANT IS AT 100% POWER.
2. THE CORE BURNUP IS 245 EFPD.
3. YOU ARE THE PRIMARY NUCLEAR PLANT OPERATOR (PNPO).

TASK STANDARD

THE REACTOR IS MANUALLY TRIPPED.

TOOLS AND EQUIPMENT

NONE

PERSONNEL SAFETY CONSIDERATIONS

NONE

INITIATING CUE

AN EVENT IS ABOUT TO OCCUR. YOU ARE TO PERFORM THE REQUIRED ACTIONS OF THE PNPO. THIS TASK IS TIME CRITICAL.

TERMINATING CUE

THE REACTOR IS TRIPPED.

CONSEQUENCES OF INADEQUATE PERFORMANCE

1. POSSIBLE FUEL DAMAGE

HUMAN INTERFACES

1. CRS

Waterford 3 Job Performance Measure Examination

PERFORM ACTIONS OF THE PNPO DURING A REACTOR
POWER CUTBACK EVENT

TASK SPECIFIC SKILLS / KNOWLEDGE

NONE

Waterford 3 Job Performance Measure Examination

PERFORM ACTIONS OF THE PNPO DURING A REACTOR
POWER CUTBACK EVENT

TASK ELEMENTS

Perform the task in accordance with OP-901-101, OP-901-102, AND OP-902-000. All components to be operated are located on CP-2 and CP-4.

-
-
1. PLACE CEDMCS MODE SELECT SWITCH TO AUTO SEQUENTIAL (AS).

Cues

1. SIMULATOR PROVIDES CUES

Standards

1. THE OPERATOR PLACES THE CEDMCS MODE SELECT SWITCH IN THE AUTO SEQUENTIAL POSITION. THE SWITCH IS LOCATED ON THE CEDMCS CONTROL PANEL ON CP-2.

-
-
2. (C) VERIFY SELECTED SUBGROUPS DROPPED.

Cues

1. SIMULATOR PROVIDES CUES

Standards

1. THE OPERATOR VERIFIES SUBGROUPS DROP USING THE CEAC CRT AND ROD BOTTOM LIGHT DISPLAYS ON CP-2.
2. (ALT) THE OPERATOR RECOGNIZES THAT REACTOR POWER CUTBACK HAS IMPROPERLY ACTUATED AND CEA CONFIGURATION REQUIRES A MANUAL REACTOR TRIP.

-
-
3. (C) (ALT) IF IN MODE 1 AND TWO OR MORE CEAs DROP, OR ARE MISALIGNED BY > 19 INCHES, THEN MANUALLY TRIP THE REACTOR AND GO TO OP-902-000, STANDARD POST TRIP ACTIONS.

Cues

1. SIMULATOR PROVIDES CUES

Standards

1. THE OPERATOR TAKES ACTION TO MANUALLY TRIP THE REACTOR WITHIN ONE MINUTE BY DEPRESSING BOTH MANUAL REACTOR TRIP PUSHBUTTONS ON CP-2 OR CP-8, OR MANUALLY ACTUATES DRTS BY DEPRESSING BOTH PUSHBUTTONS ON CP-2.
2. THE OPERATOR VERIFIES THAT ALL CEAs INSERT, REACTOR POWER IS DROPPING AND SUR IS NEGATIVE.

Waterford 3 Job Performance Measure Examination

PERFORM ACTIONS OF THE PNPO DURING A REACTOR
POWER CUTBACK EVENT

-
-
4. (C) (ALT) IF MORE THAN ONE CEA IS NOT FULLY INSERTED, THEN COMMENCE EMERGENCY BORATION AT CP-4.

Cues

1. SIMULATOR PROVIDES CUES

Standards

1. THE OPERATOR VERIFIES THAT THE MAKEUP MODE SELECTOR SWITCH IS IN THE MANUAL POSITION. (THIS STEP IS NOT CRITICAL UNLESS THE OPERATOR MUST REPOSITION THE SWITCH)
2. THE OPERATOR PERFORMS AT LEAST ONE OF THE FOLLOWING TO ALIGN A BORATED WATER SOURCE:
 - OPEN THE EMERGENCY BORATION VALVE (BAM-133), START ONE BORIC ACID PUMP (A OR B), AND CLOSE THE RECIRC VALVE FOR THE BORIC ACID PUMP STARTED (BAM-126A OR B).OR
 - OPEN BOTH BORIC ACID GRAVITY FEED VALVES, BAM-113A AND B.
3. THE OPERATOR CLOSES THE VCT DISCHARGE VALVE, CVC-183.
4. THE OPERATOR VERIFIES AT LEAST ONE CHARGING PUMP IS OPERATING AND CHARGING HEADER FLOW IS ≥ 40 GPM. (THIS STEP IS NOT CRITICAL UNLESS NO CHARGING PUMPS ARE OPERATING)

-
-
5. END OF TASK.



Waterford 3 Job Performance Measure Examination

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

JOB: RO **PLANT SYSTEM:** SI **TASK MODE:** Emerg **TASK NUMBER:** 1

DESCRIPTION: ALIGN A LPSI PUMP TO REPLACE A CS PUMP

REVISION: 0 **REVISION DATE:** 8/10/99

TIME: 10

TIME CRITICAL TASK: **ALTERNATE PATH:**

REFERENCE: **REVISION:** **CHANGE:** **DATE:** **EVALUATION METHOD:**

OP-902-008 11 00 9/9/98 Simulate

OP-902-009 00 00 9/9/98 Simulator

NRC KA NUMBER: **RO** **SRO**

4.4-E9-EA1.1 4.2 4

Trainee



Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

Directions To Examinee:

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

INITIAL CONDITIONS

1. AN ESD AND A SGTR HAVE OCCURRED ON SG 1.
2. CONTAINMENT PRESSURE IS 40 PSIA AND RISING RAPIDLY.
3. BOTH CS PUMPS ARE NOT AVAILABLE.
4. ALL ESFAS ACTUATIONS HAVE OCCURRED AS REQUIRED. ASSUME ALL COMPONENTS ACTUATED PER DESIGN UNLESS OTHERWISE STATED.
5. OP-902-008, SAFETY FUNCTION RECOVERY PROCEDURE HAS BEEN IMPLEMENTED.
6. THE CRS HAS IMPLEMENTED CONTAINMENT TEMPERATURE AND PRESSURE CONTROL CONTINUING ACTIONS AND HAS DECIDED TO ALIGN LPSI PUMP A TO REPLACE CS PUMP A.
7. THE TSC CONCURS WITH THE DECISION.

INITIATING CUE

THE CRS DIRECTS YOU TO ALIGN LPSI PUMP A TO REPLACE CS PUMP A IN ACCORDANCE WITH EOP STANDARD APPENDIX 29.

Waterford 3 Job Performance Measure Examination

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

Directions To Examinee:

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

INITIAL CONDITIONS

1. AN ESD AND A SGTR HAVE OCCURRED ON SG 1.
2. CONTAINMENT PRESSURE IS 40 PSIA AND RISING RAPIDLY.
3. BOTH CS PUMPS ARE OUT OF SERVICE.
4. ALL ESFAS ACTUATIONS HAVE OCCURRED AS REQUIRED. ASSUME ALL COMPONENTS ACTUATED PER DESIGN UNLESS OTHERWISE STATED.
5. OP-902-008, SAFETY FUNCTION RECOVERY PROCEDURE HAS BEEN IMPLEMENTED.
6. THE CRS HAS IMPLEMENTED CONTAINMENT TEMPERATURE AND PRESSURE CONTROL CONTINUING ACTIONS AND HAS DECIDED TO ALIGN LPSI PUMP A TO REPLACE CS PUMP A.
7. THE TSC CONCURS WITH THE DECISION.

TASK STANDARD

ONE LPSI PUMP IS ALIGNED TO CS WITH ACCEPTABLE FLOW TO CONTAINMENT.

TOOLS AND EQUIPMENT

1. LOCKED VALVE KEYS

PERSONNEL SAFETY CONSIDERATIONS

NONE

INITIATING CUE

THE CRS DIRECTS YOU TO ALIGN LPSI PUMP A TO REPLACE CS PUMP A IN ACCORDANCE WITH EOP STANDARD APPENDIX 29.

TERMINATING CUE

SPRAY FLOW IS ESTABLISHED TO CONTAINMENT USING THE SELECTED LPSI PUMP.

Waterford 3 Job Performance Measure Examination

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

CONSEQUENCES OF INADEQUATE PERFORMANCE

1. LOSS OF CONTAINMENT INTEGRITY
2. POSSIBLE OFFSITE DOSE
3. DAMAGE TO EQUIPMENT

HUMAN INTERFACES

CRS

TASK SPECIFIC SKILLS / KNOWLEDGE

EOP STANDARD APPENDIX 29

Waterford 3 Job Performance Measure Examination

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

TASK ELEMENTS

Perform the task in accordance with referenced procedure, OP-902-009, Appendix 29.
All components operated are located on CP-8.

1 VERIFY LPSI PUMP A CONTROL SWITCH IN OFF.

Cues:

1. WHEN THE OPERATOR LOCATES THE C/S FOR LPSI PUMP A AND DEMONSTRATES THE INTENDED ACTION, CUE THE OPERATOR THAT THE SWITCH IS IN OFF.

Standards:

1. THE OPERATOR LOCATES THE LPSI PUMP A C/S ON CP-8.
2. THE OPERATOR ENSURES THAT THE C/S IS IN THE OFF POSITION.

2 VERIFY CONTAINMENT SPRAY PUMP A CONTROL SWITCH IN OFF.

Cues:

1. WHEN THE OPERATOR LOCATES THE C/S FOR CS PUMP A AND DEMONSTRATES THE INTENDED ACTION, CUE THE OPERATOR THAT THE C/S IS IN OFF.

Standards:

1. THE OPERATOR LOCATES CS PUMP A C/S ON CP-8.
2. THE OPERATOR ENSURES THAT THE C/S IS IN THE OFF POSITION.

3 (C) PLACE SI-129A, LPSI FLOW CONTROL VALVE TO AUTO. [KEY 137]

Cues:

1. WHEN THE OPERATOR LOCATES THE C/S FOR SI 129A AND DEMONSTRATES THE INTENDED ACTION, CUE THE OPERATOR THAT THE C/S WAS PLACED IN THE AUTO POSITION AND SPRING RETURNED TO THE MID POSITION.

Standards:

1. THE OPERATOR OBTAINS KEY FOR SI-129A FROM KEY LOCKER ON SIDE OF NPO DESK.
2. THE OPERATOR LOCATES THE C/S FOR SI-129A ON CP-8.
3. THE OPERATOR INSERTS THE KEY, MOMENTARILY PLACES THE C/S IN THE AUTO POSITION, THEN RELEASES THE C/S TO THE MID POSITION.

Waterford 3 Job Performance Measure Examination

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

-
-
- 4 (C) PLACE SI-IFIC-0307 LPSI FLOW CONTROLLER HEADER 2A/2B IN MANUAL.

Cues:

1. WHEN THE OPERATOR LOCATES THE FLOW CONTROLLER ON CP-8 AND DEMONSTRATES PROCESS FOR PLACING THE CONTROLLER IN MANUAL, CUE THE OPERATOR THAT THE CONTROLLER IS IN MANUAL AND PROCESS OUTPUT METER READS 100%.

Standards:

1. THE OPERATOR LOCATES SI-IFIC-0307 ON CP-8.
2. THE OPERATOR DEPRESSES THE MANUAL PUSHBUTTON ON THE CONTROLLER AND VERIFIES THE RED LIGHT ILLUMINATES.

-
-
- 5 (C) ADJUST SI-IFIC-0307 LPSI FLOW CONTROLLER HEADER 2A/2B TO 0% OUTPUT.

Cues:

1. WHEN THE OPERATOR LOCATES THE MANUAL OUTPUT DECREASE PUSHBUTTON ON THE CONTROLLER AND DEMONSTRATES ACTION TO LOWER OUTPUT, CUE THE OPERATOR THAT PROCESS OUTPUT METER READS 0%.

Standards:

1. THE OPERATOR LOCATES SI-IFIC-0307 ON CP-8.
2. THE OPERATOR DEPRESSES THE MANUAL OUTPUT DECREASE PUSHBUTTON ON THE CONTROLLER UNTIL OUTPUT READS 0%.

Waterford 3 Job Performance Measure Examination

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

-
-
- 6 (C) VERIFY THE FOLLOWING VALVES CLOSED:
- SI-415A, SHUTDOWN TEMP CONTROL VALVE [KEY 138]
 - SI-138A, COLD LEG 2B
 - SI-139A, COLD LEG 2A

Cues:

1. WHEN THE OPERATOR LOCATES EACH VALVE C/S ON CP-8 AND DEMONSTRATES THE ACTION TO PLACE EACH VALVE IN THE REQUIRED POSITION, CUE THE OPERATOR THAT THE VALVE IS CLOSED. (AT THE EXAMINER'S DISCRETION HE MAY CUE THE OPERATOR THAT SI-138A OR SI-139A IS NOT MOVING IF THE OPERATOR DOES NOT DEMONSTRATE OVERRIDING THE SIAS SIGNAL TO THE VALVE)

Standards:

1. THE OPERATOR LOCATES THE C/S FOR SI-415A ON CP-8 AND VERIFIES THE C/S IS LOCKED IN THE LESS POSITION AND VERIFIES THE ANALOG VALVE POSITION INDICATOR READS 0% OR THAT THE GREEN LIGHT IS LIT AND RED LIGHT IS EXTINGUISHED ABOVE THE C/S.
2. THE OPERATOR LOCATES THE C/S FOR SI-138A ON CP-8 AND PLACES THE C/S TO THE MORE POSITION TO OVERRIDE THE SIAS SIGNAL AND THEN BACK TO LESS UNTIL THE DIGITAL INDICATOR ABOVE THE C/S READS 0% OR THE GREEN LIGHT IS LIT AND RED LIGHT IS EXTINGUISHED ON THE C/S.
3. THE OPERATOR LOCATES THE C/S FOR SI-139A ON CP-8 AND PLACES THE C/S TO THE MORE POSITION TO OVERRIDE THE SIAS SIGNAL AND THEN BACK TO LESS UNTIL THE DIGITAL INDICATOR ABOVE THE C/S READS 0% OR THE GREEN LIGHT IS LIT AND RED LIGHT IS EXTINGUISHED ON THE C/S.

Waterford 3 Job Performance Measure Examination

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

7 (C) OPEN SI-125A/SI-412A, SHDN HX A ISOL VALVES. [KEY 136]

Cues:

1. WHEN THE OPERATOR LOCATES THE SWITCH FOR SI-125A/SI-412A ON CP-8 AND DEMONSTRATES ACTION TO OPEN THE VALVES, CUE THE OPERATOR THAT SI-125A AND SI-412A ARE OPEN.

Standards:

1. THE OPERATOR OBTAINS THE KEY FOR SI-125A/SI-412A FROM THE KEY LOCKER ON THE SIDE OF THE NPO DESK.
2. THE OPERATOR LOCATES THE SWITCH FOR SI-125A/SI-412A ON CP-8, INSERTS THE KEY, MOMENTARILY PLACES THE C/S TO OPEN, AND RELEASES THE SWITCH.
3. THE OPERATOR VERIFIES THE VALVES OPEN BY OBSERVING BOTH RED LIGHTS ARE LIT AND BOTH GREEN LIGHTS ARE EXTINGUISHED ABOVE C/S.

8 VERIFY CS-125A, CNTMT SPRAY HEADER A VALVE OPEN.

Cues:

1. WHEN THE OPERATOR LOCATES THE C/S FOR CS-125A ON CP-8 AND DEMONSTRATES METHOD FOR VERIFYING VALVE POSITION, CUE THE OPERATOR THAT CS-125A IS OPEN.

Standards:

1. THE OPERATOR LOCATES THE C/S FOR CS-125A ON CP-8.
2. THE OPERATOR VERIFIES THAT THE RED LIGHT IS LIT AND THE GREEN LIGHT IS EXTINGUISHED ON THE C/S.

9 (C) START LPSI PUMP A.

Cues:

1. WHEN THE OPERATOR LOCATES LPSI PUMP A C/S ON CP-8 AND DEMONSTRATES ACTION TO START THE PUMP, CUE THE OPERATOR THAT THE PUMP IS RUNNING.

Standards:

1. THE OPERATOR LOCATES LPSI PUMP A C/S ON CP-8, MOMENTARILY PLACES THE C/S TO THE START POSITION, AND VERIFIES THE RED LIGHT IS LIT AND THE GREEN LIGHT IS EXTINGUISHED ON THE C/S.
2. THE OPERATOR VERIFIES DISCHARGE PRESSURE INDICATOR ON CP-8 INCREASES.
3. THE OPERATOR VERIFIES CURRENT INDICATION ON CP-8 IS STEADY AND NOT PEGGED AFTER STARTING CURRENT DROPS OFF.

Waterford 3 Job Performance Measure Examination

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

10 VERIFY CONTAINMENT SPRAY HEADER A FLOW.

Cues:

1. WHEN THE OPERATOR LOCATES CONTAINMENT SPRAY HEADER A FLOW INDICATOR ON CP-8, CUE THE OPERATOR THAT FLOW IS 2000 GPM.

Standards:

1. THE OPERATOR LOCATES CONTAINMENT SPRAY HEADER A FLOW INDICATOR ON CP-8 AND VERIFIES FLOW INDICATION MEETS ACCEPTANCE CRITERIA FOR SAFETY FUNCTION.

11 (C) END OF TASK



Waterford 3 Job Performance Measure Examination

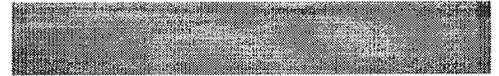
UNLOAD, STOP, AND RETURN EDG A(B) TO STANDBY

JOB: RO **PLANT SYSTEM:** EDG **TASK MODE:** Norm **TASK NUMBER:** 5
DESCRIPTION: UNLOAD, STOP, AND RETURN EDG A(B) TO STANDBY
REVISION: 3 **REVISION DATE:** 4/18/95
TIME: 10
TIME CRITICAL TASK: **ALTERNATE PATH:** X
REFERENCE: **REVISION:** **CHANGE:** **DATE:** **EVALUATION METHOD:**
OP-009-002 17 04 7/8/99 SIMULATOR
NRC KA NUMBER: **RO** **SRO**
3.6-064-A2.10 2.4 2.9
3.6-064-A4 01 4 4.3

Trainee



Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

UNLOAD, STOP, AND RETURN EDG A(B) TO STANDBY

Directions To Examinee:

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

INITIAL CONDITIONS

1. OP-903-068 IS IN PROGRESS FOR EDG B
2. THE PROCEDURE HAS BEEN COMPLETED THROUGH STEP 13.
3. NO CRITICAL LOADS ARE BEING CARRIED BY THE DIESEL
4. THE EDG IS PARALLELED WITH OFF-SITE POWER
5. THE DIESEL HAS BEEN LOADED > 4.2 MW FOR LAST 4 HRS.

INITIATING CUE

YOU ARE DIRECTED BY THE CRS TO PERFORM STEPS 14 AND 15 OF OP-903-068 TO UNLOAD, STOP, AND RETURN EMERGENCY DIESEL GENERATOR B TO STANDBY.

Waterford 3 Job Performance Measure Examination

UNLOAD, STOP, AND RETURN EDG A(B) TO STANDBY

Directions To Examinee:

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

INITIAL CONDITIONS

1. OP-903-068 IS IN PROGRESS FOR EDG B
2. THE PROCEDURE HAS BEEN COMPLETED THROUGH STEP 13.
3. NO CRITICAL LOADS ARE BEING CARRIED BY THE DIESEL
4. THE EDG IS PARALLELED WITH OFF-SITE POWER
5. THE DIESEL HAS BEEN LOADED > 4.2 MW FOR LAST 4 HRS.

TASK STANDARD

1. EMERGENCY DIESEL GENERATOR IN STANDBY TEST MODE
2. ALT – EDG IS TRIPPED OR SHUTDOWN IN ACCORDANCE WITH OP-009-002, SECTION 8.7.

TOOLS AND EQUIPMENT

1. STOPWATCH

PERSONNEL SAFETY CONSIDERATIONS

NONE

INITIATING CUE

YOU ARE DIRECTED BY THE CRS TO PERFORM STEPS 14 AND 15 OF OP-903-068 TO UNLOAD, STOP, AND RETURN EMERGENCY DIESEL GENERATOR B TO STANDBY.

TERMINATING CUE

1. DIESEL GENERATOR SECURED AND PLACED IN STANDBY
2. ALT – DIESEL IS TRIPPED OR SHUTDOWN.

CONSEQUENCES OF INADEQUATE PERFORMANCE

- 1 TECH SPEC VIOLATION
- 2 EQUIPMENT DAMAGE

Waterford 3 Job Performance Measure Examination

UNLOAD, STOP, AND RETURN EDG A(B) TO STANDBY

HUMAN INTERFACES

1 SS/CRS

2 NAO

TASK SPECIFIC SKILLS / KNOWLEDGE

NONE

Waterford 3 Job Performance Measure Examination

UNLOAD, STOP, AND RETURN EDG A(B) TO STANDBY

TASK ELEMENTS

Perform the task in accordance with OP-009-002, Section 6.5 and 8.7. All components operated are located on CP-1.

-
-
- 1: (C) REDUCE LOAD ON EDG A TO APPROXIMATELY 0.1 MW, 0.1 MVAR'S

CUES:

1. SIMULATOR PROVIDES CUES FOR EDG LOAD.
2. WHEN OPERATOR STOPS BETWEEN 0.5 AND 1MW, THEN CUE THE OPERATOR THAT THE DIESEL HAS OPERATED AT THIS LOAD FOR 15 MINUTES.

STANDARDS:

1. CP-1, SPEED ADJUST CONTROL SWITCH TO LOWER
2. REDUCE TO APPROXIMATELY 0.1 MW (<0.2 MW)
3. CP-1, VOLT ADJUST CONTROL SWITCH TO LOWER
4. REDUCE TO APPROXIMATELY 0.1 MVAR'S (+/- .2 MVAR'S)

-
-
- 2: (C) OPEN EDG A OUTPUT BREAKER.

CUES:

1. SIMULATOR PROVIDES CUES.

STANDARDS:

1. THE OPERATOR POSITIONS EDG A OUTPUT BREAKER C/S ON CP-1 TO THE TRIP POSITION.
2. THE OPERATOR VERIFIES BREAKER OPENS BY VERIFYING THE GREEN LIGHT IS ILLUMINATED ON THE C/S.

-
-
- 3: LOG ALL LOCAL ANNUNCIATORS WHICH ENERGIZE DURING THE COOLDOWN CYCLE IN THE REMARKS SECTION OF ATTACHMENT 11.9, DIESEL GENERATOR RUNNING LOG.

CUES:

1. THE NAO AT THE DIESEL GENERATOR IS STANDING BY TO LOG ALL ALARMS DURING THE COOLDOWN.

STANDARDS:

1. THE OPERATOR SHOULD COMMUNICATE THIS INFORMATION TO THE NAO AT EDG A.

Waterford 3 Job Performance Measure Examination

UNLOAD, STOP, AND RETURN EDG A(B) TO STANDBY

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-
- 4: (C) POSITION DIESEL A CRANKING CONTROL SWITCH TO STOP AND BEGIN TIMING.

CUES:

1. SIMULATOR PROVIDES CUES FOR COOLDOWN INDICATION.
2. **ALT:** AFTER THE OPERATOR STARTS TIMING THE COOLDOWN, CUE THE OPERATOR THAT THE NAO REPORTS A LARGE OIL LEAK HAS OCCURRED ON THE DIESEL GENERATOR ENGINE DRIVEN OIL PUMP DISCHARGE.
3. **ALT:** IF ASKED FOR A LUBE OIL PRESSURE READING CUE THE OPERATOR THAT THE NAO REPORTS THAT LUBE OIL PRESSURE IS 35 PSI AND LOWERING AND ENGINE CRNKCASE LEVEL IS LOW

STANDARDS:

1. THE OPERATOR PLACES THE EDG ENGINE C/S ON CP-1 TO STOP AND STARTS TIMING.
2. THE OPERATOR VERIFIES INDICATION THAT ENGINE IS IN COOLDOWN BY VERIFYING THE LIGHTS ON THE EDG ENGINE C/S EXTINGUISH.

-
-
- 5: (C) **ALT:** DEPRESS THE EDG A EMERGENCY STOP PUSHBUTTON ON CP-1 OR REQUEST THE NAO TO PULL THE OVERSPEED TRIP MECHANISM LOCALLY..

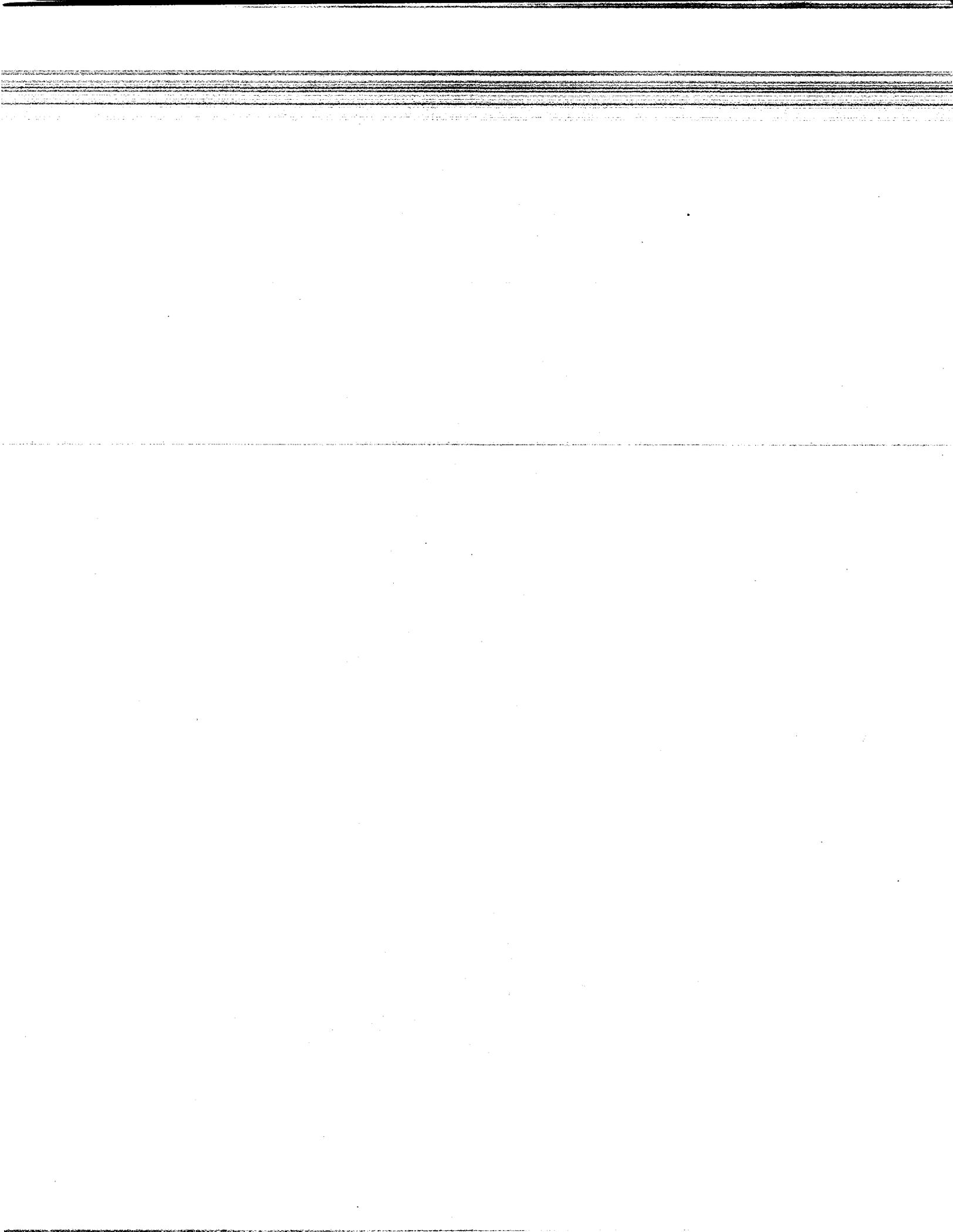
CUES:

1. IF THE OPERATOR ORDERS THE NAO TO TRIP THE DIESEL LOCALLY THEN CUE THE OPERATOR THAT THE OVERSPEED TRIP MECHANISM HAS BEEN PULLED WHEN THE EDG UNAVAILABLE ANNUNCIATOR FLASHES.
2. SIMULATOR PROVIDES CUES FOR FREQUENCY AND VOLTAGE.

STANDARDS:

1. THE OPERATOR DEPRESSES THE EMERGENCY STOP PUSHBUTTON FOR THE APPLICABLE EDG ON CP-1 OR ORDERS THE NAO TO TRIP THE DIESEL LOCALLY BY PULLING THE OVERSPEED TRIP MECHANISM.
2. THE OPERATOR VERIFIES THAT EDG FREQUENCY AND VOLTAGE METERS PEG LOW AND GREEN LIGHT ILLUMINATES ON DIESEL ENGINE C/S.

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-
- 6: END OF TASK



Waterford 3 Job Performance Measure Examination

RESTORE FROM CONTROL ROOM ISOLATION

JOB: RO **PLANT SYSTEM:** HVC **TASK MODE:** Norm **TASK NUMBER:** 28

DESCRIPTION: RESTORE FROM CONTROL ROOM ISOLATION

REVISION: 2 **REVISION DATE:** 8/10/99

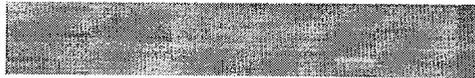
TIME: 5 MIN

TIME CRITICAL TASK: **ALTERNATE PATH:**

REFERENCE: **REVISION:** **CHANGE:** **DATE:** **EVALUATION METHOD:**
OP-003-014 06 03 7/14/99 SIMULATOR

NRC KA NUMBER: **RO** **SRO**
3.2-013-A3.02 4.1 4.2

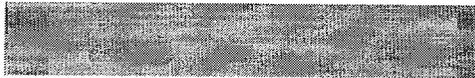
Trainee



Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

RESTORE FROM CONTROL ROOM ISOLATION

Directions To Examinee:

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

INITIAL CONDITIONS

1. THE CONTROL ROOM ENVELOPE HAS BEEN MANUALLY ISOLATED AS A PRECAUTION DUE TO A CHEMICAL SPILL.
2. THE SPILL HAS BEEN CONTAINED AND CHEMISTRY REPORTS THAT OUTSIDE AIR QUALITY IS NORMAL.

INITIATING CUE

THE SS/CRS DIRECTS YOU TO RESTORE FROM CONTROL ROOM ISOLATION

Waterford 3 Job Performance Measure Examination

RESTORE FROM CONTROL ROOM ISOLATION

Directions To Examinee:

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

INITIAL CONDITIONS

1. THE CONTROL ROOM ENVELOPE HAS BEEN MANUALLY ISOLATED AS A PRECAUTION DUE TO A CHEMICAL SPILL.
2. THE SPILL HAS BEEN CONTAINED AND CHEMISTRY REPORTS THAT OUTSIDE AIR QUALITY IS NORMAL.

TASK STANDARD

1. NORMAL CONTROL ROOM VENTILATION IS RESTORED

TOOLS AND EQUIPMENT

NONE

PERSONNEL SAFETY CONSIDERATIONS

NONE

INITIATING CUE

THE SS/CRS DIRECTS YOU TO RESTORE FROM CONTROL ROOM ISOLATION

TERMINATING CUE

1. THE CONTROL ROOM ISOLATION HAS BEEN RESTORED

CONSEQUENCES OF INADEQUATE PERFORMANCE

NONE

HUMAN INTERFACES

NONE

Waterford 3 Job Performance Measure Examination

RESTORE FROM CONTROL ROOM ISOLATION

TASK SPECIFIC SKILLS / KNOWLEDGE

NONE

Waterford 3 Job Performance Measure Examination

RESTORE FROM CONTROL ROOM ISOLATION

TASK ELEMENTS

Perform the task in accordance with OP-003-014, Section 8.7. All components are operated on CP-18 and CP-53.

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- 1: (C) LOCALLY AT CP-53, PLACE BOTH CONTROL ROOM VENTILATION MANUAL ISOLATION SWITCHES TO RESET.

CUES:

1. WHEN OPERATOR GOES BEHIND CP-8, LOCATES SWITCHES ON CP-53 MOCKUP, AND DEMONSTRATES ACTION TO PLACE SWITCHES IN RESET, CUE THE OPERATOR THAT THE SWITCHES HAVE BEEN PLACED IN RESET.

STANDARDS:

1. THE OPERATOR LOCATES SWITCHES ON CP-53 AND TAKES SWITCHES TO THE RESET POSITION.

-
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- 2: VERIFY FOLLOWING VALVES ARE OPEN:

- HVC-101, CR NORM OAI DNSTRM ISOL
- HVC-102, CR NORM OAI UPSTRM ISOL

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR LOCATES HVC-101 AND HVC-102 INDICATION ON CP-18 AND VERIFIES ONLY RED LIGHT IS ILLUMINATED.

-
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- 3: (C) START TOILET EXHAUST FAN A(B), HVC-MFAN-0011A(B), THEN VERIFY THE FOLLOWING:

- HVC-304A, CR TOILET EXH FAN BYPASS DAMPER – CLOSED
- HVC-304B, CR TOILET EXH FAN BYPASS DAMPER – CLOSED
- HVC-306, CR TOILET EXH FAN UPSTRM ISOL – OPEN
- HVC-307, CR TOILET EXH FAN DNSTRM ISOL – OPEN

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR SELECTS A TOILET EXH FAN AND PLACES C/S IN THE START POSITION. (CP-18)
2. THE OPERATOR VERIFIES THAT THE RED LIGHT ON THE ASSOCIATED TOILET EXH FAN C/S ILLUMINATES AND THE GREEN LIGHT EXTINGUISHES.
3. THE OPERATOR VERIFIES VALVE POSITIONS OF THE LISTED VALVES ON THE PMC.

Waterford 3 Job Performance Measure Examination

RESTORE FROM CONTROL ROOM ISOLATION

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- 4: (C) START THE CONTROL ROOM KITCHEN/CONFERENCE EXHAUST FAN, HVC-MFAN-0012, THEN VERIFY FOLLOWING:
- HVC-312A, KITCHEN/CONFERENCE ROOM EXH FAN BYPASS DAMPER CLOSED
 - HVC-312B, KITCHEN/CONFERENCE ROOM EXH FAN BYPASS DAMPER CLOSED
 - HVC-313, KITCHEN/CONFERENCE ROOM EXH FAN UPSTREAM ISOL OPEN
 - HVC-314, KITCHEN/CONFERENCE ROOM EXH FAN DNSTRM ISOL OPEN

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR PLACES CR KITCHEN/CONFERENCE EXH FAN C/S IN THE START POSITION. (CP-18)
2. THE OPERATOR VERIFIES THAT THE RED LIGHT ON THE ASSOCIATED CR KITCHEN/CONFERENCE EXH FAN C/S ILLUMINATES AND THE GREEN LIGHT EXTINGUISHES.
3. THE OPERATOR VERIFIES VALVE POSITIONS OF THE LISTED VALVES ON THE PMC.

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- 5: (C) RESET THE FOLLOWING VALVES BY TAKING C/S THROUGH CLOSE POSITION:

- HVC-201A, CR EMERG FLTR UNIT N OAI UPSTRM ISOL
- HVC-201B, CR EMERG FLTR UNIT N OAI UPSTRM ISOL
- HVC-203A, CR EMERG FLTR UNIT S OAI UPSTRM ISOL
- HVC-203B, CR EMERG FLTR UNIT S OAI UPSTRM ISOL
- HVC-202A, CR EMERG FLTR UNIT N OAI DNSTRM ISOL
- HVC-202B, CR EMERG FLTR UNIT N OAI DNSTRM ISOL
- HVC-204A, CR EMERG FLTR UNIT S OAI DNSTRM ISOL
- HVC-204B, CR EMERG FLTR UNIT S OAI DNSTRM ISOL

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR ROTATES THE FOUR CONTROL SWITCHES FOR THE EMERG OAI VALVES ON CP-18 TO THE CLOSE POSITION FOR ALL 8 VALVES.

Waterford 3 Job Performance Measure Examination

RESTORE FROM CONTROL ROOM ISOLATION

-
-
- 6: VERIFY THE FOLLOWING VALVES CLOSED:
- HVC-201A, CR EMERG FLTR UNIT N OAI UPSTRM ISOL
 - HVC-201B, CR EMERG FLTR UNIT N OAI UPSTRM ISOL
 - HVC-203A, CR EMERG FLTR UNIT S OAI UPSTRM ISOL
 - HVC-203B, CR EMERG FLTR UNIT S OAI UPSTRM ISOL

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR VERIFIES ON CP-18 THAT THE GREEN LIGHT FOR EACH OF THE LISTED VALVES IS ILLUMINATED AND THE RED LIGHT IS EXTINGUISHED. THE OPERATOR MAY ALSO USE THE PMC TO MAKE THE VERIFICATION.

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-
- 7: (C) OPEN THE FOLLOWING VALVES:
- HVC-202A, CR EMERG FLTR UNIT N OAI DNSTRM ISOL
 - HVC-202B, CR EMERG FLTR UNIT N OAI DNSTRM ISOL
 - HVC-204A, CR EMERG FLTR UNIT S OAI DNSTRM ISOL
 - HVC-204B, CR EMERG FLTR UNIT S OAI DNSTRM ISOL

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR PLACES THE C/S FOR EACH OF THE LISTED VALVES TO OPEN ON CP-18 AND VERIFIES THE RED LIGHT IS ILLUMINATED AND THE GREEN LIGHT IS EXTINGUISHED FOR EACH VALVE. THE OPERATOR MAY ALSO VERIFY VALVE POSITION USING THE PMC.

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- 8: IF REQUIRED, THEN STOP CONTROL ROOM EMERGENCY FILTRATION UNIT A(B), HVS-MFAN-0010A(B), AND VERIFY THE FOLLOWING:
- HVC-205A(B), CR EMERG FLTR UNIT A(B) INLET DAMPER CLOSED
 - HVC-213A(B), CR EMERG FLTR UNIT A(B) RECIRC DAMPER CLOSED

CUES:

1. SIMULATOR PROVIDES CUES

STANDARDS:

1. THE OPERATOR SHOULD RECOGNIZE THAT THIS STEP IS NOT APPLICABLE FOR THE GIVEN CONDITIONS. THE OPERATOR MAY VERIFY THAT NO EMERG FILTRATION UNIT IS OPERATING.

-
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- 9: END OF TASK



Waterford 3 Job Performance Measure Examination

OPERATE THE ATMOSPHERIC DUMP VALVES LOCALLY

Directions To Examinee:

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

INITIAL CONDITIONS

1. A FIRE HAS OCCURRED IN CP-2.
2. CONTROL ROOM EVACUATION HAS OCCURRED AND CONTROLS HAVE BEEN TRANSFERRED TO LCP-43.

INITIATING CUE

YOU HAVE BEEN DIRECTED BY THE PNPO TO TAKE LOCAL CONTROL OF ATMOSPHERIC DUMP VALVE MS-116A AND OPEN TO 50%.

Waterford 3 Job Performance Measure Examination

OPERATE THE ATMOSPHERIC DUMP VALVES LOCALLY

INITIAL CONDITIONS

3. A FIRE HAS OCCURRED IN CP-2.
4. CONTROL ROOM EVACUATION HAS OCCURRED AND CONTROLS HAVE BEEN TRANSFERRED TO LCP-43.

TASK STANDARD

1. ATMOSPHERIC DUMP VALVE MS-116B IS IN LOCAL CONTROL

TOOLS AND EQUIPMENT

NONE

PERSONNEL SAFETY CONSIDERATIONS

NONE

INITIATING CUE

YOU HAVE BEEN DIRECTED BY THE PNPO TO TAKE LOCAL CONTROL OF ATMOSPHERIC DUMP VALVE MS-116A AND OPEN TO 50%.

TERMINATING CUE

1. MS-116A IS OPEN TO 50%.

CONSEQUENCES OF INADEQUATE PERFORMANCE

1. EQUIPMENT DAMAGE
2. OVERHEATING OR OVERCOOLING OF THE RCS
3. COOLDOWN RATES IN EXCESS OF TECHNICAL SPECIFICATIONS

HUMAN INTERFACES

1. PNPO

TASK SPECIFIC SKILLS / KNOWLEDGE

NONE

Waterford 3 Job Performance Measure Examination

OPERATE THE ATMOSPHERIC DUMP VALVES LOCALLY

TASK ELEMENTS

Perform the task in accordance with referenced procedure OP-901-502, Attachment 8. All components are located in West MSIV area +46 RAB in the vicinity of the MSIV skid.

1. NOTE THE PRESSURE AT THE OUTLET TO THE TRANSDUCER.

Cues:

1. AFTER THE OPERATOR LOCATES THE PRESSURE GAUGE AT THE OUTLET OF THE TRANSDUCER:
 - THE PRESSURE GAUGE READS 5 PSIG.

Standards:

1. THE OPERATOR LOCATES THE PROPER GAUGE.
2. THE OPERATOR NOTES THE READING ON THE GAUGE.

2. (C) ADJUST THE PRESSURE AT THE OUTLET OF THE AIR REGULATOR ON THE FRONT OF THE PANEL TO THE PRESSURE NOTED IN STEP 1.

Cues:

1. AFTER THE OPERATOR DEMONSTRATES THE METHOD (TURN THE HANDLE ON TOP OF THE REGULATOR COUNTER-CLOCKWISE) FOR REDUCING PRESSURE AT THE OUTLET OF THE REGULATOR:
 - PRESSURE AT THE OUTLET OF THE REGULATOR IS 5 PSIG.

Standards:

1. THE OPERATOR LOCATES THE AIR PRESSURE GAUGE AT THE OUTLET OF THE AIR REGULATOR.
2. THE OPERATOR ADJUSTS THE PRESSURE AT THE OUTLET OF THE AIR REGULATOR TO 5 PSIG BY TURNING HANDLE ON TOP OF THE AIR REGULATOR COUNTER-CLOCKWISE.

3. (C) TURN THE PNEUMATIC PERMISSIVE VALVE ABOVE THE TRANSDUCER COUNTER-CLOCKWISE FROM AUTO TO MANUAL.

Cues:

1. AFTER THE OPERATOR DEMONSTRATES THE METHOD FOR MANIPULATING THE PNEUMATIC PERMISSIVE VALVE:
 - THE PNEUMATIC PERMISSIVE VALVE IS IN THE MANUAL POSITION.

Standards:

1. THE OPERATOR LOCATES THE PNEUMATIC PERMISSIVE VALVE ABOVE THE TRANSDUCER.
2. THE OPERATOR MANIPULATES THE PNEUMATIC PERMISSIVE VALVE COUNTER-CLOCKWISE TO THE MANUAL POSITION.

Waterford 3 Job Performance Measure Examination

OPERATE THE ATMOSPHERIC DUMP VALVES LOCALLY

-
-
4. (C) TURN THE PNEUMATIC PERMISSIVE VALVE ABOVE THE AIR REGULATOR ON THE FRONT OF THE PANEL COUNTER-CLOCKWISE FROM AUTO TO MANUAL.

Cues:

1. AFTER THE OPERATOR DEMONSTRATES THE METHOD FOR MANIPULATING THE PNEUMATIC PERMISSIVE VALVE:
 - THE PNEUMATIC PERMISSIVE VALVE IS IN THE MANUAL POSITION.

Standards:

1. THE OPERATOR LOCATES THE PNEUMATIC PERMISSIVE VALVE ABOVE THE AIR REGULATOR ON THE FRONT OF THE PANEL.
2. THE OPERATOR MANIPULATES THE PNEUMATIC PERMISSIVE VALVE COUNTER-CLOCKWISE TO THE MANUAL POSITION.

-
-
5. (C) ADJUST THE AIR REGULATOR ON THE FRONT OF THE PANEL TO OBTAIN THE DESIRED VALVE POSITION.

Cues:

1. AFTER THE OPERATOR DEMONSTRATES THE METHOD (TURN THE HANDLE ON TOP OF THE REGULATOR CLOCKWISE) FOR RAISING PRESSURE AT THE OUTLET OF THE REGULATOR AND LOCATES THE VALVE POSITION INDICATOR FOR THE ATMOSPHERIC DUMP VALVE:
 - THE ATMOSPHERIC DUMP VALVE IS AT THE 50% POSITION.

Standards:

1. THE OPERATOR RAISES THE AIR PRESSURE AT THE OUTLET OF THE AIR REGULATOR BY TURNING THE HANDLE ON TOP OF THE AIR REGULATOR CLOCKWISE AND OBSERVES THE ATMOSPHERIC DUMP VALVE POSITION. (THE OPERATOR MAY GO UP TO VALVE TO OBSERVE LOCAL VALVE POSITION)

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6. END OF TASK.



Waterford 3 Job Performance Measure Examination

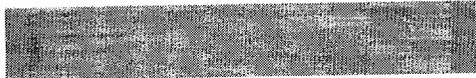
ALIGNING ESSENTIAL CHILLER AB TO REPLACE
ESSENTIAL CHILLER A(B)

JOB: NAO **PLANT SYSTEM:** CHW **TASK MODE:** Norm **TASK NUMBER:** 11
DESCRIPTION: ALIGNING ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A(B)
REVISION: 4 **REVISION DATE:** 7/27/99
TIME: 20

TIME CRITICAL TASK: **ALTERNATE PATH:**
REFERENCE: OP-002-004 **REVISION:** 11 **CHANGE:** 01 **DATE:** 4/14/99 **EVALUATION METHOD:** Simulate
TS 3.7.12

NRC KA NUMBER:	RO	SRO
191-001-K1.08	3.4	3.4
2-1-30	3.9	3.4
2-1-29	3.4	3.3
2-1-23	3.9	4
2-1-20	4.3	4.2

Trainee



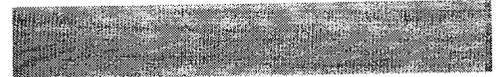
Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

ALIGNING ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A(B)

Directions To Examinee:

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

INITIAL CONDITIONS

1. OP-002-004 PREREQUISITES ARE MET
2. ESSENTIAL CHILLER A IS TO BE REMOVED FROM SERVICE
3. ESSENTIAL CHILLER UNITS A AND AB AND THEIR ASSOCIATED CHILLED WATER PUMPS ARE SECURED
4. ESSENTIAL CHILLER AB OIL LEVELS ARE SATISFACTORY
5. THE AB BUSES ARE ALIGNED TO THE A TRAIN

INITIATING CUE

YOU HAVE BEEN DIRECTED BY THE CRS TO ALIGN ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A AND START CHILLER AB LOCALLY.

Waterford 3 Job Performance Measure Examination

ALIGNING ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A(B)

Directions To Examinee:

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

INITIAL CONDITIONS

1. OP-002-004 PREREQUISITES ARE MET
2. ESSENTIAL CHILLER A IS TO BE REMOVED FROM SERVICE
3. ESSENTIAL CHILLER UNITS A AND AB AND THEIR ASSOCIATED CHILLED WATER PUMPS ARE SECURED
4. ESSENTIAL CHILLER AB OIL LEVELS ARE SATISFACTORY
5. THE AB BUSES ARE ALIGNED TO THE A TRAIN

TASK STANDARD

CHILLER AB IS ALIGNED TO REPLACE SELECTED ESSENTIAL CHILLER

TOOLS AND EQUIPMENT

ATTACHMENT 11.4 OR ATTACHMENT 11.5, LOCK VALVE KEYS

PERSONNEL SAFETY CONSIDERATIONS

NONE

INITIATING CUE

YOU HAVE BEEN DIRECTED BY THE CRS TO ALIGN ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A AND START CHILLER AB LOCALLY.

TERMINATING CUE

ESSENTIAL CHILLER AB IS ALIGNED TO REPLACE SELECTED CHILLER.

CONSEQUENCES OF INADEQUATE PERFORMANCE

1. EQUIPMENT DAMAGE
2. TECH SPEC ACTION TS 3.7.12 AND CASCADING TECH SPECS

Waterford 3 Job Performance Measure Examination

ALIGNING ESSENTIAL CHILLER AB TO REPLACE
ESSENTIAL CHILLER A(B)

HUMAN INTERFACES

1. NPO
2. CRS
3. NAO

TASK SPECIFIC SKILLS / KNOWLEDGE

NONE

Waterford 3 Job Performance Measure Examination

ALIGNING ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A(B)

TASK ELEMENTS

Perform the task in accordance with OP-002-004, Section 6.2 and Attachment 11.4. All components operated locally are located in the +46' HVAC Equipment Room.

-
-
- 1 **VERIFY BOTH OF THE FOLLOWING:**
- ESSENTIAL CHILLER UNIT A AND ITS CHILLED WATER PUMP IS SECURED.
 - ESSENTIAL CHILLER UNIT AB AND ITS CHILLED WATER PUMP IS SECURED.

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE COMPONENT IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES CHILLER A AND ITS ASSOCIATED CHILL WATER PUMP AND VERIFIES THAT THE COMPONENTS ARE NOT RUNNING.
2. THE OPERATOR LOCATES CHILLER A AND ITS ASSOCIATED CHILL WATER PUMP AND VERIFIES THAT THE COMPONENTS ARE NOT RUNNING.

-
-
- 2 **VERIFY LOCKED CLOSED ESSENTIAL CHILLER AB TO CHW HEADER B SUPPLY ISOLATION, CHW-132B.**

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES CHW-132B IN THE OVERHEAD, SOUTH OF CHILLER A ~ 9' OFF FLOOR.
2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

-
-
- 3 **VERIFY LOCKED CLOSED ESSENTIAL CHILLER AB RETURN HEADER B ISOLATION, CHW-786B.**

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES CHW-786B IN OVERHEAD SOUTH OF CHILLER A ~10' OFF FLOOR.
2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

Waterford 3 Job Performance Measure Examination

ALIGNING ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A(B)

-
-
- 4 VERIFY LOCKED CLOSED CCW HEADER B RETURN FROM
ESSENTIAL CHILLER AB, CC-318B.
- CUES:**
1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.
- STANDARDS:**
1. THE OPERATOR LOCATES CC-318B AT NORTH END OF WEST WALL ~ 4' OFF FLOOR.
 2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.
-
-
- 5 VERIFY LOCKED CLOSED CCW HEADER B SUPPLY TO ESSENTIAL
CHILLER AB, CC-304B.
- CUES:**
1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.
- STANDARDS:**
1. THE OPERATOR LOCATES CC-304B ON WEST WALL OUTBOARD OF CHILLER AB.
 2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.
-
-
- 6 (C) UNLOCK, THEN OPEN AND LOCK CCW HEADER A SUPPLY TO
ESSENTIAL CHILLER AB, CC-304A.
- CUES:**
1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.
- STANDARDS:**
1. THE OPERATOR LOCATES CC-304A ON WEST WALL OUTBORD OF CHILLER AB.
 2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.
-
-
- 7 VERIFY LOCKED OPEN CCW HEADER A RETURN FROM
ESSENTIAL CHILLER AB, CC-318A.
- CUES:**
1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.
- STANDARDS:**
1. THE OPERATOR LOCATES CC-318A AT NORTH END OF WEST WALL ~ 4' OFF FLOOR.
 2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

Waterford 3 Job Performance Measure Examination

ALIGNING ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A(B)

-
-
- 8 (C) UNLOCK, THEN OPEN AND LOCK ESSENTIAL CHILLER AB
RETURN HEADER A ISOLATION, CHW-786A.

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES CHW-786A SOUTH OF CHW-786B.
2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

-
-
- 9 VERIFY LOCKED OPEN ESSENTIAL CHILLER AB TO CHW HEADER
A SUPPLY ISOLATION, CHW-132A.

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES CHW-132A SOUTH OF CHW-786B.
2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

-
-
- 10 (C) UNLOCK, THEN CLOSE AND LOCK CHW EXPANSION TANK A
HEADER ISOLATION, CHW-110A.

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES CHW-110A AT CHILL WATER PUMP A, SOUTH OF CHILLER A, ~ 4' OFF FLOOR.
2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

-
-
- 11 (C) UNLOCK, THEN CLOSE AND LOCK CHILL WATER PUMP A
SUCTION LINE ISOLATION, CHW-788A.

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES CHW-788A WEST OF CHILLER A ~ 6' OFF FLOOR.
2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

Waterford 3 Job Performance Measure Examination

ALIGNING ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A(B)

12 (C) UNLOCK, THEN CLOSE AND LOCK ESSENTIAL CHILLER A CCW
INLET ISOLATION, CC-305A.

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES CC-305A ~ 2' ABOVE CC-304A.
2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

13 (C) UNLOCK AND OPEN CHILLER AB EXPANSION TANK MAKEUP
ISOLATION, CMU-528A.

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES CMU-528A SOUTH OF CC-305A AND WEST OF CHILLER AB ~ 9' OFF FLOOR.
2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

14 (C) UNLOCK AND CLOSE CONDENSATE MAKEUP TO CHW EXP TK A
ISOLATION, CMU-529A.

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES CMU-529A SOUTH OF CMU-528A AND WEST OF CHILLER AB ~ 7' OFF FLOOR.
2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

15 (C) UNLOCK, THEN OPEN AND LOCK CHW EXPANSION TANK AB
HEADER ISOLATION, CHW-110AB.

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES CHW-110AB AT CHILL WATER PUMP AB SOUTH OF CHILLER AB ~ 4' OFF FLOOR.
2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

Waterford 3 Job Performance Measure Examination

ALIGNING ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A(B)

-
-
- 16 VERIFY LOCKED OPEN ESSENTIAL CHILLER AB OUTLET ISOLATION, CHW-121AB.
- CUES:**
1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.
- STANDARDS:**
1. THE OPERATOR LOCATES CHW-121AB SOUTH OF CHILLER AB ~6' OFF FLOOR.
 2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.
-
-
- 17 VERIFY LOCKED OPEN CHILL WATER PUMP AB SUCTION LINE ISOLATION, CHW-788AB.
- CUES:**
1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.
- STANDARDS:**
1. THE OPERATOR LOCATES CHW-788AB SOUTH OF CHILLER AB ~ 7' OFF FLOOR.
 2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.
-
-
- 18 VERIFY LOCKED OPEN CHILL WATER PUMP AB DISCHARGE ISOLATION, CHW-115AB.
- CUES:**
1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE VALVE IS IN THAT CONDITION.
- STANDARDS:**
1. THE OPERATOR LOCATES CHW-115AB WEST OF CHW-788AB ~ 6' OFF FLOOR.
 2. THE OPERATOR POSITIONS THE VALVE IN ACCORDANCE WITH ATTACHMENT 4.

Waterford 3 Job Performance Measure Examination

ALIGNING ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A(B)

19 (C) VERIFY CHILLER AB ASSIGNMENT SWITCH TO A.

CUES:

1. WHEN EXAMINEE ASKS THE CONTROL ROOM TO PLACE THE CHILLER AB ASSIGNMENT SWITCH TO A, CUE THE OPERATOR THAT THE SWITCH IS IN THAT CONDITION.
2. CUE THE OPERATOR THAT ALL VERIFICATIONS HAVE BEEN PERFORMED ON ATTACHMENT 4.

STANDARDS:

1. THE OPERATOR COMMUNICATES WITH THE CONTROL ROOM THE REQUIREMENT TO POSITION THE CHILLER AB ASSIGNMENT SWITCH TO A.
2. THE OPERATOR ENSURES ACKNOWLEDGEMENT THAT THE SWITCH IS IN THE DESIRED POSITION.

20 (C) VERIFY ON/STOP PUSH BUTTON IS ILLUMINATED ON ESSENTIAL CHILLER AB LOCAL CONTROL PANEL

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE SWITCH IS IN THAT CONDITION.

STANDARDS:

1. THE OPERATOR LOCATES THE ON/STOP PUSH BUTTON ON THE LOCAL CONTROL PANEL.
2. THE OPERATOR VERIFIES THAT THE SWITCH IS BACKLIT.

21 (C) LOCALLY START THE AB CHILL WATER PUMP BY MOMENTARILY PLACING THE LOCAL CONTROL SWITCH IN START.

CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE AB CHILL WATER PUMP IS RUNNING.

STANDARDS:

1. THE OPERATOR LOCATES THE LOCAL CONTROL SWITCH AND PLACES THE CONTROL SWITCH IN THE START POSITION.
2. THE OPERATOR VERIFIES DISCHARGE PRESSURE INCREASES LOCAL FLOW RISES TO > 500 GPM OR COMMUNICATES WITH THE CONTROL ROOM TO OBTAIN PMC POINT INFORMATION.

Waterford 3 Job Performance Measure Examination

ALIGNING ESSENTIAL CHILLER AB TO REPLACE ESSENTIAL CHILLER A(B)

22 (C) LOCALLY START THE AB CHILLER BY MOMENTARILY
DEPRESSING THE LOCAL START PUSH BUTTON.

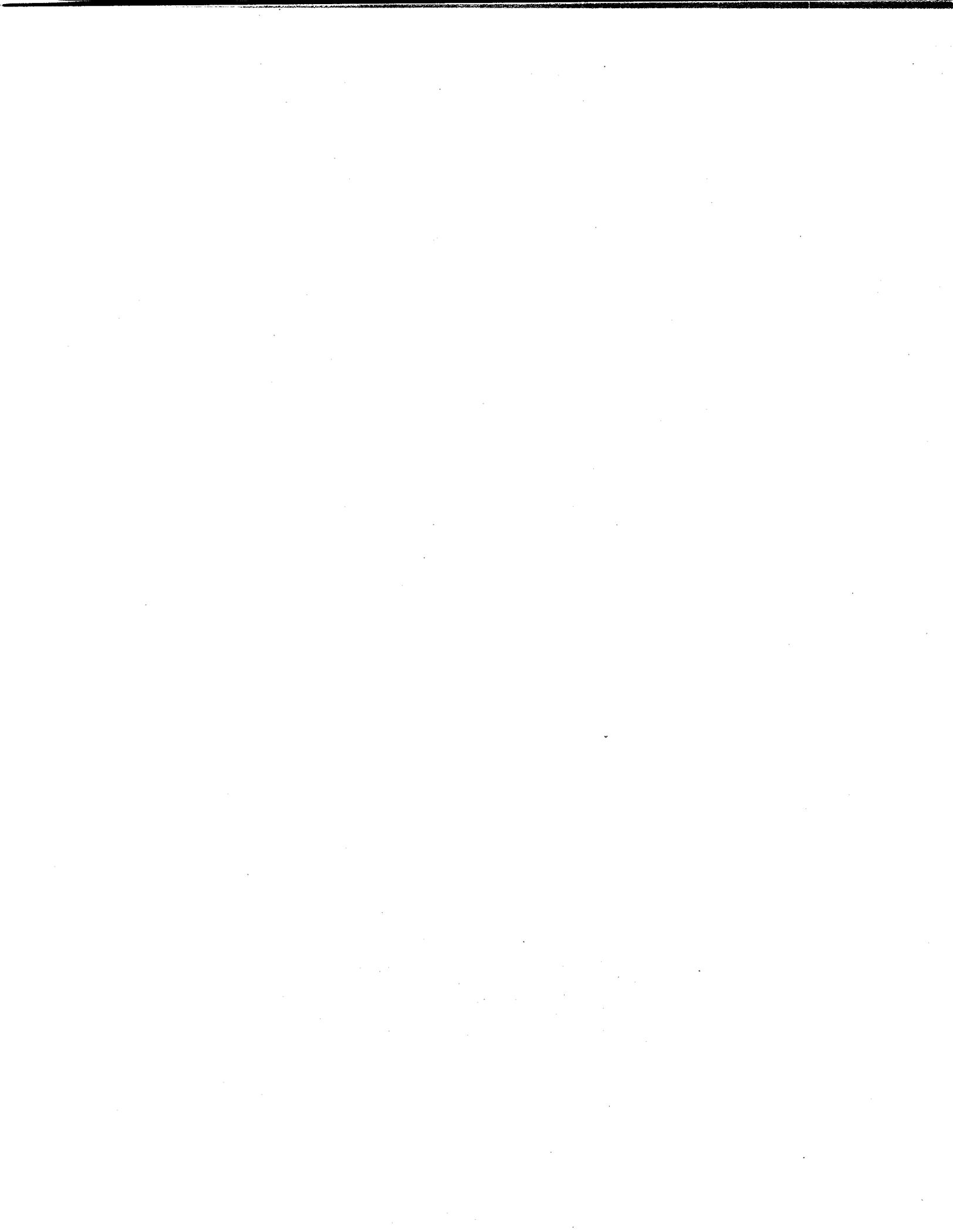
CUES:

1. WHEN EXAMINEE DESCRIBES ACTIONS TO BE TAKEN, CUE THE OPERATOR THE AB CHILLER IS RUNNING.

STANDARDS:

1. THE OPERATOR LOCATES AND DEPRESSES THE LOCAL START PUSH BUTTON.
2. THE OPERATOR VERIFIES THE OIL PUMP STARTS AFTER APPROXIMATELY 23 SECONDS FOLLOWED APPROXIMATELY 28 SECONDS LATER BY A CHILLER START.

23 END OF TASK



Waterford 3 Job Performance Measure Examination

RETURNING BATTERY CHARGER TO SERVICE

JOB: NAO **PLANT SYSTEM:** DC **TASK MODE:** Norm **TASK NUMBER:** 7

DESCRIPTION: RETURNING BATTERY CHARGER TO SERVICE

REVISION: 5 **REVISION DATE:** 7/29/99

TIME: 15

TIME CRITICAL TASK: **ALTERNATE PATH:** X

REFERENCE: **REVISION:** **CHANGE:** **DATE:** **EVALUATION METHOD:**

OP-006-003 09 00 10/16/98 SIMULATE

NRC KA NUMBER: **RO** **SRO**

3.6-063-A4.02 2.8* 2.9

2-1-20 4.3 4.2

3.6-063-K1.03 2.9 3.5

Trainee



Evaluator



Observer



Date



Satisfactory



Unsatisfactory



Waterford 3 Job Performance Measure Examination

RETURNING BATTERY CHARGER TO SERVICE

Directions To Examinee:

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

INITIAL CONDITIONS

1. MAINTENANCE HAS BEEN COMPLETED ON BATTERY CHARGER DC-EBC- 1A
2. THE REMOTE POWER SUPPLY BREAKERS FOR BATTERY CHARGER DC-EBC- 1A WERE LEFT OPEN AFTER MAINTENANCE.

INITIATING CUE

THE NPO DIRECTS YOU TO PLACE BATTERY CHARGER DC-EBC- 1A IN SERVICE.

Waterford 3 Job Performance Measure Examination

RETURNING BATTERY CHARGER TO SERVICE

INITIAL CONDITIONS

1. MAINTENANCE HAS BEEN COMPLETED ON BATTERY CHARGER DC-EBC- 1A
2. THE REMOTE POWER SUPPLY BREAKERS FOR BATTERY CHARGER DC-EBC- 1A WERE LEFT OPEN AFTER MAINTENANCE.

TASK STANDARD

1. BATTERY CHARGER DC-EBC- 1A HAS BEEN RETURNED TO SERVICE.
2. FAULTED: THE OPERATOR RE-OPENS THE AC AND DC ISOLATION BREAKERS AND INFORMS THE SS/CRS.

TOOLS AND EQUIPMENT

NONE

PERSONNEL SAFETY CONSIDERATIONS

1. ENERGIZED ELECTRICAL EQUIPMENT

INITIATING CUE

THE NPO DIRECTS YOU TO PLACE BATTERY CHARGER DC-EBC- 1A IN SERVICE.

TERMINATING CUE

1. THE BATTERY CHARGER IS IN SERVICE AND OPERATING NORMALLY.
2. FAULTED: THE BATTERY CHARGER IS DEENERGIZED AND THE SS/CRS IS INFORMED.

CONSEQUENCES OF INADEQUATE PERFORMANCE

1. EQUIPMENT DAMAGE
2. PERSONNEL INJURY
3. LOSS OF VITAL INSTRUMENTATION

HUMAN INTERFACES

1. NPO
2. SS/CRS

Waterford 3 Job Performance Measure Examination

RETURNING BATTERY CHARGER TO SERVICE

TASK SPECIFIC SKILLS / KNOWLEDGE

NONE

Waterford 3 Job Performance Measure Examination

RETURNING BATTERY CHARGER TO SERVICE

TASK ELEMENTS

Perform the task in accordance with referenced procedure OP-006-003, section 8.1. All components are located in the RAB + 21' MSL, A Switchgear Room along the North wall. This JPM requires opening battery charger doors. Permission is required from the On-shift Shift Superintendent to open these doors (Ext. 3104).

-
-
- 1: VERIFY BATTERY CHARGER AC ISOLATION **AND** BATTERY CHARGER DC ISOLATION BREAKERS FOR APPLICABLE BATTERY CHARGER OPEN.

CUES:

1. WHEN THE OPERATOR LOCATES THE APPLICABLE BREAKER AT THE SELECTED BATTERY CHARGER CUE THE OPERATOR THAT THE BREAKER IS OPEN. (BREAKERS ARE LOCATED INSIDE FRONT PANEL OF THE SELECTED BATTERY CHARGER)

STANDARDS:

1. THE OPERATOR LOCATES THE SELECTED BATTERY CHARGER.
2. THE OPERATOR CHECKS THAT THE AC ISOLATION BREAKER OF THE SELECTED BATTERY CHARGER IS OPEN. (DC-EBKR-1161-A1)
3. THE OPERATOR CHECKS THAT THE DC ISOLATION BREAKER OF THE SELECTED BATTERY CHARGER IS OPEN (DC-EBKR-1A2)

-
-
- 2: (C) VERIFY REMOTE POWER SUPPLY BREAKERS FOR APPLICABLE BATTERY CHARGER ARE CLOSED.

CUES:

1. WHEN THE OPERATOR LOCATES THE APPLICABLE BREAKER AND DEMONSTRATES ACTION TO CLOSE THE BREAKER, THEN CUE THE OPERATOR THAT THE APPLICABLE BREAKER IS CLOSED.

STANDARDS:

1. THE OPERATOR LOCATES THE APPLICABLE 480VAC MOTOR CONTROL CENTER AND CLOSES THE CORRECT BREAKER. (DC-EBKR-311A-14D)(EAST END OF MCC 311A, SECOND ROW IN, SECOND BREAKER FROM TOP)
2. THE OPERATOR LOCATES THE APPLICABLE DC DISTRIBUTION PANEL AND CLOSES THE CORRECT BREAKER. (DC-EBKR-A-34)(PDP A-DC, RIGHT HAND SECTION, THIRD BREAKER FROM BOTTOM ON RIGHT FACING PANEL)

Waterford 3 Job Performance Measure Examination

RETURNING BATTERY CHARGER TO SERVICE

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- 3: (C) SET EQUALIZE/FLOAT SWITCH (INSIDE CABINET) TO FLOAT POSITION.

CUES:

1. WHEN THE OPERATOR LOCATES THE EQUALIZE/FLOAT SWITCH INSIDE THE BATTERY CHARGER CABINET CUE THE OPERATOR THAT THE SWITCH IS IN FLOAT.

STANDARDS:

1. THE OPERATOR LOCATES THE EQUALIZE/FLOAT SWITCH.
2. THE OPERATOR VERIFIES THE SWITCH IS IN THE FLOAT POSITION.

-
-
- 4: (C) PLACE LOAD SHARING SWITCH TO OFF.

CUES:

1. WHEN THE OPERATOR LOCATES THE LOAD SHARING SWITCH ON THE FRONT PANEL OF THE BATTERY CHARGER, THEN CUE THE OPERATOR THAT THE SWITCH IS IN OFF.

STANDARDS:

1. THE OPERATOR LOCATES THE LOAD SHARING SWITCH.
2. THE OPERATOR VERIFIES THE SWITCH IS IN THE OFF POSITION.

Waterford 3 Job Performance Measure Examination

RETURNING BATTERY CHARGER TO SERVICE

5: (C) CLOSE BATTERY CHARGER ISOLATION (DC) BREAKER AND CHECK THE FOLLOWING:

- DC VOLTMETER EQUALS BATTERY POTENTIAL
- NO CHARGE LAMP ILLUMINATES
- PHASE FAIL LAMP EXTINGUISHES

CUES:

1. WHEN THE OPERATOR DEMONSTRATES THE ACTION TO CLOSE THE DC BREAKER, THEN CUE THE OPERATOR THAT THE BATTERY CHARGER ISOLATION (DC) BREAKER IS CLOSED.
2. WHEN THE OPERATOR LOCATES THE DC VOLTMETER, THEN CUE THE OPERATOR THAT THE VOLTMETER INDICATION EQUALS BATTERY POTENTIAL (~135 VDC).
3. WHEN THE OPERATOR LOCATES THE NO CHARGE LAMP ON THE FRONT PANEL OF THE BATTERY CHARGER, THEN CUE THE OPERATOR THAT THE NO CHARGE LAMP IS ILLUMINATED.
4. WHEN THE OPERATOR LOCATES THE PHASE FAIL LAMP, THEN CUE THE OPERATOR THAT THE PHASE FAIL LAMP IS EXTINGUISHED.

STANDARDS:

1. THE OPERATOR LOCATES AND CLOSES THE BATTERY CHARGER ISOLATION (DC) BREAKER.
2. THE OPERATOR VERIFIES INDICATION OF DC VOLTAGE AND LAMP STATUS.

Waterford 3 Job Performance Measure Examination

RETURNING BATTERY CHARGER TO SERVICE

6: (C) WHEN 25 SECONDS HAVE ELAPSED, THEN CLOSE BATTERY CHARGER AC ISOLATION BREAKER AND CHECK THE FOLLOWING:

- DC VOLTMETER REMAINS AT BATTERY POTENTIAL
- NO CHARGE LAMP EXTINGUISHES
- PHASE FAIL LAMP EXTINGUISHES

CUES:

1. WHEN THE OPERATOR LOCATES THE BATTERY CHARGER AC ISOLATION BREAKER AND DEMONSTRATES THE ACTION TO CLOSE IT, THEN CUE THE OPERATOR THAT THE BATTERY CHARGER AC ISOLATION BREAKER IS CLOSED.
2. WHEN THE OPERATOR LOCATES THE DC VOLTMETER, THEN CUE THE OPERATOR THAT THE VOLTMETER READ 148 VDC FOR A SHORT PERIOD AND THEN DROPPED DOWN TO BATTERY POTENTIAL (~135 VDC).
3. WHEN THE OPERATOR LOCATES THE NO CHARGE LAMP, THEN CUE THE OPERATOR THAT THE NO CHARGE LAMP EXTINGUISHED FOR A SHORT PERIOD AND THEN ILLUMINATED.
4. WHEN THE OPERATOR LOCATES THE PHASE FAIL LAMP, THEN CUE THE OPERATOR THAT THE PHASE FAIL LAMP IS EXTINGUISHED.
5. CUE THE OPERATOR THAT THE HI-V SHUTDOWN LAMP IS ILLUMINATED

STANDARDS:

1. THE OPERATOR LOCATES AND CLOSES THE BATTERY CHARGER AC ISOLATION BREAKER AFTER WAITING AT LEAST 25 SECONDS SINCE CLOSING THE DC ISOLATION BREAKER.
2. THE OPERATOR VERIFIES DC VOLTMETER INDICATION AND INDICATOR STATUS.

Waterford 3 Job Performance Measure Examination

RETURNING BATTERY CHARGER TO SERVICE

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-
- 7: (C) IF HI-V SHUTDOWN LAMP IS ILLUMINATED AND OUTPUT VOLTAGE IS < 144 VDC, THEN DEPRESS THE HIGH VOLTAGE RESET PUSHBUTTON LOCATED ON HV SHUTDOWN CARD INSIDE CABINET.

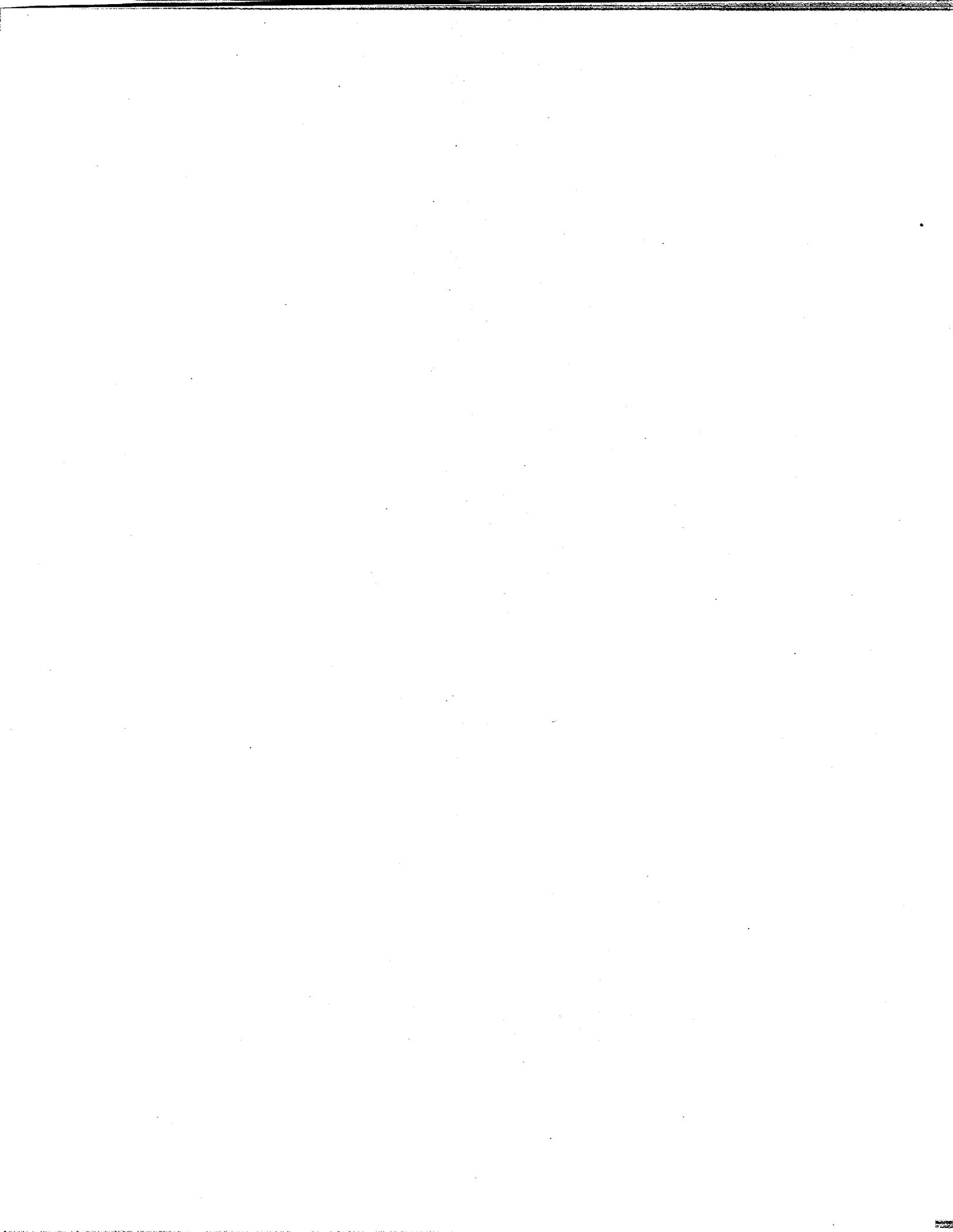
CUES:

1. WHEN THE OPERATOR LOCATES AND RESETS THE HIGH VOLTAGE RESET PUSHBUTTON, THEN CUE THE OPERATOR THAT THE HI-V SHUTDOWN LAMP EXTINGUISHED FOR A SHORT PERIOD AND THEN RE-ILLUMINATED.

STANDARDS:

1. THE OPERATOR OPENS THE BATTERY CHARGER AC ISOLATION BREAKER.
2. THE OPERATOR OPENS BATTERY CHARGER ISOLATION (DC) BREAKER.
3. THE OPERATOR NOTIFIES SS/CRS OF CONDITION.

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-
- 8: END OF TASK.



Facility: Waterford III

Scenario No.: 1

Op-Test No.: 1

Examiners: _____ Operators: _____

Objectives: To evaluate the applicants' ability to:

- a. perform required actions for a failure of an NI Safety channel,
- b. implement AOPs for a CCW pump trip, multiple RCP seal failures, a FWCS malfunction, and loss of Plant Monitoring Computer.
- c. perform actions required for a power reduction,
- d. execute EOP steps for a small break LOCA with malfunctions in the HPSI system.

Initial Conditions: IC-20, 100%, MOC

Turnover: Charging Pump A has been OOS for 24 hours to rebuild the crosshead and repack the pump. The plant is in T.S. 3.1.2.4 due to the AB safety busses being energized from the B safety busses. Maintenance estimates another 24 hours to return Charging Pump A to service. EFW pump AB has been OOS for 66 hours to rebuild MS-416, EFW Pump AB Stop Valve. Maintenance estimates 2 hours to complete the required work. HPSI Pump A has been OOS for 4 hours due to a breaker failure, which occurred while on recirculation to fill SIT 2A.

Event No.	Malf. No.	Event Type*	Event Description
1	NI01E	I (PNPO)	ENI Safety Channel A Middle Detector Fails Low, energizing a source range channel NI.
2	CC03B	C (SNPO)	CC Pump B Bearing Seizure
3	RC09D	C (PNPO) R (PNPO) N (SNPO)	RCP 2B middle seal fails, as a result of CC malfunction, forcing a controlled shutdown.
4	SG05D	I (SNPO)	S/G 2 Level Transmitter Fails High requiring manual control of S/G Level.
5	PC01	I (SNPO) I (PNPO)	The Plant Monitoring Computer fails requiring implementation of alternate plant
6	RC08D		Second seal fails on RCP 2B requiring a manual reactor trip and securing RCP 2B
7	RC10D, RC23D, RD1101, RD1102, SI02B	M (All)	Remaining RCP seals fail, causing a small break LOCA. Two CEAs fail to insert on the reactor trip. HPSI Pump B fails to auto start on a SIAS signal; however, the pump can be started manually from CP-8.

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

Simulator Scenario
Waterford 3 Nuclear Plant
Simulator Scenario Number: O-RO9901

Author: avest	Scenario Status: APPROVED	Estimated Time: 50
Approval: rfletch	8/29/99	Revision Number: 7/26/99
References Verified: avest	7/26/99	
Applications: Initial Exam	Initial Conditions: IC-20	

Scenario Description:

The crew takes the shift with the plant at 100% power. Shortly after taking the shift Safety Channel A ENI middle detector fails low, energizing Startup Channel 2. After the crew takes action to de-energize Startup Channel 2 and bypasses trip bistables for Linear Power Hi, DNBR Lo, and LPD Hi in PPS Channel A (the crew may also bypass Log Power Hi) CC Pump B trips on overcurrent due to a bearing seizure. Shortly after restoring normal CC flow, by starting CC Pump AB to replace CC Pump B, RCP 2B middle seal fails requiring entry into OP-901-130. After the crew commences a controlled shutdown based on input from the system engineer, S/G 2 level control channel, SG-ILT-1121 fails high. This shifts all FWCS 2 controllers to manual. When the crew has implemented the actions of OP-901-201 and recommenced the controlled shutdown, the plant computer fails and the crew should implement OP-901-501. While the crew is addressing the PMC failure the lower seal completely fails on RCP 2B, requiring a manual reactor trip and shutdown of RCP 2B. Two CEAS do not insert when the reactor trips, requiring emergency boration initiation. During the diagnostics section of OP-902-000 the remaining seals of RCP 2B fail and a small break LOCA occurs. HPSI pump B fails to auto start on the SIAS requiring a manual start of HPSI Pump B. The crew should diagnose to OP-902-002. The scenario may be terminated when the crew initiates an RCS cooldown or at the lead examiners discretion.

Scenario Notes:

Initial Setup Chg pump A - Set remote CVR20 to RACKOUT, place Chg pump A C/S on CP-4 to OFF, and place danger tag on C/S.

Initial Setup HPSI pump A - Set remote SIR29 to RACKOUT, place HPSI pump A C/S on CP-8 to OFF, and place danger tag on C/S.

Initial Setup EFW pump AB - Set malfunction FW05 to TRUE. Set annunciators A10 and M03 on panel M and M13 on panel N to CRYWOLF. Override red, green, and white lights for MS-401A and B to OFF. Override C/Ss for MS-401A and B to CLOSE and place danger tags on MS-401A and B C/Ss on CP-8. Override red and green lights for MS-416 and MS-417 to OFF and place danger tag on MS-417 C/S on CP-8. Override EFW Pump AB Disch Press, Speed and Strm Press indicators to 0 on CP-8.

When the crew sends a NAO to the CCW pump report that the pump outboard bearing has no oil level and oil is on the floor.

When the crew notifies the System Engineer of the seal failure tell the crew that you recommend performing a controlled shutdown as a precautionary measure because in addition to the seal failure, vibration monitoring equipment has shown an upward trend recently on RCP 2B.

If the crew does not notice the second seal failure within a reasonable period of time the lead examiner may prompt the a call by the system engineer, asking the status of the pump.

Scenario Timeline:

Item	Malfunction	Time	Severity	Ramp	TUA	TRA	Trigger	Event
1	RD11 01	LOAD	TRUE	N/A	N/A	N/A	N/A	
	CEA MECHANICALLY STUCK							
2	RD11 02	LOAD	TRUE	N/A	N/A	N/A	N/A	
	CEA MECHANICALLY STUCK							
3	SI02 B	LOAD	TRUE	N/A	N/A	N/A	N/A	
	LOSS AUTOSTART SIGNAL TO HPSI							
4	NI01 E	2 MIN	0%	N/A	N/A	N/A	MTF03	AR008,
	SAFETY CHANNEL ENI DETECTOR FAILS							
5	CC03 B	10 MIN	TRUE	N/A	N/A	N/A	MTF04	A510,e
	CCW PUMP BEARING SEIZURE							
6	RC09 D	15 MIN	100%	N/A	N/A	N/A	MTF05	A130,e
	RCP MIDDLE SEAL FAILURE (0-100%)							
7	SG05 D	25 MIN	100%	N/A	N/A	N/A	MTF06	A201,e
	SG ILT WR LEVEL FAIL (1-100%)							
8	PC01	30 MIN	TRUE	N/A	N/A	N/A	MTF07	A501
	PMC HOST A & B TOTAL FAILURE							
9	RC08 D	35MIN	100%	N/A	N/A	N/A	MTF08	E000
	RCP LOWER SEAL FAILURE (0-100%)							
10	RC10 D	POST-T	100%	N/A	N/A	N/A	MTF09	E002
	RCP UPPER SEAL FAILURE							
11	RC23 D	POST-T	0.2%	N/A	N/A	N/A	MTF09	
	RCS COLD LEG RUPTURE (DBL-END 30" BREAK @100%, MAX IS 14% = 10,000 LBM/SEC)							

Manip #	Manipulation Description
14	Loss of CC Trains or CC to an Individual Component
17	Loss of Protective System Channel
2	Plant Shutdown
23	Malfunction of Auto Control System Which Affects Reactivity
27	Nuclear Instrumentation Failure
3B	Manual Control of Feedwater During Plant Shutdown
7B	LOCA, Inside Containment

Scenario Critical Tasks
Event Number E000

STANDARD POST TRIP ACTIONS (IMMEDIATE OPERATOR ACTIONS)

1	Establish Reactivity Control.	The task is identified by at least one member of the crew. The PNPO establishes Emergency Boration prior to exiting Reactivity Control Verification by CRS and crew.
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Event Number E002 LOSS OF COOLANT ACCIDENT

2	Establish RCS Inventory Control	The task is identified by at least one crew member. The SNPO takes action to start HPSI "B" prior to Plenum Level dropping below 20%.
3	Stop all Reactor Coolant Pumps.	The task is identified by at least one crew member. The PNPO takes action to stop all Reactor Coolant Pumps within 3 minutes on a loss of CCW flow or on a loss of subcooled margin.
4	Maintain RCS Heat Removal.	The task is identified by at least one crew member. The PNPO/SNPO take action to maintain RCS Heat Removal by initiating a plant cooldown to restore subcooled margin.

Event	Reference	Rev	Chng	Event	Reference	Rev	Chng
A130,e1	OP-901-130	02	00	A201,e1	OP-901-201	1	00
A501	TS 3.2.4			A501	OP-901-501	5	2
A510,e2	TS 3.7.3			A510,e2	OP-901-510	03	00
A510,e2	OP-100-014	09	05	AR008,I3	TS 3.3.1		
AR008,I3	OP-009-007	05	00	E000	OP-902-000	08	00
E002	OP-902-002	08	00	E002	EP-001-001	18	00

Scenario Objectives

The ABILITY to:

- 1 Communicate as a team, prioritize actions, demonstrate attention to detail.
- 2 Analyze plant parameters in abnormal / emergency conditions to diagnose and determine which emergency / off-normal operating procedure should be entered, if appropriate.
- 3 Verify automatic actions, and perform procedural immediate operator actions from memory.
- 4 Identify all LCO conditions in Technical Specifications and interpret / apply required actions.
- 5 Classify emergencies, make notifications and apply required actions of EP-001-001 "Recognition and Classification of Emergency Conditions".
- 6 Locate and utilize pertinent plant reference material available in the control room, including electrical and mechanical drawings.
- 7 Make clear, accurate, and concise verbal reports, written logs, and in-plant communications.

Event Number A130,e1 REACTOR COOLANT PUMP SEAL FAILURE

- 1 Monitor Component Cooling Water parameters for reactor Coolant Pumps Cooling and take appropriate action as necessary.
- 2 Determine which reactor coolant pump seal(s) have failed and take appropriate actions in accordance with OP-901-130, Reactor Coolant Pump Malfunction.

Event Number A201,e1 STEAM GENERATOR LEVEL TRANSMITTER DEVIATION >7%

- 1 Verify feedwater control systems respond to level deviation.
- 2 Restore and maintain steam generator levels in accordance with OP-901-201, Steam Generator Level Control System Malfunction.

Event Number A501 PMC/COLSS INOPERABLE

- 1 Respond to a loss of PMC/COLSS by notifying computer tech, and taking required Tech Spec actions, including calculations per (OP-901-501) PMC or COLSS System inoperable.
- 2 Restore COLSS to service following the restoration of the PMC.

Event Number A510,e2 LOSS OF CCW PUMP(S)

- 1 Restore and properly align CCW in accordance with off-normal operating procedure OP-901-510, Component Cooling Water System Malfunction.
- 2 Recognize that losing all CCW flow requires a Reactor Trip and Securing of RCPs.

Event Number AR008,I3 EXCORE NUCLEAR INSTRUMENTATION FAILURES (SAFETY)

- 1 Identify the failed NIS channel, making appropriate switch manipulations locally on drawer/CP-10
- 2 Properly bypass affected protection channel bistables according to Tech Specs.

Event Number E000 STANDARD POST TRIP ACTIONS (IMMEDIATE OPERATOR ACTIONS)

- 1 Carry out all operator actions, including necessary contingency actions in accordance with OP-902-000, Standard Post Trip Actions, in the event of a reactor trip.
- 2 Properly diagnose event in progress and transition to appropriate EOP recovery procedure.

Event Number E002

LOSS OF COOLANT ACCIDENT

- 1 Take appropriate actions to mitigate the consequences of a large break loss of coolant accident in accordance with OP-902-002, Loss of Coolant Accident Recovery Procedure.
- 2 Monitor RCS/Core conditions and verify all critical safety functions are being addressed.
- 3 Ensure reactor coolant pumps are secured as required, and the automatic & manual actions required for recirc actuation take place with two minutes of signal.

Number:	Position:	Action
	Event Number	AR008,I3 EXCORE NUCLEAR INSTRUMENTATION FAILURES (SAFETY)
1	PNPO	RECOGNIZE AND REPORT INDICATIONS OF FAILED CHANNEL
2	NOTE	STARTUP CHANNEL HIGH VOLTAGE, AUDIBLE, AND METER INDICATION WILL ENERGIZE IF THE SELECTED LOG SAFETY CHANNEL (MIDDLE DETECTOR) FAILS LOW. (PRIMARY/ALTERNATE - A/B FOR STARTUP B, C/D FOR STARTUP A)
3	PNPO/SNPO	IF LOG SAFETY CHANNEL FAILS LOW, SELECT HV PRIMARY, ALTERNATE, OR OFF IN STARTUP/CONTROL DRAWER (IF STARTUP CHANNEL REENERGIZED)
4	PNPO/SNPO	IF LOG SAFETY CHANNEL FAILED HIGH, RESET RATE LIGHT FOR ASSOCIATED CP-10 CHANNEL
5	PNPO/CRS	VERIFY RPS/CPC FUNCTION BISTABLES RESPOND AS EXPECTED
6	CRS	REVIEW AND/OR IMPLEMENT ACTIONS REQUIRED BY TECHNICAL SPECIFICATION SECTION 3.3.1 (RPS)
7	CRS	DIRECT BISTABLE BYPASS WITHIN 1 HOUR OF FAILURE (FOR FIRST CHANNEL FAILURE)
7.1	NOTE	FAILURE OF A SECOND CHANNEL WILL REQUIRE THAT CHANNEL TO BE PLACED IN THE TRIP CONDITION. TO BYPASS A SECOND CHANNEL WILL REMOVE BOTH CHANNELS FROM BYPASS
8	PNPO/SNPO	BYPASS AFFECTED CHANNEL IN ACCORDANCE WITH OP-009-007, SECTION 6.2
9	TERM	BYPASS LIGHTS ILLUMINATE ON BCP AND ROM FOR THE DESIRED CHANNEL
	Event Number	A510,e2 LOSS OF CCW PUMP(S)
1	SNPO	RECOGNIZE AND REPORT CCW PUMP B TRIP.
2	SNPO	VERIFY OPEN SUCTION/ AND DISCHARGE CROSS CONNECT VALVES FROM TRAIN B ARE OPEN.
3	SNPO	ALIGN AB CCW PUMP ASSIGNMENT SWITCH TO B POSITION.
4	SNPO	START THE STANDBY CCW PUMP, VERIFY ELECTRICAL BUS ALIGNMENT.
5	SNPO/CRS/TE	EVALUATE TECHNICAL SPECIFICATION IMPACT. T. S. 3.7.3 AND CASCADING TECH SPECS PER OP-100-014, TRM 3.7.3.

Event Number A130,e1 REACTOR COOLANT PUMP SEAL FAILURE

- 1 PNPO IF ONLY ONE SEAL HAS FAILED ON A RCP, THEN OPERATIONS MAY CONTINUE PROVIDED SEAL IS MONITORED FOR FURTHER DEGRADATION.
- 2 CRS/SS INFORM SYSTEM ENGINEER OF REACTOR COOLANT PUMP SEAL FAILURE.
- 3 SNPO IF CONTROLLED BLEEDOFF HIGH TEMPERATURE ALARM OCCURS, THEN LOWER CCW TEMPERATURE BY STARTING DRY COOLING TOWER FANS OR START ACCW PUMPS AND ASSOCIATED WET COOLING TOWER FANS (SYSTEM ENGINEER, DUTY PLANT MANAGER, AND SS WILL RECOMMEND PLANT SHUTDOWN PER OP-010-005 AT THIS TIME)
- 4 PNPO/SNPO/C ANNOUNCE POWER REDUCTION TO STATION PERSONNEL.
- 5 PNPO PERFORM ALIGNMENT FOR BORON EQUALIZATION.
- 6 PNPO ESTIMATE BORON REQUIRED TO SHUTDOWN USING THUMBRULE OR OP-002-005 (~1500 GALS)
- 7 PNPO COMMENCES BORATION TO COMMENCE REACTOR SHUTDOWN AT RATE DETERMINED BY THE CRS.
- 8 SNPO WHEN TAVG BEGINS TO DROP REDUCE GENERATOR LOAD TO MATCH TAVG AND TREF.
- 9 PNPO/CRS (T IF TWO OR MORE SEALS FAIL IN RAPID SUCCESSION, TRIP THE REACTOR, SECURE THE AFFECTED RCP, GO TO OP-902-000.

Event Number A201,e1 STEAM GENERATOR LEVEL TRANSMITTER DEVIATION >7%

- 1 S,P,C IF ACTUAL S/G LEVEL RISES 87.7% NR OR DROPS 27.4% NR VERIFY REACTOR TRIP AND GO TO OP-902-000
- 2 SNPO AT CRS DISCRETION, STOP TURBINE LOAD CHANGES.
- 3 PNPO AT CRS DISCRETION, SECURE BORATION OR DILUTION TO RCS.
- 4 SNPO VERIFIES THE FOLLOWING CONTROLLERS SHIFT TO MANUAL ON S/G WITH AFFECTED LEVEL (>7% DEVIATION):
MAIN FEEDWATER REG VALVE B (FW-IHIC-1121)
STARTUP FEEDWATER REG VALVE B (FW-IHIC-1106)
MAIN FEEDWATER PUMP B SPEED (FW-HIC-1108)
- 5 SNPO RESTORE S/G LEVEL TO 60 - 70% NR BY:
PLACING THE SPEED CONTROLLER FOR THE NON-AFFECTED CHANNEL TO MANUAL AND ADJUSTING SGFPT SPEED (CRS MAY ALSO GIVE INSTRUCTIONS TO ADJUST MFRV CONTROLLER FOR RAPID CHANGES)

6	SNPO	VERIFY MFW PUMP DISCHARGE PRESSURE GREATER THAN S/G PRESSURE
7	TERM	INITIATE MAINTENANCE ON THE FAILED CHANNEL LEVEL TRANSMITTER
	Event Number	A501
		PMC/COLSS INOPERABLE
1	CRS	IF CEA MOVEMENT IS NECESSARY, REDUCE POWER TO COMPLY WITH TS 3.2.1 AND 3.2.4
2	CRS	NOTIFY SHIFT COMPUTER TECHNICIAN TO REBOOT OR FAILOVER PMC
3	CRS/SS	IF PMC/SPDS IS INOPERABLE >1 HOUR, THEN A 1 HOUR NOTIFICATION TO NRC REQUIRED
4	P,S	IF >20% POWER; WITHIN 15 MINUTES CALCULATE CPC DNBR LIMIT BY PERFORMING ATTACHMENT 1
5	P,S	VERIFY LPD, DNBR, AND ASI WITHIN LIMITS ON OPERABLE CPC CHANNELS EVERY 15 MINUTES BY PERFORMING ATTACHMENT 6.2
6	C,P,S	IF DNBR DROPS BELOW LIMIT DURING FIRST 2 HOURS, COMMENCE POWER REDUCTION TO RESTORE TO WITHIN LIMITS OF TS 3.2.4
7	C,P,S	IF COLSS NOT RESTORED WITHIN 2 HOURS AND LPD OR DNBR ARE OUTSIDE LIMITS, REDUCE POWER TO RESTORE DNBR AND LPD TO LIMITS OF TS 3.2.4 AND 3.2.1 OR REDUCE POWER TO <=20% RATED THERMAL POWER
8	CRS	DIRECT STA TO PERFORM AZIMUTHAL POWER TILT CALCULATION EVERY 12 HOURS, AS WELL AS RCS FLOW CALCULATION
9	PNPO	VERIFY AT LEAST 2 OF 3 CEA POSITION INDICATOR CHANNELS REQUIRED BY TS 3.1.3.2 ARE OPERABLE. DIRECT CHEMISTRY TO PERFORM THERMAL DISCHARGE CALCULATIONS EVERY TWO HOURS
10	PNPO	VERIFY EACH REGULATING CEA GROUP INDIVIDUAL CEA POSITION WITHIN TRANSIENT INSERTION LIMIT EVERY 4 HOURS
11	CRS	WHEN PMC IS RESTORED, PLACE COLSS BACK IN SERVICE
12	CRS	VERIFY INCORE DETECTORS OPERABLE
13	PNPO	CHECK POWER DEPENDENT INSERTION LIMIT ANNUNCIATOR CLEARS
14	TERM	RESUME NORMAL PLANT OPERATIONS

Event Number	E000	STANDARD POST TRIP ACTIONS (IMMEDIATE OPERATOR ACTIONS)
1	PNPO	<p>VERIFY REACTIVITY CONTROL. CHECK REACTOR POWER DROPPING OR PERFORM ANY OF THE FOLLOWING: MANUALLY TRIP THE REACTOR, MANUALLY INITIATE DRTS, OPEN BOTH 32 BUS BKRS FOR 5 SECONDS AND RE-CLOSE. CHECK STARTUP RATE IS NEGATIVE. CHECK LESS THAN 2 CEAS INSERTED OR EMERGENCY BORATE.</p>
2	SNPO	<p>VERIFY MAINTENANCE OF VITAL AUXILIARIES CHECK THE MAIN TURBINE TRIPPED OR PERFORM ANY OF THE FOLLOWING: MANUALLY TRIP THE TURBINE OR CLOSE BOTH MSIVS. CHECK THE GENERATOR TRIPPED OR MANUALLY TRIP THE MAIN GENERATOR BY PERFORMING ANY OF THE FOLLOWING: DEPRESS BOTH GENERATOR EMERG TRIP PUSHBUTTONS OR TRANSFER BOTH ELECTRICAL TRAINS TO THE SUTS AND OPEN BOTH GENERATOR OUTPUT BKRS AND THE EXCITER FIELD BKR. CHECK TRAIN A AND B STATION LOADS ARE ENERGIZED FROM OFFSITE POWER OR VERIFY THE APPLICABLE EDG STARTS AND ITS OUTPUT BKR CLOSES.</p>
3	PNPO	<p>VERIFY RCS INVENTORY CONTROL BY CHECKING PZR LEVEL 7% AND 60% AND SUBCOOLING MARGIN GREATER THAN OR EQUAL TO 28 DEG. F. IF PZR LEVEL CONTROL SYSTEM IS MALFUNCTIONING THE OPERATOR TAKES MANUAL CONTROL OF THE SYSTEM OR OPERATES CHARGING AND LETDOWN COMPONENTS TO RESTORE PZR LEVEL (THIS STEP MAY BE N/A FOR ESD, LOCA, OR SGTR EVENTS)</p>
4	PNPO	<p>VERIFY RCS PRESSURE CONTROL BY CHECKING PZR PRESSURE BETWEEN 1750 PSIA AND 2300 PSIA OR</p> <ol style="list-style-type: none"> 1) IF PZR PRESS CONTROL SYSTEM (PPCS) IS MALFUNCTIONING THE OPERATOR TAKES MANUAL OF PPCS CONTROLLERS TO RESTORE PRESSURE 2) IF PZR PRESSURE IS LESS THAN 1684 PSIA, THE OPERATOR VERIFIES THAT SIAS AND CIAS INITIATE OR PERFORMS MANUAL INITIATION 3)IF PZR PRESSURE IS LESS THAN 1621, THE OPERATOR VERIFIES NO MORE THAN TWO RCPS ARE OPERATING. 4) IF PZR PRESSURE IS LESS THAN MINIMUM RCP NPSH OF APP. 2A THE OPERATOR SECURES ALL RCPS.
5	PNPO	<p>VERIFY CORE HEAT REMOVAL BY CHECKING AT LEAST ONE RCP OPERATING, OPERATING LOOP DELTA-T LESS THAN 13 DEG. F, AND RCS SUBCOOLING GREATER THAN OR EQUAL TO 28 DEG. F. (MAY BE N/A FOR ESD, LOCA, AND LOOP EVENTS)</p>
6	SNPO	<p>CHECK RCS HEAT REMOVAL BY CHECKING AT LEAST ONE S/G IS BOTH 15-80% NR AND MAIN FEEDWATER IS AVAILABLE TO RESTORE LEVEL OR VERIFY EFW IS AVAILABLE TO RESTORE LEVEL IN AT LEAST ONE S/G.</p>

- 7 PNPO/SNPO CHECK RCS TEMPERATURE 535-555 DEG. F OR
 1) IF TC IS > 555 DEG. F VERIFY LEVEL IS BEING RESTORED TO AT LEAST ONE S/G AND VERIFY SBCS OR ADVs ARE MAINTAINING RCS TEMP 535-555 DEG. F.
 2) IF TC IS < 535 DEG. F THEN VERIFY FEED FLOW IS NOT EXCESSIVE AND VERIFY SBCS OR ADVs ARE MAINTAINING RCS TEMP 535-555 DEG. F
 3) IF TC IS < 500 DEG. F VERIFY NO MORE THAN 2 RCPs OPERATING
 4) IF ESD IN PROGRESS STABILIZE RCS TEMPERATURE USING LEAST AFFECTED S/G PER APP. 13.
- 8 SNPO CHECK S/G PRESSURE 925-1050 PSIA OR
 1) IF S/G PRESS <925 PSIA VERIFY STEAM BYPASS VALVES AND ADVs ARE CLOSED.
 2) IF S/G PRESS LESS THAN OR EQUAL TO 764 PSIA VERIFY MSIS IS INITIATED.
 3) IF S/G PRESS > 1050 PSIA VERIFY SBCS OR ADVs ARE RESTORING S/G PRESS TO < 1050 PSIA
- 9 SNPO VERIFY FWCS IN RTO BY CHECKING MAIN FEED REG VALVES ARE CLOSED, STARTUP FEED REG VALVES ARE 20-25% OPEN, AND OPERATING FEED PUMPS ARE 3800 TO 4000 RPM OR MANUALLY OPERATE FEEDWATER SYSTEM TO RESTORE LEVEL IN AT LEAST ONE S/G TO 50-70 NR.(N/A IF MSIS IS INITIATED)
- 10 SNPO RESET MOISTURE SEPARATOR REHEATERS AND CHECK THE TEMP CONTROL VALVES CLOSED OR NOTIFY AN NAO TO FAIL CLOSE THE VALVES LOCALLY. (N/A IF MSIS IS INITIATED)
- 11 PNPO VERIFY CONTAINMENT ISOLATION BY CHECKING CONTAINMENT PRESSURE < 16.4 PSIA, CHECK THAT NO CONT. AREA RAD MONITORS ARE IN ALARM OR SHOW AN UNEXPLAINED RISE IN ACTIVITY, AND CHECK THAT NO STEAM PLANT RAD MONITORS ALARM OR SHOW AN UNEXPLAINED RISE IN ACTIVITY. IF CONTAINMENT PRESSURE IS GREATER THAN OR EQUAL TO 17.1 PSIA VERIFY CIAS, SIAS, AND MSIS INITIATE.
- 12 SNPO/PNPO VERIFY CONTAINMENT TEMPERATURE AND PRESSURE CONTROL AND CONTAINMENT COMBUSTIBLE GAS CONTROL BY VERIFYING CONTAINMENT TEMP LESS THAN OR EQUAL TO 120 DEG. F AND CONTAINMENT PRESSURE IS < 16.4 PSIA OR
 1) VERIFY AT LEAST 3 CFCs OPERATING.
 2) IF CONTAINMENT PRESS IS GREATER OR EQUAL TO 17.1 PSIA VERIFY ALL CFCs ARE OPERATING IN EMERGENCY MODE.
 3) IF CONTAINMENT PRESS IS GREATER THAN OR EQUAL TO 17.7 VERIFY CSAS IS INITIATED, ALL AVAILABLE CS PUMPS ARE DELIVERING > 1750 GPM, AND SECURE ALL RCPs .
- 13 CRS VERIFY ALL SAFETY FUNCTION ACCEPTANCE CRITERIA ARE MET
- 14 CRS/PNPO/SN PERFORM DIAGNOSTICS
- 15 TERM CREW DIAGNOSES A(N) _____ EVENT AND EXITS TO OP-902-

Event Number	E002	LOSS OF COOLANT ACCIDENT
1	STA/CRS	CONFIRM DIAGNOSIS BY PERFORMING SAFETY FUNCTION STATUS CHECK LIST AND NOTIFY CHEMISTRY TO SAMPLE BOTH S/GS FOR ACTIVITY.
2	CREW	ANNOUNCE THE EVENT
3	PNPO/SNPO	IF PZR PRESSURE < 1684 PSIA VERIFY SIAS INITIATED, SAFETY INJECTION PUMPS STARTED, INJECTION FLOW IS ACCEPTABLE PER APPENDIX 2 AND AVAILABLE CHARGING PUMPS (2) ARE RUNNING OR PERFORM ANY OF THE FOLLOWING: 1) VERIFY POWER TO SI PUMPS. 2) VERIFY INJECTION VALES OPEN. 3) START ADDITIONAL SI PUMPS UNTIL FLOW IS ACCEPTABLE PER APP. 2. 4) ALIGN HPSI AB TO REPLACE A OR B.
4	PNPO	IF PZR PRESS < 1621 PSIA AND SIAS IS ACTUATED VERIFY NO MORE THAN 2 RCPs OPERATING. IF PZR PRESS DOES NOT MEET APPENDIX 2A SECURE ALL RCPs.
5	PNPO	VERIFY RCP OPERATING LIMITS 1) VERIFY CCW AVAILABLE TO RCPs OR SECURE AFFECTED RCPs IF NOT RESTORED WITHIN 3 MINUTES. 2) SECURE ALL RCPs IF CSAS IS INITIATED. 3) IF TC >500 DEG. F, VERIFY NO MORE THAN 2 RCPS OPERATING.
6	SNPO	VERIFY CCW OPERATION BY CHECKING A CCW PUMP IS OPERATING FOR EACH ENERGIZED 4 KV SAFETY BUS OR 1) IF AB BUS ALIGNED TO SAME SIDE AS FAULTED CCW PUMP START THE AB CCW PUMP 2) IF AB BUS ALIGNED TO OPPOSITE SIDE FROM FAULTED CCW PUMP START THE AB CCW PUMP AFTER THE SEQUENCER HAS TIMED OUT. 3) IF CCW FLOW CAN NOT BE RESTORED, NOTIFY AN NAO TO PULL THE OVERSPEED TRIP DEVICE ON THE AFFECTED EDG.
7	PNPO/SNPO	ISOLATE THE LOCA BY: 1) VERIFY LETDOWN CONTAINMENT ISOLATIONS ARE CLOSED. 2) VERIFY RCS SAMPLING ISOLATIONS ARE CLOSED. 3) CHECK CCW AB RAD MONITOR NOT IN ALARM AND NO ABNORMAL RISE IN READING OR STOP ALL RCPs AND CLOSE CCW CONTAINMENT ISOLATIONS.
8	PNPO/SNPO	VERIFY LOCA NOT OUTSIDE CONTAINMENT BY CHECKING RAB RAD MONITORS, SUMP LEVELS, AND WASTE TANK LEVELS. IF A LEAK IS INDICATED, LOCATE AND ISOLATE THE LEAK AND VERIFY CIAS ACTUATED PER APPENDIX 4D.
9	SNPO	PLACE HYDROGEN ANALYZERS A AND B IN SERVICE

- | | | |
|----|-----------|--|
| 10 | PNPO/SNPO | IF CONTAINMENT PRESSURE IS > 17.1 PSIA OR CONTAINMENT AREA RAD MONITORS ARE IN HI ALARM, VERIFY CIAS IS INITIATED AND VERIFY ALL AVAILABLE CFCs ARE IN THE EMERGENCY MODE. IF ANY CFC IS NOT OPERATING AND CONTAINMENT PRESSURE IS > 17.1 PSIA NOTIFY A NAO TO PERFORM APPENDIX 22B AND CLOSE THE ASSOCIATED CFC CCW ISOLATION VALVES. |
| 11 | SNPO/PNPO | IF CONTAINMENT PRESSURE IS > 17.7 PSIA VERIFY CSAS IS INITIATED AND ALL OPERATING CS PUMPS ARE DELIVERING > 1750 GPM. IF ANY CS PUMP IS NOT OPERATING AND ITS ASSOCIATED CS-125 VALVE IS OPEN, PERFORM APPENDIX 22A AND CLOSE THE ASSOCIATED VALVE. |
| 12 | SNPO | IF OFFSITE POWER HAS BEEN LOST VERIFY MSIVs AND BLOWDOWN CONTAINMENT ISOLATIONS ARE CLOSED. |
| 13 | SNPO | RESTORE IA
1) IF A TCW PUMP AND CW PUMP ARE NOT RUNNING NOTIFY NAO TO ALIGN IA COMPRESSORS TO POTABLE WATER
2) IF IA PRESSURE < 95 PSIG DISPATCH AN OPERATOR TO START ALL AVAILABLE AIR COMPRESSORS
3) IF IA PRESS > 95 PSIG ENSURE IA CONTAINMENT ISOLATION VALVE IA-909 IS OPEN. |
| 14 | PNPO/SNPO | COOLDOWN/DEPRESSURIZE/RESET MSIS AND SIAS SETPOINTS (AFTER COOLDOWN HAS BEEN STARTED THE EXAM LEAD MAY TERMINATE THE SCENARIO) |



Facility: Waterford III

Scenario No.: 2

Op-Test No.: 1

Examiners: _____ Operators: _____

Objectives: To Evaluate the applicants' ability to:

- a. perform a power reduction,
- b. recognize T.S. implications and perform required actions for a failure of a safety related S/G pressure instrument,
- c. perform actions within AOPs for a loss of charging, condenser air in-leakage, failure of the controlling pressurizer pressure instrument, and failure of a PZR Spray Valve to close.
- d. perform actions required to mitigate a Main Steam Line Break inside containment with a failure of one motor driven EFW pump to auto start and the turbine driven EFW pump OOS.

Initial Conditions: IC-20, 100%, MOC

Turnover: Charging Pump A has been OOS for 24 hours to rebuild the crosshead and repack the pump. The plant is in T.S. 3.1.2.4 due to the AB safety busses being energized from the B safety busses. Maintenance estimates another 24 hours to return Charging Pump A to service. EFW pump AB has been OOS for 66 hours to rebuild MS-416, EFW Pump AB Stop Valve. Maintenance estimates 2 hours to complete the required work. HPSI Pump A has been OOS for 4 hours due to a breaker failure, which occurred while on recirculation to fill SIT 2A. A power reduction to 90% must be performed to allow for turbine valve testing.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R (PNPO) N (SNPO)	Power reduction to 90% power for turbine valve testing.
2	SG04A	I (SNPO)	S/G 2 Safety Pressure instrument fails low.
3	CV01B	C (PNPO)	Charging pump B trips on overcurrent.
4	FW10A, FW21A	C (SNPO)	Condenser A air in-leakage with a trip of the running Condenser Air Evacuation Pump.
5	RX14A	I (PNPO)	In-service PZR pressure control channel fails high.
6	RC14A1	C (PNPO)	PZR Spray Valve A fails open requiring a manual reactor trip and securing RCP 1A.
7	MS11A, FW07A	M (All)	Main Steam Line Break inside containment with a failure of EFW Pump A to automatically start on an EFAS.

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

Simulator Scenario
Waterford 3 Nuclear Plant
Simulator Scenario Number: O-RO9902

Author: avest **Scenario Status:** APPROVED **Estimated Time:** 50
Approval: rfletch 8/29/99 **Revision Number:** 7/26/99
References Verified:
Applications: **Initial Conditions:**
Initial Exam IC-20

Scenario Description:

Plant power is initially 100%. After assuming the shift, the crew commences a down power to 90% for turbine valve testing. During the power reduction S/G 2 pressure transmitter SG-IPT-1023A fails low. When the crew bypasses the appropriate trip bistables in PPS Channel A, Charging Pump B trips on overcurrent. The crew should implement the applicable actions of OP-901-112 for a charging malfunction. After implementing OP-901-112 Condenser Air Evacuation Pump A trips and an air leak occurs in Condenser A. After implementing the actions of OP-901-220, the in-service PZR pressure control channel fails high, initiating PZR spray and securing PZR heaters. The crew should implement OP-901-120 and transfer to the non-faulted channel. When the crew transfers pressure control to the non-faulted channel PZR spray valve RC-301A remains open due to mechanical binding. The crew should manually trip the reactor and secure RCP 1A to stop the plant depressurization. During the performance of OP-902-000, Standard Post Trip Actions, an unisolable main steam line break occurs on MS line 1 inside containment. EFW Pump A fails to start automatically when EFAS is initiated. the crew should diagnose to OP-902-004 and take the appropriate actions. the scenario may be terminated after the crew takes action to stabilize RCS temperature and pressure or at the lead examiner's discretion.

Scenario Notes:

- Initial Setup Chg pump A - Set remote CVR20 to RACKOUT, place Chg pump A C/S on CP-4 to OFF, and place danger tag on C/S.
- Initial Setup HPSI pump A - Set remote SIR29 to RACKOUT, place HPSI pump A C/S on CP-8 to OFF, and place danger tag on C/S.
- Initial Setup EFW pump AB - Set malfunction FW05 to TRUE. Set annunciators A10 and M03 on panel M and M13 on panel N to CRYWOLF. Override red, green, and white lights for MS-401A and B to OFF. Override C/Ss for MS-401A and B to CLOSE and place danger tags on MS-401A and B C/Ss on CP-8. Override red and green lights for MS-416 and MS-417 to OFF and place danger tag on MS-417 C/S on CP-8. Override EFW Pump AB Disch Press, Speed and Stm Press indicators to 0 on CP-8.
- Charging Pump B trip - If the crew sends a NAO to the Charging Pump report that the motor casing is discolored and the smell of burnt insulation is present.
- Charging Pump B trip - If the crew sends a NAO to the Charging Pump breaker report flags on all phases of the overcurrent trip devices. Use Remote Function CVR23 to rackout the breaker if requested.
- Condenser Vacuum Pump A trip - If a NAO is sent to the Vacuum Pump, report that no abnormal indications are present at the pump. If a NAO is sent to the Vacuum Pump breaker, report flags on phase A of the overcurrent trip devices. If requested to rackout the breaker for the vacuum pump use Remote Function FWR78.
- Condenser A Air Inleakage - When requested to check the condenser vacuum breakers, allow time for the operator to check for leakage on all three vacuum breakers, then report that the water seal has been lost on condenser vacuum breaker A. After allowing time to fill the water seal delete malfunction FW21A.

Scenario Timeline:

Item	Malfunction		Time	Severity	Ramp	TUA	TRA	Trigger	Event
1	FW07	A	LOAD	TRUE	N/A	N/A	N/A	N/A	
EMERGENCY FEEDWATER PUMP FAILS TO AUTO START									
2			0 MIN	N/A	N/A	N/A	N/A	N/A	N1000
3	SG04	A	10 MIN	0%	N/A	N/A	N/A	MTF03	T331
SG PRESSURE SAFETY CHANNEL FAILS									
4	CV01	B	15 MIN	TRUE	N/A	N/A	N/A	MTF04	A112,e
CHARGING PUMP TRIP									
5	FW21	A	25 MIN	15%	1 MIN	N/A	N/A	MTF05	A220
CONDENSER AIR INLEAK									
6	FW10	A	25 MIN	TRUE	N/A	N/A	N/A	MTF05	
CONDENSER VACUUM PUMP TRIP									
7	RX14	A	30 MIN	100%	N/A	N/A	N/A	MTF06	A120,e
PRESSURIZER PRESSURE CONTROL INSTRUMENT FAILURE HIGH									
8	RC14	A1	35 MIN	OPEN	N/A	N/A	N/A	MTF06	A120,e
PZR SPRAY VALVE FAILS OPEN/CLOSED									
9	MS11	A	40 MIN	10%	5 MIN	N/A	N/A	MTF07	E000
MS LINE BREAK INSIDE CNTMT (0-100%, 100% = 40									
10			N/A	N/A	N/A	N/A	N/A	N/A	E004

Manip # Manipulation Description

- 11 Loss of Condenser Vacuum
- 17 Loss of Protective System Channel
- 2 Plant Shutdown
- 26A Main Steam Line Break, Inside Containment

Scenario Critical Tasks

Event Number E000

STANDARD POST TRIP ACTIONS (IMMEDIATE OPERATOR ACTIONS)

- 1 Stop all Reactor Coolant Pumps.

The task is identified by at least one member of the crew. The PNPO takes actions to secure all RCP's within 3 minutes of loss of CCW due to the CSAS.

Event Number E004

EXCESS STEAM DEMAND

- 2 Establish RCS Temperature Control.

The task is identified by at least one member of the crew. The SNPO takes actions to stabilize RCS Temperature within the limits of the PT Curve following Blowdown of the Affected SG.

- 3 Establish RCS Pressure Control.

The task is identified by at least one member of the crew. The PNPO takes actions to stabilize RCS Pressure within the Limits of the PT curve following Blowdown of the affected Steam Generator.

Event	Reference	Rev	Chng	Event	Reference	Rev	Chng
A112,e1	TS 3.1.2			A112,e1	OP-901-112	02	01
A120,e1	OP-901-120	02	01	A120,e1	TS 3.2.8		
A120,e3	OP-901-120	02	01	A120,e3	TS 3.2.8		
A220	OP-901-220	02	01	E000	OP-902-000	08	00
E004	EP-001-001	18	00	E004	OP-902-004	08	00
N10005a	TS 3.1.2			N10005a	OP-010-005	00	00
N10005a	TS 3.2.1			N10005a	TS 3.2.7		
N10005a	TS 4.4.7			T331	TS 3.3.1		
T331	TS 3.3.2			T331	OP-009-007	05	00

Scenario Objectives

The ABILITY to:

- 1 Communicate as a team, prioritize actions, demonstrate attention to detail.
- 2 Analyze plant parameters in abnormal / emergency conditions to diagnose and determine which emergency / off-normal operating procedure should be entered, if appropriate.
- 3 Verify automatic actions, and perform procedural immediate operator actions from memory.
- 4 Identify all LCO conditions in Technical Specifications and interpret / apply required actions.
- 5 Classify emergencies, make notifications and apply required actions of EP-001-001 "Recognition and Classification of Emergency Conditions".
- 6 Locate and utilize pertinent plant reference material available in the control room, including electrical and mechanical drawings.
- 7 Make clear, accurate, and concise verbal reports, written logs, and in-plant communications.

Event Number A112,e1 CHARGING PUMP MALFUNCTION

- 1 Determine the cause of charging malfunction and realign system as necessary to restore charging capability.
- 2 Properly perform subsequent operator actions in accordance with offnormal operating procedure OP-901-112, Charging and Letdown Malfunctions.

Event Number A120,e1 PRESSURIZER CONTROL PRESSURE TRANSMITTER FAILURE

- 1 Stabilize pressurizer pressure on alternate control channel according to off-normal operator procedure OP-901-120, Pressurizer Pressure Control Malfunction.

Event Number A120,e3 SPRAY VALVE FAILURE

- 1 Perform actions necessary for a spray valve failed open.
- 2 Realign pressurizer spray components for failed closed spray valve(s).

Event Number A220 LOSS OF CONDENSER VACUUM

- 1 Verify the equipment necessary to maintain condenser vacuum in operating properly.
- 2 Properly perform subsequent operator actions in accordance with offnormal operating procedure OP-901-220.

Event Number E000 STANDARD POST TRIP ACTIONS (IMMEDIATE OPERATOR ACTIONS)

- 1 Carry out all operator actions, including necessary contingency actions in accordance with OP-902-000, Standard Post Trip Actions, in the event of a reactor trip.
- 2 Properly diagnose event in progress and transition to appropriate EOP recovery procedure.

Event Number E004 EXCESS STEAM DEMAND

- 1 Verify the existence/location of an excess steam demand.
- 2 Ensure the reactor is maintained in a shutdown condition.
- 3 Ensure the conditions for pressurized thermal shock are minimized.
- 4 Mitigate the consequences of an excess steam demand by properly utilizing OP-902-004, Excess Steam Demand Recovery Procedure.

Event Number N10005a PLANT SHUTDOWN 100% TO 90%

- 1 Reduce reactor power and/or remove the unit from service by operating securing, or realigning plant equipment as directed by precautions, limitations, and procedural guidance of General Operating Procedure, OP-010-005.

Event Number T331 SAFETY CHANNEL INSTRUMENTATION FAILURES

- 1 Recognize failed instrument and verify RPS/CPC bistable functions as expected.
- 2 Bypass affected bistable channel.

Number:	Position:	Action
	Event Number	N10005a PLANT SHUTDOWN 100% TO 90%
1	SS/CRS	IF NECESSARY, ENSURE IPTE REQUIREMENTS ARE MET AND SENIOR LINE MANAGER ON SITE
2	CRS	NOTIFIES LOAD DISPATCHER PRIOR TO POWER REDUCTION AND ANNOUNCES POWER REDUCTION OVER PLANT PAGING SYSTEM
3	PNPO	MAINTAIN TCOLD 541-548 DURING DOWNPOWER. PERFORM BORATION EQUALIZATION. ESTIMATE BORON ADDITION USING THUMBRULE OR OP-002-005 (~150 GALS) BORATES TO REDUCE REACTOR POWER AT RATE DETERMINED BY THE CRS.
4	PNPO	MAINTAINS ASI USING GROUP 5, 6 OR PART LENGTH CONTROL RODS
5	SNPO	REDUCES GENERATOR LOAD AS REQUIRED ONCE TAVE STARTS TO DROP TO MATCH REFERENCE TEMPERATURE AND TAVE
6	PNPO	REEVALUATE CEA SUBGROUPS SELECTED TO DROP ON RPC BETWEEN 90% AND 80% POWER.
7	TERM	TERMINATE EVENT AT 90% POWER OR AT LEAD EXAMINER'S DISCRETION

Event Number T331 SAFETY CHANNEL INSTRUMENTATION FAILURES

1	PNPO	RECOGNIZE AND REPORT INDICATIONS OF FAILED CHANNEL
2	PNPO/CRS	VERIFY RPS/CPC FUNCTION BISTABLE RESPOND AS EXPECTED
3	CRS	REVIEW AND/OR IMPLEMENT ACTIONS REQUIRED BY TECHNICAL SPECIFICATION SECTION 3.3.1 OR 3.3.2 (RPS OR ESFAS)
4	CRS	DIRECT BISTABLE BYPASS WITH 1 HOUR OF FAILURE (FOR FIRST CHANNEL FAILURE)
4.1	CRS	NOTE: FAILURE OF A SECOND CHANNEL WILL REQUIRE THAT CHANNEL TO BE PLACED IN THE TRIP CONDITION. TO BYPASS A SECOND CHANNEL WILL REMOVE BOTH CHANNELS FROM BYPASS.
5	SNPO/PNP	BYPASS AFFECTED CHANNEL IN ACCORDANCE WITH OP-009-007 SECTION 6.2
6	TERM	BYPASS LIGHTS ILLUMINATE ON BCP AND ROM FOR THE DESIRED CHANNEL

Event Number A112,e1 CHARGING PUMP MALFUNCTION

1	PNPO	RECOGNIZE AND REPORT CHARGING PUMP TRIP (ALARMS AND INDICATION)
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- | | | |
|---|----------|---|
| 2 | SNPO/CRS | STOP TURBINE LOAD CHANGES (IF APPLICABLE) |
| 3 | PNPO | IF CHARGING PUMPS HAVE TRIPPED: VERIFY CHARGING PUMP SUCTION PATH (EITHER CVC-183 OR CVC-507 OPEN) |
| 4 | PNPO | IF LETDOWN IS NOT ISOLATED ATTEMPT TO RESTART CHARGING PUMPS |
| 5 | PNPO | CLOSE LETDOWN STOP VALVE (CVC-101) IF CHARGING PUMPS CANNOT BE RESTARTED |
| 6 | CRS/SS | CHECK TECHNICAL SPECIFICATIONS |
| 7 | PNPO | IF THE REASON FOR THE CHARGING PUMP TRIP IS CORRECTED AND PRESSURIZER LEVEL IS NORMAL, THEN PLACE CHARGING AND LETDOWN IN SERVICE |
| 8 | TERM | WHEN LETDOWN IS RESTORED |

Event Number A220 LOSS OF CONDENSER VACUUM

- | | | |
|---|--------|--|
| 1 | SNPO | NOTIFY CRS/SS THAT VACUUM IS DROPPING |
| 2 | SNPO | VERIFY SUFFICIENT CIRC WATER/ VACUUM PUMPS IN SERVICE AND PROPER GLAND SEAL HEADER PRESSURES FOR THE HEADER, LP AND HP TURBINE, AND FEEDWATER PUMP TURBINES, VACUUM BREAKER SEALS. |
| 3 | CREW | IF VACUUM CONTINUES TO DROP BELOW 25" VACUUM, COMMENCE PLANT SHUTDOWN IN ACCORDANCE WITH OP-901-212. |
| 4 | PNPO | BORATE THE RCS USING DIRECT BORATION AT THE MAXIMUM RATE OR ALIGN FOR EMERGENCY BORATION USING ONE CHARGING PUMP AS DIRECTED BY THE CRS.
PERFORM BORON EQUALIZATION. |
| 5 | SNPO | REDUCE TURBINE LOAD AT A RATE TO MAINTAIN T _c BETWEEN 541 AND 558 DEG. F. |
| 6 | CRS/SS | IF VACUUM HAS NOT STABILIZED AND IS APPROACHING 20" THEN TRIP REACTOR AND VERIFY TURBINE TRIP. GO TO 902-000. |
| 7 | SNPO | CHECK GLAND STEAM, TRAVELING SCREENS, VACUUM PUMP AIR FLOW, AND ATTEMPT TO CORRECT ABNORMALITIES. |
| 8 | TERM | REACTOR HAS TRIPPED, OR VACUUM HAS RETURNED TO NORMAL |

Event Number A120,e1 PRESSURIZER CONTROL PRESSURE TRANSMITTER FAILURE

- 1 PNPO VERIFIES PRESSURIZER PRESSURE INSTRUMENT FAILURE BY CHECKING X/Y RECORDER
- 2 PNPO TRANSFER PRESSURIZER PRESSURE CONTROL TO OPERABLE CHANNEL USING PRESSURIZER PRESSURE CHANNEL SELECTOR CONTROL SWITCH
- 3 TERM TERMINATE WHEN FAILED SPRAY VALVE IS NOTED.

Event Number A120,e3 SPRAY VALVE FAILURE

- 1 PNPO PLACES PRESSURIZER SPRAY CONTROLLER TO MANUAL
- 2 PNPO IF SPRAY VALVE FAILS OPEN, ADJUSTS PRESSURIZER SPRAY CONTROLLER OUTPUT TO ZERO % AND
- 3 PNPO SELECTS OPERABLE SPRAY VALVE AND
- 4 PNPO VERIFIES ALL BACKUP HEATERS ARE ON
- 5 PNPO/CRS/SN IF PRESSURIZER PRESSURE STILL DROPS
1) TRIP REACTOR
2) STOPS REACTOR COOLANT PUMP FOR AFFECTED SPRAY VALVE(S)
- 6 TERM ENTER OP-902-000.

Event Number E000 STANDARD POST TRIP ACTIONS (IMMEDIATE OPERATOR ACTIONS)

- 1 PNPO VERIFY REACTIVITY CONTROL.
CHECK REACTOR POWER DROPPING OR PERFORM ANY OF THE FOLLOWING:
MANUALLY TRIP THE REACTOR, MANUALLY INITIATE DRTS, OPEN BOTH 32 BUS BKRS FOR 5 SECONDS AND RE-CLOSE.
CHECK STARTUP RATE IS NEGATIVE.
CHECK LESS THAN 2 CEAS INSERTED OR EMERGENCY BORATE.
- 2 SNPO VERIFY MAINTENANCE OF VITAL AUXILIARIES
CHECK THE MAIN TURBINE TRIPPED OR PERFORM ANY OF THE FOLLOWING:
MANUALLY TRIP THE TURBINE OR CLOSE BOTH MSIVS.
CHECK THE GENERATOR TRIPPED OR MANUALLY TRIP THE MAIN GENERATOR BY PERFORMING ANY OF THE FOLLOWING: DEPRESS BOTH GENERATOR EMERG TRIP PUSHBUTTONS OR TRANSFER BOTH ELECTRICAL TRAINS TO THE SUTS AND OPEN BOTH GENERATOR OUTPUT BKRS AND THE EXCITER FIELD BKR.
CHECK TRAIN A AND B STATION LOADS ARE ENERGIZED FROM OFFSITE POWER OR VERIFY THE APPLICABLE EDG STARTS AND ITS OUTPUT BKR CLOSES.

- 3 PNPO VERIFY RCS INVENTORY CONTROL BY CHECKING PZR LEVEL 7% AND 60% AND SUBCOOLING MARGIN GREATER THAN OR EQUAL TO 28 DEG. F. IF PZR LEVEL CONTROL SYSTEM IS MALFUNCTIONING THE OPERATOR TAKES MANUAL CONTROL OF THE SYSTEM OR OPERATES CHARGING AND LETDOWN COMPONENTS TO RESTORE PZR LEVEL (THIS STEP MAY BE N/A FOR ESD, LOCA, OR SGTR EVENTS)
- 4 PNPO VERIFY RCS PRESSURE CONTROL BY CHECKING PZR PRESSURE BETWEEN 1750 PSIA AND 2300 PSIA OR
 1) IF PZR PRESS CONTROL SYSTEM (PPCS) IS MALFUNCTIONING THE OPERATOR TAKES MANUAL OF PPCS CONTROLLERS TO RESTORE PRESSURE
 2) IF PZR PRESSURE IS LESS THAN 1684 PSIA, THE OPERATOR VERIFIES THAT SIAS AND CIAS INITIATE OR PERFORMS MANUAL INITIATION
 3) IF PZR PRESSURE IS LESS THAN 1621, THE OPERATOR VERIFIES NO MORE THAN TWO RCPS ARE OPERATING.
 4) IF PZR PRESSURE IS LESS THAN MINIMUM RCP NPSH OF APP. 2A THE OPERATOR SECURES ALL RCPS.
- 5 PNPO VERIFY CORE HEAT REMOVAL BY CHECKING AT LEAST ONE RCP OPERATING, OPERATING LOOP DELTA-T LESS THAN 13 DEG. F, AND RCS SUBCOOLING GREATER THAN OR EQUAL TO 28 DEG. F. (MAY BE N/A FOR ESD, LOCA, AND LOOP EVENTS)
- 6 SNPO CHECK RCS HEAT REMOVAL BY CHECKING AT LEAST ONE S/G IS BOTH 15-80% NR AND MAIN FEEDWATER IS AVAILABLE TO RESTORE LEVEL OR VERIFY EFW IS AVAILABLE TO RESTORE LEVEL IN AT LEAST ONE S/G.
- 7 PNPO/SNPO CHECK RCS TEMPERATURE 535-555 DEG. F OR
 1) IF TC IS > 555 DEG. F VERIFY LEVEL IS BEING RESTORED TO AT LEAST ONE S/G AND VERIFY SBCS OR ADVs ARE MAINTAINING RCS TEMP 535-555 DEG. F.
 2) IF TC IS < 535 DEG. F THEN VERIFY FEED FLOW IS NOT EXCESSIVE AND VERIFY SBCS OR ADVs ARE MAINTAINING RCS TEMP 535-555 DEG. F
 3) IF TC IS < 500 DEG. F VERIFY NO MORE THAN 2 RCPs OPERATING
 4) IF ESD IN PROGRESS STABILIZE RCS TEMPERATURE USING LEAST AFFECTED S/G PER APP. 13.
- 8 SNPO CHECK S/G PRESSURE 925-1050 PSIA OR
 1) IF S/G PRESS < 925 PSIA VERIFY STEAM BYPASS VALVES AND ADVs ARE CLOSED.
 2) IF S/G PRESS LESS THAN OR EQUAL TO 764 PSIA VERIFY MSIS IS INITIATED.
 3) IF S/G PRESS > 1050 PSIA VERIFY SBCS OR ADVs ARE RESTORING S/G PRESS TO < 1050 PSIA
- 9 SNPO VERIFY FWCS IN RTO BY CHECKING MAIN FEED REG VALVES ARE CLOSED, STARTUP FEED REG VALVES ARE 20-25% OPEN, AND OPERATING FEED PUMPS ARE 3800 TO 4000 RPM OR MANUALLY OPERATE FEEDWATER SYSTEM TO RESTORE LEVEL IN AT LEAST ONE S/G TO 50-70 NR. (N/A IF MSIS IS INITIATED)
- 10 SNPO RESET MOISTURE SEPARATOR REHEATERS AND CHECK THE TEMP CONTROL VALVES CLOSED OR NOTIFY AN NAO TO FAIL CLOSE THE VALVES LOCALLY. (N/A IF MSIS IS INITIATED)

- 11 PNPO VERIFY CONTAINMENT ISOLATION BY CHECKING CONTAINMENT PRESSURE < 16.4 PSIA, CHECK THAT NO CONT. AREA RAD MONITORS ARE IN ALARM OR SHOW AN UNEXPLAINED RISE IN ACTIVITY, AND CHECK THAT NO STEAM PLANT RAD MONITORS ALARM OR SHOW AN UNEXPLAINED RISE IN ACTIVITY. IF CONTAINMENT PRESSURE IS GREATER THAN OR EQUAL TO 17.1 PSIA VERIFY CIAS, SIAS, AND MSIS INITIATE.
- 12 SNPO/PNPO VERIFY CONTAINMENT TEMPERATURE AND PRESSURE CONTROL AND CONTAINMENT COMBUSTIBLE GAS CONTROL BY VERIFYING CONTAINMENT TEMP LESS THAN OR EQUAL TO 120 DEG. F AND CONTAINMENT PRESSURE IS < 16.4 PSIA OR
 - 1) VERIFY AT LEAST 3 CFCs OPERATING.
 - 2) IF CONTAINMENT PRESS IS GREATER OR EQUAL TO 17.1 PSIA VERIFY ALL CFCs ARE OPERATING IN EMERGENCY MODE.
 - 3) IF CONTAINMENT PRESS IS GREATER THAN OR EQUAL TO 17.7 VERIFY CSAS IS INITIATED, ALL AVAILABLE CS PUMPS ARE DELIVERING > 1750 GPM, AND SECURE ALL RCPs .
- 13 CRS VERIFY ALL SAFETY FUNCTION ACCEPTANCE CRITERIA ARE MET
- 14 CRS/PNPO/SN PERFORM DIAGNOSTICS
- 15 TERM CREW DIAGNOSES A(N) _____ EVENT AND EXITS TO OP-902-_____.

Event Number E004 EXCESS STEAM DEMAND

- 1 CRS/STA CONFIRM DIAGNOSIS BY PERFORMING SAFETY FUNCTION STATUS CHECK LIST AND NOTIFY CHEMISTRY TO SAMPLE BOTH S/GS FOR ACTIVITY.
- 2 CREW ANNOUNCE THE EVENT
- 3 PNPO/SNPO IF PZR PRESSURE < 1684 PSIA VERIFY SIAS INITIATED, SAFETY INJECTION PUMPS STARTED, INJECTION FLOW IS ACCEPTABLE PER APPENDIX 2 AND AVAILABLE CHARGING PUMPS (2) ARE RUNNING OR PERFORM ANY OF THE FOLLOWING:
 - 1) VERIFY POWER TO SI PUMPS.
 - 2) VERIFY INJECTION VALES OPEN.
 - 3) START ADDITIONAL SI PUMPS UNTIL FLOW IS ACCEPTABLE PER APP. 2.
 - 4) ALIGN HPSI AB TO REPLACE A OR B.
- 4 SNPO VERIFY MSIS ACTUATION BY VERIFYING BOTH MSIVs AND BOTH MFIVs ARE CLOSED.
- 5 PNPO IF PZR PRESS < 1621 PSIA AND SIAS IS ACTUATED VERIFY NO MORE THAN 2 RCPs OPERATING. IF PZR PRESS DOES NOT MEET APPENDIX 2A SECURE ALL RCPs.

- 6 PNPO/SNPO VERIFY RCP OPERATING LIMITS
 1) VERIFY CCW AVAILABLE TO RCPs OR SECURE AFFECTED RCPs IF NOT RESTORED WITHIN 3 MINUTES.
 2) SECURE ALL RCPs IF CSAS IS INITIATED.
 3) IF TC >500 DEG. F, VERIFY NO MORE THAN 2 RCPS OPERATING.
- 7 SNPO VERIFY CCW OPERATION BY CHECKING A CCW PUMP IS OPERATING FOR EACH ENERGIZED 4 KV SAFETY BUS OR
 1) IF AB BUS ALIGNED TO SAME SIDE AS FAULTED CCW PUMP START THE AB CCW PUMP
 2) IF AB BUS ALIGNED TO OPPOSITE SIDE FROM FAULTED CCW PUMP START THE AB CCW PUMP AFTER THE SEQUENCER HAS TIMED OUT.
 3) IF CCW FLOW CAN NOT BE RESTORED, NOTIFY AN NAO TO PULL THE OVERSPEED TRIP DEVICE ON THE AFFECTED EDG.
- 8 SNPO/CRS DETERMINE MOST AFFECTED SG BY CONSIDERING THE FOLLOWING:
 1) HIGH STEAM FLOW FROM S/G
 2) DROPPING S/G PRESSURE
 3) DROPPING RCS COLD LEG TEMPERATURE
- 9 SNPO ISOLATE MOST AFFECTED SG:
 1) VERIFY THE MSIV CLOSED
 2) VERIFY MFIV CLOSED.
 3) VERIFY ADV CLOSED AND CONTROLLER IN MANUAL
 4) VERIFY EFW ISOLATION VALVES ARE CLOSED
 EFW-228A SG 1 PRIMARY
 EFW-229A SG 1 BACKUP
 5) PLACE EFW FLOW CONTROL VALVES IN MANUAL AND CLOSE
 EFW-224A SG 1 PRIMARY
 EFW-223A SG 1 BACKUP
 6) CLOSE MS-401A, PUMP AB TURB STM SUPPLY SG 1
 7) CLOSE MAIN STEAM LINE DRAINS:
 MS-120A NORMAL
 MS-119A BYPASS
 8) VERIFY SG BLOWDOWN ISOLATION VALVES ARE CLOSED:
 BD-103A STM GEN 1 (OUT)
 BD-102A STM GEN 1 (IN)
- 10 PNPO/SNPO VERIFY CORRECT SG ISOLATED BY CHECKING S/G PRESSURES, S/G LEVELS, AND RCS COLD LEG TEMPERATURES. IF THE WRONG STEAM GENERATOR WAS ISOLATED RESTORE FEED AND STEAM CAPABILITY TO THE ISOLATED S/G AND THEN ISOLATE THE CORRECT STEAM GENERATOR.
- 11 PNPO/SNPO STABILIZE RCS TEMPERATURE USING THE LEAST AFFECTED S/G:
 1) PLACE THE ADV FOR THE LEAST AFFECTED S/G IN MANUAL AND FULLY OPEN.
 2) MANUALLY INITIATE EFAS TO THE LEAST AFFECTED S/G.
 3) PLACE THE EFW FLOW CONTROL VALVE TO MANUAL AND COMMENCE FEEDING THE LEAST AFFECTED S/G.
 4) WHEN RCS PRESSURE IS GREATER THAN HPSI SHUTOFF HEAD STABILIZE RCS PRESSURE USING PZR SPRAY.
- 12 TERM THE EVENT MAY BE TERMINATED WHEN ACTIONS TO STABILZE RCS TEMPERATURE AND PRESSURE HAVE BEEN PERFORMED.

