

a. Simulator JPM**CRO-065C****TITLE: Perform An Emergency Boration**EVALUATION LOCATION: X SIMULATORPROJECTED TIME: 15 MIN SIMULATOR IC NUMBER: IC-217 ALTERNATE PATH X TIME CRITICAL PRA **JPM DIRECTIONS:**

1. Examinee will obtain all references from the simulator.
2. The actions of this task are intended to be performed on an Active Simulator in which the examinee may diagnose the correctness of system response to his/her actions and respond to any abnormal conditions which may arise.
3. Provide student with HANDOUT.
4. Allow student time to review control board.
5. Instructor will be provided to address alarms not related to evaluated task.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Correctly align emergency boration to the charging pump suction.
- Complete step 4 RNO of ESP-0.1 and align Letdown on service.
- Complete ESP-0.1 attachment 2 to align the RWST to the charging pump suction.
- Increase charging flow to >92 gpm.

Examinee:	
Overall JPM Performance:	Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/11/13
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to **Perform An Emergency Boration**. The conditions under which this task is to be performed are:

- a. Unit 1 is in Mode 3 at normal operating temperature.
- b. CVCS is in operation with 1C charging pump running.
- c. 1A BAT is on service, 1B BAT is in standby.
- d. A Reactor Trip has occurred, and ESP-0.1, Reactor Trip Response, is in progress.
- e. A pre-job brief is NOT required.

Your task is to complete the actions of ESP-0.1, beginning at step 4.

INITIATING CUE: "You may begin."

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
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____ START TIME

Candidate will evaluate step 4 and determine there is one stuck rod. The RNO steps are below.

- | | | |
|---|---|--------------|
| <p>1. (step 4.1 RNO)
Start 1A or 1B boric acid transfer pump.</p> | <p>1A or 1B BAT Pump hand switch
taken to start and observes pump
breaker indicator lights LIT.</p> | <p>S / U</p> |
|---|---|--------------|

<p>NOTE:</p> <ul style="list-style-type: none"> • NO flow will be observed after opening MOV8104 due to a clogged Boric Acid filter. It is likely that the candidate may perform a variety of the following actions after completing element 2: <ul style="list-style-type: none"> - Start a second BAT Pump (Repeat of element 1). - Evaluate that the normal emergency flow path is NOT available and perform RNO step 4.2.2, align manual emergency boration flowpath (Element 3). - Continue with or without noticing the inability to obtain boric acid flow through FI-110. (Element 4) - May use AOP-27.0 guidance (STEP 2-NOTE: and align flow through FCV113A&B to attempt to establish a flow path), the actions of AOP-27 are consistent with these elements. • The Radside SO may be dispatched to investigate pumps, valves, local flow indicators or pressures. If so, the reports will be consistent with fully functional pumps with elevated discharge pressures; NO flow indicated locally on FI-110A. If Boric Acid filter DP directed to be checked, then inform the Control room that the D/P is 35 psid.

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
2. (step 4.2.1 RNO) Align normal emergency boration flow path.	Open EMERG BORATE TO CHG PUMP SUCT MOV8104 open. Observes MOV8104 RED light is LIT.	S / U
3. (step 4.2.2 RNO) IF determined that Normal emergency flowpath is NOT available then align manual emergency boration flowpath. - Directs Radside SO to open V185	Uses Gaitronics to contact Radside SO. Directs Opening of V185 per RNO step 4.2.2 of ESP-0.1. CUE from Booth operator: Radside SO acknowledges	S / U
- OPENS FCV113A (may also open FCV113B while waiting on local actions per AOP-27)	AFTER 1 minute: CUE from Booth operator: Radside operator reports V185 is open. OPENS FCV-113A and Observes FCV113A RED light is lit	

NOTE:

- Although not directed by this procedure, the candidate might raise Charging flow, and place PK-145 in manual at 50% demand prior to opening a letdown orifice isolation, to prevent Letdown pressure surges and temperature alarms (per operating procedure for letdown).
- ARP-1.4 DE1, which will come into alarm if the actions above are not taken, and would direct the adjustment of charging flow, if addressed.
- Evaluation of ARP-1.4 DE3, if alarmed due to not establishing adequate charging flow, may result in the candidate isolating letdown. If so, the candidate should continue with establishing Emergency Boration without letdown aligned. Letdown may be aligned later in ESP-0.1 at STEP 9.

Either step 4 or 5 is critical, both are not required.

* 4. (step 4.3.1 RNO) Verify 45 gpm letdown orifice in service.	OPEN LTDN ORIF ISO 45 GPM HV8149A. Observes HV8149A RED light is LIT.	S / U
OR		
* 5. (step 4.3.2 RNO) Verify 60 gpm letdown orifice in service.	OPEN LTDN ORIF ISO 60 GPM HV8149B or C. Observes HV8149B or C RED light is LIT.	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
6. (step 4.4.1 RNO) Verify charging flow greater than 40 gpm.	Adjust charging flow to greater than 40 gpm by manually opening FCV-122. Observes FI-122A reads >40 gpm.	S / U
7. (step 4.4.2/3/4 RNO) Check emergency or manual emergency boration flow greater than 30 gpm.	Check emergency & manual boration flow greater than 30 gpm. Observes FI-110 and/or FI-113 indicate <30 gpm. IF REQUESTED, CUE from Booth operator: RADSIDE SO reports FI-110A indicates ≤ 10 gpm.	S / U
NOTE: <ul style="list-style-type: none"> Examinee will determine Boration flow not adequate and commence verifying Boration flow path per Attachment 2. Element 8 has two potential flowpaths dependent upon the actions taken above and the determination made by the candidate regarding the “aligned” flowpath. IF RNO column implemented, then element 8 may not be performed. 		
8. (ATT 2 step 1) Verify 1C CHG PUMP header valves open.	Verifies 1C CHG PUMP HDR valves open. Observes CHG PUMP SUCTION HDR ISO MOV 8132A, 8132B, 8133A & 8133B RED lights are lit.	S / U
9. (ATT 2 step 2) Check boration flow adequate.	Determine that NO boration flow from any boration flow path is available. Observes FI-110 and FI-113 indicates ≤ 10 gpm. IF REQUESTED, CUE from Booth operator:RADSIDE SO reports FI-110A indicates ≤ 10 gpm.	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
* 10. (ATT 2 step 2 RNO) Align charging pump suction to RWST.	Open RWST TO CHG PMP valves LCV115B & D, Close VCT OUTLET ISO LCV115C & E. Observes LCV115B & D red lights are LIT, LCV115C & E GREEN lights are LIT.	S / U
11. (ATT 2 step 3.1) Verify charging pump discharge flow path – ALIGNED.	Verify CHG PUMPS TO REGEN HX MOV8107 & MOV8108 open. Observes MOV8107 & 8108 RED lights are LIT.	S / U
12. (ATT 2 step 3.2) Verify only one charging line valve – OPEN.	Verify RCS NORMAL CHG LINE HV8146 OR RCS ALT CHG LINE HV8147 OPEN. Observes Q1E21HV8146 OR HV8147 RED light is LIT.	S / U
NOTE: Element 13 is critical; Although the necessary adjustments may have been performed as early as Element 4 (while placing letdown in service).		
* 13. (ATT 2 step 3.3 RNO) Verify charging flow - GREATER THAN 92 gpm.	CHG FLOW FK 122 manually adjusted as necessary. Observes FI-122A indicates >92 gpm.	S / U

STOP TIME

Terminate when flow rate has been determined/verified adequate.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) before the element number.

GENERAL REFERENCES:

1. FNP-1-ESP-0.1, Version 32.0
2. Technical Specifications
3. K/As: 024AA2.02 RO-3.9 SRO-4.4
024AA2.01 RO-3.8 SRO-4.1

GENERAL TOOLS AND EQUIPMENT:

1. None

Critical ELEMENT justification:

<u>STEP</u>	<u>Evaluation</u>
1.	Not critical since this course of action will not be successful.
2.	Not critical since this course of action will not be successful.
3.	Aligning manual emergency makeup is an alternative path that could be taken, but is not critical since this course of action will not be successful. **Either step 4 or 5 will satisfy the letdown requirement.
4.	**Critical: Verify 45 gpm letdown orifice in service is critical. This will determine the rate of boration since letdown will help remove water so the boration will be more effective.
5.	**Critical: Verify 60 gpm letdown orifice in service is critical since boration can continue without letdown.
6.	Not critical since this flow is not sufficient for the required supply. However this is the step at which the required flow is likely to be achieved.
7.	Not critical since this step is a check and improper evaluation alone does not constitute the critical step.
8.	Not critical since these valves are open
9.	Not critical since the BA filter is clogged.
10.	Critical: Align charging pump suction to RWST since these MOVs are closed and this is required to align boration flow to the chg pump suction.
11.	not critical since these valves are open
12.	not critical since one of these valves is open
13.	Critical: Verify charging flow - GREATER THAN 92 gpm is a critical step since charging flow is low at the beginning and there is no requirement until now to increase flow to > 92 gpm until this step.

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin, you are to **Perform An Emergency Boration**. The conditions under which this task is to be performed are:

- a. Unit 1 is in Mode 3 at normal operating temperature.
- b. Chemical and Volume Control System is in operation with 1C charging pump running.
- c. 1A BAT is on service, 1B BAT is in standby.
- d. A Reactor Trip has occurred, and ESP-0.1, Reactor Trip Response, is in progress.
- e. A pre-job brief is NOT required.

Your task is to complete the actions of ESP-0.1, beginning at step 4.

b. Simulator JPM**CRO-406A****TITLE: Verify CTMT Isolation Phase "A" Is Actuated And Aligned**EVALUATION LOCATION: X SIMULATOR ONLYPROJECTED TIME: 25 MIN SIMULATOR IC NUMBER: IC-218 ALTERNATE PATH X TIME CRITICAL X PRA X **JPM DIRECTIONS:**

1. Examinee will obtain all references from the simulator.
2. The actions of this task are intended to be performed on an Active Simulator in which the examinee may diagnose the correctness of system response to his/her actions and respond to any abnormal conditions which may arise.
3. Provide student with HANDOUT.
4. Allow student time to review control board.
5. Instructor will be provided to address alarms not related to evaluated task.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Verify CTMT Isolation Phase "A" Is Actuated and Aligned.
- Time critical portions must be successfully completed within the time specified (≤ 20 minutes).

Examinee:	
Overall JPM Performance:	Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/11/13
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to **VERIFY CTMT ISOLATION PHASE “A” IS ACTUATED AND ALIGNED**. The conditions under which this task is to be performed are:

- a. A safety injection has occurred.
- b. EEP-0 is in progress.
- c. This JPM contains time critical elements.
- d. A pre-job brief is NOT required.

Your task is to **VERIFY** Phase ‘A’ Containment Isolation per Attachment 2, Step 11 of EEP-0.

EVALUATION CHECKLIST

**RESULTS:
(CIRCLE)**

ELEMENTS:

STANDARDS:

START TIME

- | | | | |
|----|--|--|-------|
| 1. | (step 11.1)
Verify PHASE A CTMT ISO actuated. | Checks MLB2 1-1 and MLB2 11-1 lights LIT. Observes both are not lit. | S / U |
| 2. | (step 11.1)
Actuate train “A” CTMT ISO PHASE A. | Train “A” CTMT ISO PHASE A hand switch placed to actuate. Observes nothing happens. | S / U |

NOTE:	<ul style="list-style-type: none"> PERFORMANCE OF SELECT COMPONENTS OF ELEMENT 4 IS TIME CRITICAL AND MUST BE PERFORMED IN ≤ 20 MINUTES. <ul style="list-style-type: none"> The following B train components will be NOT be capable of being isolated requiring the A train equivalent to be closed: <ul style="list-style-type: none"> MLB 2 15-1, Q1E21MOV8100 RCP SEAL WTR RTN ISO MLB 2 19-3 QSV47HV3625 CONT RM HVAC SUPP (BOP) Only one of the components in each flow path (each row below) is required within 20 mins, the remainder of the component alignment is not time critical. TIME CRITICAL COMPONENTS are listed below and Annotated with # symbol in ELEMENT 4. 		
	√ A train	B train	system
	HV8112 - closed	HV8100 (can not be closed)	Seal Return (MCB)
	F001A/3A (start)	F001B/3B (start)	1A/B CONT RM FILTRATION RECIRC UNIT (BOP)
	HV3622 - closed	HV3623 - closed	COMPUTER RM HVAC RTN (BOP)
	HV3624 - closed	HV3625 (can not be closed)	CONT RM HVAC SUPP (BOP)
	F002A - (start)	F002B - (start)	CONT RM HVAC SUPP (BOP)
	HV3626 - closed	HV3627 - closed	COMPUTER RM HVAC SUPP
	HV3628 - closed	HV3629 – closed	CONT RM UTILITY EXH

EVALUATION CHECKLIST**RESULTS:
(CIRCLE)****ELEMENTS:****STANDARDS:****CRITICAL TIME START**

3. (step 11.2)
Check all MLB 2 lights lit. Observes some MLB 2 lights NOT lit. S / U

NOTE:

- All valves listed in Element 4 that can be operated are Critical tasks.
- ONLY valves noted as (#) are time critical components.

- *4. (step 11.2 RNO)
Verifies Phase A CTMT isolation using attachment 3. For each light not lit, the handswitch for the component is taken to the required position to ensure MLB 2 light LIT. S / U

NOTE:

- THE BELOW CHART IS INTENDED TO BE USED AS AN EXAMINER AIDE.
- SHADED BOXES DESIGNATE THE INDICATING LIGHT IS INITIALLY LIT.
- If all MLB-2 lights for A train are lit and all but 2 lights for B train are lit, then all of the elements are considered sat. The table is provided as an enhancement for the examiner for cueing the examinee and marking which components have been manipulated.

	1	2	3	4	5	6	7	8	9	10
1	CTMT ISO PHASE A	3657 CLOSED	3198A CLOSED	3772A CLOSED	8112 CLOSED	LCV1003 CLOSED	7126 CLOSED	CONT RM FILT FAN 1A ON	CONT RM PRZN FAN 1A ON	3622 CLOSED
2	3234A CLOSED	3880 CLOSED	3198B CLOSED	3772B CLOSED	8149A CLOSED	3377 CLOSED	3103 CLOSED	3104 CLOSED	3649A CLOSED	3624 CLOSED
3	P16V515 CLOSED	3318B CLOSED	2866C CLOSED	3772C CLOSED	8149B CLOSED	3380 CLOSED	8033 CLOSED	3765 CLOSED	3649B CLOSED	3626 CLOSED
4	P16V517 CLOSED	3999A CLOSED	2867C CLOSED	3443 CLOSED	8149C CLOSED	8871 CLOSED	8028 CLOSED	3766 CLOSED	3649C CLOSED	3628 CLOSED

	11	12	13	14	15	16	17	18	19	20
1	CTMT ISO PHASE A	3658 CLOSED	3198B CLOSED	3198 CLOSED	8100 CLOSED	7136 CLOSED	3331 CLOSED		CONT RM FILT FAN 1B ON	CONT RM PRZN FAN 1B ON
2	3234B CLOSED		3198C CLOSED	3197 CLOSED	8152 CLOSED	3376 CLOSED	3332 CLOSED		3623 CLOSED	3627 CLOSED
3	P16V514 CLOSED	3318A CLOSED	2866D CLOSED	3067 CLOSED	8880 CLOSED	7150 CLOSED	3333 CLOSED		3625 CLOSED	3629 CLOSED
4	P16V516 CLOSED	3999B CLOSED	2867D CLOSED	3095 CLOSED	8880 CLOSED	8961 CLOSED	3334 CLOSED		8047 CLOSED	3659 CLOSED

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*4. CONTINUED		
1-2	TDAFWP STM SUPP WARMUP ISO (BOP)- Q1N12HV3234A	S / U
1-3	SW TO TURB BLDG ISO A TRN-Q1P16V515	S / U
1-4	SW TO TURB BLDG ISO B TRN-Q1P16V517	S / U
2-1	CTMT ATMOS TO R-11/12 ISO (BOP)- Q1E14HV3657	S / U
2-2	CTMT ATMOS TO R-11/12 ISO (BOP)- Q1E14MOV3660	S / U
2-3	CTMT ΔP ISO (BOP)-Q1E14MOV3318B	S / U
2-4	RX CAV CLG DMPR (BOP)-Q1E12HV3999A	S / U
4-1	CHEM ADD TO 1A SG ISO (BOP) Q1N25HV3772A	S / U
4-2	CHEM ADD TO 1B SG ISO (BOP)- Q1N25HV3772B	S / U
4-3	CHEM ADD TO 1C SG ISO (BOP)- Q1N25HV3772C	S / U
4-4	CCW FROM EXC LTDN/RCDT HXS- Q1P17HV3443	S / U
5-1 (#)	RCP SEAL WTR RTN ISO-Q1E21MOV8112	S / U
5-2	LTDN ORIF ISO 45 GPM-Q1E21HV8149A	S / U
5-4	LTDN ORIF ISO 60 GPM-Q1E21HV8149C	S / U
6-2	CTMT SUMP DISCH (BOP)-Q1G21HV3377	S / U
6-3	CTMT SUMP RECIRC (BOP) Q1G21HV3380	S / U

EVALUATION CHECKLIST**RESULTS:
(CIRCLE)****ELEMENTS:****STANDARDS:**

*4. CONTINUED

7-1	RCDT VENT LINE ISO-Q1G21HV7126	S / U
8-1 (# OR 19-1)	1A CONT RM FILTRATION RECIRC UNIT (BOP)-QSV49F001A/3A	S / U
8-3	RCS LOOPS 2 & 3 SAMPLE ISO (BOP)-Q1P15HV3765	S / U
9-1 (# or 20-1)	1A CONT RM PRZN FILTER UNIT (BOP)-QSV49F002A	S / U
10-1 (# or 19-2)	COMPUTER RM HVAC RTN (BOP)-QSV47HV3622	S / U
10-2 (#)	CONT RM HVAC SUPP (BOP)-QSV47HV3624	S / U
10-3 (# or 20-2)	COMPUTER RM HVAC SUPP (BOP)-QSV47HV3626	S / U
10-4 (# or 20-3)	CONT RM UTILITY EXH (BOP)-QSV49HV3628	S / U

BEGIN B TRAIN

15-1 (Unable To Close and Remain Closed)	RCP SEAL WTR RTN ISO Q1E21MOV8100 NOTE: Valve will stroke closed, but will IMMEDIATELY re-open.	S / U
19-1 (# or 8-1)	1B CONT RM FILTRATION RECIRC UNIT (BOP) QSV49F001B/3B	S / U
19-2 (# or 10-1)	COMPUTER RM HVAC RTN (BOP) QSV47HV3623	S / U
19-3 (Unable to Close)	CONT RM HVAC SUPP (BOP) QSV47HV3625 NOTE: Handswitch is disabled.	S / U
20-1 (# or 9-1)	1B CONT RM PRZN FILTER UNIT (BOP) QSV49F002B	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
20-2 (# or 10-3)	COMPUTER RM HVAC SUPP (BOP) QSV47HV3627	S / U
20-3 (# or 10-4)	CONT RM UTILITY EXH (BOP) QSV49HV3629	S / U

_____ **CRITICAL TIME STOP When at least ONE # valve closed**

_____ **STOP TIME / CRITICAL TIME STOP**

Terminate when all elements of the task have been completed.
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CRITICAL ELEMENTS: Critical Elements are denoted by an asterisk (*) before the element number.

GENERAL REFERENCES:

1. FNP-1-EEP-0, Version 44.0
2. IPE/PRA Human Reliability Analysis Notebook List of Operator Actions 3.6.10 and 3.6.11
3. K/As: 013A4.01 RO-4.5 SRO-4.8

GENERAL TOOLS AND EQUIPMENT:

None

Critical ELEMENT justification:

<u>ELEMENT</u>	<u>Evaluation</u>
1	NOT Critical: Actions not required to complete task successfully.
2	NOT Critical: Action will be unsuccessful, and thus not required to complete task successfully. An alternate path will be successful.
3	NOT Critical: Actions not required to complete task successfully.
4	<p>Critical: Task completion:</p> <p>A TRAIN: 2 fans must be started and 22 valves/dampers must be manually closed to complete actions which should have automatically occurred for a Phase A containment isolation. OR for B Train: 2 fans must be started and 3 valves/dampers manually closed which should have automatically occurred for a Phase A containment isolation. Only one set of valves/fans on each train is critical.</p> <p>TIME CRITICAL: DUE to failure of all components within one train to automatically isolate, the Components marked with # or its alternate must be closed within 20 mins.</p> <p>At least ONE valve per train must be closed to satisfy the PRA 20 min requirement- there are two B train components failed such that A train component must be operated to satisfy the isolation requirement.</p>

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin, you are to **VERIFY CTMT ISOLATION PHASE “A” IS ACTUATED AND ALIGNED**. The conditions under which this task is to be performed are:

- a. A safety injection has occurred.
- b. EEP-0 is in progress.
- c. This JPM contains time critical elements.
- d. A pre-job brief is NOT required.

Your task is to **VERIFY** Phase ‘A’ Containment Isolation per Attachment 2, Step 11 of EEP-0.

c. Simulator JPM**CRO-333C**

TITLE: Perform The Required Actions For Transfer to Simultaneous Cold Leg and Hot Leg Recirculation

EVALUATION LOCATION: X SIMULATOR ONLY

PROJECTED TIME: 15 MIN SIMULATOR IC NUMBER: IC-219

ALTERNATE PATH X TIME CRITICAL PRA

JPM DIRECTIONS:

1. Examinee will obtain all references from the simulator.
2. The actions of this task are intended to be performed on an Active Simulator in which the examinee may diagnose the correctness of system response to his/her actions and respond to any abnormal conditions which may arise.
3. Provide student with HANDOUT.
4. Allow student time to review control board.
5. Instructor will be provided to address alarms not related to evaluated task.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Perform required actions to establish Cold and Hot Leg Recirculation.

Examinee:	
Overall JPM Performance:	Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/11/13
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to **PERFORM THE REQUIRED ACTIONS FOR TRANSFER TO SIMULTANEOUS COLD LEG AND HOT LEG RECIRCULATION**. The conditions under which this task is to be performed are:

- a. A safety injection is in progress following a Large Break LOCA.
- b. The 1A and 1B RHR pumps and the 1A and 1C charging pumps are running in the cold leg recirculation alignment.
- c. Seven and one-half hours have passed since the LOCA event started.
- d. The 1B Chg Pump is aligned to A train.
- e. A pre-job brief is NOT required.

Your task is to align ECCS for Transfer To Simultaneous Cold Leg and Hot Leg Recirculation starting at Step 1 of ESP-1.4.

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
START TIME		
1. (step 1.1) Verify A(B) RHR HX TO RCS COLD LEGS ISO MOV8888A and 8888B closed.	Handswitch for MOV8888A & B are taken to CLOSED. Observes red lights out and green lights lit.	S / U
2. (step 1.1) Open RHR TO RCS HOT LEGS XCON MOV8887A and 8887B.	Handswitch for MOV8887A & B are taken to OPEN. Observes green lights out and red lights lit.	S / U
3. (step 1.1) Open RHR TO RCS HOT LEGS ISO MOV8889.	Handswitch for MOV8889 taken to OPEN. (MOV8889 will not open) Observes green light lit.	S / U
NOTE: Either 8887A or 8887B closed will satisfy the critical task		
*4. (step 1 RNO) Close RHR TO RCS HOT LEGS XCON MOV8887A and 8887B	Handswitch for MOV8887A & B are taken to CLOSED. Observes red lights out and green lights lit.	S / U
5. (step 1 RNO) Verify closed RHR TO RCS HOT LEGS ISO MOV8889	Light for MOV8889 checked. Observes green light lit.	S / U

EVALUATION CHECKLIST**RESULTS:
(CIRCLE)****ELEMENTS:****STANDARDS:****NOTE:** Either 8888A or 8888B Open will satisfy the critical task

- | | | | |
|-----|---|---|-------|
| *6. | (step 1 RNO)
Open A(B) RHR HX TO RCS
COLD LEGS ISO
Q1E11MOV8888A and
8888B. | Handswitch for MOV8888A & B are taken to
OPEN.
Observes green lights out and red lights lit. | S / U |
|-----|---|---|-------|

NOTE: Either elements 7-12 OR 13-16 will satisfy the critical task.

- | | | | |
|------|---|---|-------|
| *7. | (step 2.1)
Stop 1A Chg Pump. | Handswitch for 1A Chg Pump taken to OFF.
Observes green light lit, amps fall to 0 amps. | S / U |
| *8. | (step 2.3)
Close HHSI TO RCS CL ISO
valves Q1E21MOV8803A
and B | Handswitch for HHSI TO RCS CL ISO valves
Q1/2E21MOV8803A & B taken to CLOSED.
Observes green lights lit. | S / U |
| *9. | (step 2.4)
Open CHG PUMP RECIRC
TO HOT LEGS valve
Q1E21MOV8886. | Handswitch for MOV8886 taken to OPEN.
Observes red light out and green light lit. | S / U |
| *12. | (step 2.5)
Start either 1A or 1B Chg
Pump. | Handswitch for 1A or 1B Chg Pump taken to
START.
Observes red light lit, amps rise, flow increases. | S / U |
| *13. | (step 3.1)
Stop 1C Chg Pump | Handswitch for 1C Chg Pump taken to OFF.
Observes green light lit, amps fall to 0 amps. | S / U |
| *14. | (step 3.2)
Close CHG PUMP RECIRC
TO RCS COLD LEGS valve
Q1E21MOV8885 | Handswitch for MOV8885 taken to CLOSE.
Observes green light lit. | S / U |
| *15. | (step 3.3)
Open CHG PUMP RECIRC
TO RCS HOT LEGS valve
Q1E21MOV8884 | Handswitch for MOV8884 taken to OPEN.
Observes red light lit. | S / U |
| *16. | (step 3.4)
Start 1C Chg Pump | Handswitch for 1C Chg Pump taken to START.
Observes red light lit, amps rise, flow increases. | S / U |

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
17. (step 4) Check at least one train of LHSI aligned to the hot legs and at least one train HHSI aligned to cold legs OR at least one train of LHSI aligned to cold legs and at least one train HHSI aligned to hot legs.	Alignment checked for proper LHSI and HHSI line-up.	S / U
18. (step 5) Verify SI flow stable	Flow checked on FI-943, 940, HHSI Flow A (B) train recirc flow and FI-605A/605B RHR HDR flow.	S / U

STOP TIME

Terminate JPM after SI flow verified stable.
--

CRITICAL ELEMENTS: Critical Elements are denoted by an asterisk (*) before the element number.

GENERAL REFERENCES:

1. FNP-1- ESP-1.4, Rev. 16.0
2. K/A: 006A4.07 RO-4.4 SRO-4.4
 011EA1.11 RO-4.2 SRO-4.2

GENERAL TOOLS AND EQUIPMENT:

None

Critical ELEMENT justification:

<u>ELEMENT</u>	<u>Evaluation</u>
1-3	NON Critical: System alignment and discovery of failed component MOV8889. The alignment of these components will not affect examinees ability to establish Low Head Cold leg Recirculation.
4	CRITICAL: Closing one MOV-8887A OR B is required for train separation.
5	NON Critical: MOV8889 is failed closed.
6	CRITICAL: Re-opening MOV8888A OR MOV8888B will establish low head cold leg recirculation.
7-12	CRITICAL: Elements 7-12 stops the charging pump and realigns flow to hot leg. Since the flow is secured during realignment securing the pump prevents damage to the pump. This establishes High Head Hot Leg Recirculation.
13-16	CRITICAL: Elements 13-16 stops the charging pump and realigns flow to hot leg. Since the flow is secured during realignment securing the pump prevents damage to the pump. This establishes High Head Hot Leg Recirculation.
17	NON Critical: Verification step only no action taken
18	NON Critical: Indication verification step only no action taken

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin, you are to **PERFORM THE REQUIRED ACTIONS FOR TRANSFER TO SIMULTANEOUS COLD LEG AND HOT LEG RECIRCULATION**. The conditions under which this task is to be performed are:

- a. A safety injection is in progress following a Large Break LOCA.
- b. The 1A and 1B RHR pumps and the 1A and 1C charging pumps are running in the cold leg recirculation alignment.
- c. Seven and one-half hours have passed since the LOCA event started.
- d. The 1B Chg Pump is aligned to A train.
- e. A pre-job brief is NOT required.

Your task is to align ECCS for Transfer To Simultaneous Cold Leg and Hot Leg Recirculation starting at Step 1 of ESP-1.4.

d. Simulator JPM**CRO-043A with high vibrations**TITLE: **Start the 1C RCP**EVALUATION LOCATION: X SIMULATOR ONLYPROJECTED TIME: 15 MIN SIMULATOR IC NUMBER: IC-220 ALTERNATE PATH X TIME CRITICAL PRA **JPM DIRECTIONS:**

1. Place student in quiet area with HANDOUT, reference material, and a copy of starting procedure to perform a pre-job brief.
2. The actions of this task are intended to be performed on an Active Simulator in which the examinee may diagnose the correctness of system response to his/her actions and respond to any abnormal conditions which may arise.
3. After pre-job brief complete, allow student time to review control board.
4. Instructor will be provided to address alarms not related to evaluated task.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Startup the 1C RCP per FNP-1-SOP-1.1
- Recognize RCP trip criteria being exceeded and
- Trip the 1C RCP.

Examinee:	
Overall JPM Performance:	Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/11/13
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to **START the 1C RCP**. The conditions under which this task is to be performed are:

- a. The Plant is in Mode 3 with RCS temperature is ~ 360 °F.
- b. A bubble is established in the Pressurizer.
- c. 1A and 1B RCPs are running.
- d. RCS pressure is ~ 420 psig.
- e. 1C RCP was secured to add oil to the upper reservoir. The oil addition is now complete.
- f. Steps 4.3.1 through 4.3.10 of FNP-1-SOP-1.1 have been completed.
- g. The pre-job brief that is required will be done in a briefing room and when the pre-job brief is concluded, you will start at step 4.3.11 to start the 1C RCP.

Your task is to continue the startup of the 1C RCP per SOP-1.1, starting at Step 4.3.11.

INITIATING CUE, "You may begin."

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
____ START TIME		
*1. (step 4.3.11) Start the 1C RCP oil lift pump.	Handswitch for oil lift pump for 1C RCP taken to START. Observes the red indicating light comes on.	S / U
2. (step 4.3.12) Verify 1C RCP SEAL LEAKOFF VALVE Q1E21HV-8141C is open.	Handswitch indication for HV-8141C checked. Observes valve position indicator red light is lit.	S / U
3. (step 4.3.13) Verify 1C RCP No. 1 seal leakoff flow rate is within the limits of Figure-1	Seal leakoff flow rate determined on PI-154A to be ~ 375 psig and FI-154A blue pen reads ~ 0.5 gpm. Evaluates Figure-1 conditions SAT.	S / U
4. (step 4.3.14/15) Verify that DC4, SEAL WTR INJ FLTR HI D/P and DD1, RCP SEAL INJ FLOW LO is clear.	Checks DC4 & DD1. Observes the annunciators are not lit.	S / U
5. (step 4.3.16) Verify all RCP No. 1 seal DPs are greater than 210 psid.	PI-156A, 155A, and 154A indication observed to be greater than 210 psid.	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
6. (step 4.3.17) Verify that DC3, RCP #1 SEAL LO D/P is clear.	Checks DC3 and observes the annunciator is not lit.	S / U
7. (step 4.3.18) Verify oil lift pump for 1C RCP has been running for at least two minutes and is producing adequate pressure.	Verifies at least two minutes has elapsed. Observes the white indicating light is on above the 1C RCP oil lift pump handswitch.	S / U
NOTE: High Vibration alarm will come in when Flow reaches 100%		
*8. (step 4.3.19) Start 1C RCP.	Pump handswitch placed to start with red handswitch indication. Observes FI-434/435/436 for increasing flow rate, then the flow indicators stabilize at ~ 115 %.	S / U
9. (step 4.3.20) Verify 1C RCP amperage decreases to normal operating range	1C RCP AMPMETER checked to indicate ~ 840 amps.	S / U
10. (step 4.3.21) Verify EF3, 1C RCS LOOP FLOW LO or 'C' RCP BKR OPEN annunciator is clear.	Check and Observes the annunciator is not lit.	S / U
NOTE: Applicant may not have enough time to stop RCP oil lift pump if HIGH Vibration alarms come in before 1 minute elapsed. Leaving this pump running has no detrimental effect.		
11. (step 4.3.22) Stop the oil lift pump for 1C RCP after at least one minute of operation.	1C RCP Oil Lift Pump handswitch taken to stop. Observes the pump breaker indicator green light lit.	S / U
12. Responds to annunciator HH4, RCP VIB TRBL	Acknowledges annunciator(s) AND references ARP for HH4	S / U
13. (step 1 of HH4) Monitor RCS flow, subcooling conditions and RCP run current to determine if low NPSH conditions exist.	Observes RCS flow, subcooling, and RCP current and determines NPSH is adequate.	S / U
14. (step 2 of HH4) Monitor seal injection flow to insure a seal problem is not causing the increased vibration.	Observes Seal injection flows and trends and determines no problems.	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
15. (step 3 of HH4) Monitor RCP bearing temperatures.	On plant computer observes RCP bearing temperatures.	S / U
CUE: After dispatched provide the following report. "1C RCP shaft vibrations is reading 21 MILS and slowly increasing, frame vibration is reading 3.5 MILS and slowly increasing."		
16. (step 4 of HH4) Dispatch appropriate personnel to the 139' EPR to observe vibration monitoring equipment to determine affected pump, vibration level, and rate of increase.	Dispatches SSS or Radside to investigate vibration readings.	S / U
17. (step 5 of HH4) IF Westinghouse has not been previously notified of an abnormal vibration on a RCP, THEN notify Westinghouse of the RCP vibration. (Ref. Westinghouse Infogram IG95008A)	Notifies SSS or Shift Supervisor to make appropriate notifications.	S / U
*18. (step 6 of HH4) IF shaft vibration is 15 MILS AND the rate of increase in vibration exceeds 1 MIL per hour OR shaft vibration under any conditions exceeds 20 MILS, THEN perform the following: <ul style="list-style-type: none"> Stop the affected RCP. 	Recognize conditions exceed RCP trip criteria and secures 1C RCP Observes the pump breaker indicator green light lit and amps decrease to zero.	S / U

____ **STOP TIME**

Terminate when 1C RCP is secured.

CRITICAL ELEMENTS: Critical Elements are denoted by an asterisk (*) before the element number.

GENERAL REFERENCES:

1. FNP-1-SOP-1.1, Version 47.2
2. FNP-1-UOP-1.1, Version 94.3
3. FNP-1/2-SOP-2.1; Reference only, no steps or actions contained in the SOP.
4. FNP-1-ARP-1.8, Version 35.2
5. K/As: 003A1.01 RO-2.9 SRO-2.9
 003A2.02 RO-3.7 SRO-3.9

GENERAL TOOLS AND EQUIPMENT:

None

Critical ELEMENT justification:

<u>ELEMENT</u>	<u>Evaluation</u>
1	Critical: Task completion: required to start the 1C RCP oil lift pump for successful completion of the task. In the plant if this is not done then the RCP amps will be higher than normal and a possible RCP trip could occur.
2	NOT Critical: Verifying components which are already in the required position.
3-6	NOT Critical: Verifying flows are within limits and alarms are cleared prior to starting the RCP.
7	NOT Critical: Verifying RCP oil lift pump white light is lit. This occurs w/i 2 minutes after the pump is started.
8	Critical: Task completion: This starts the 1C RCP which is the task at hand.
9-10	NOT Critical: to check alarms are clear and amps decrease.
11	NOT Critical: stopping the oil lift pump is not critical in this situation since there are no adverse affects to not stopping the oil lift pump and it is more important to stop the running RCP with high vibrations.
12	NOT Critical: Responding to the alarm is not critical as long as the correct actions are taken.
13-15	NOT Critical: Plant conditions observed have no bearing on vibration condition
16	NOT Critical: Dispatching an operator to obtain information that provides the decision point to secure the RCP. Examine may choose to secure RCP before receiving this data.
17	NOT Critical: Notification step only
18	Critical: Secures RCP to prevent further damage.

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin, you are to **START the 1C RCP**. The conditions under which this task is to be performed are:

- a. The Plant is in Mode 3 with RCS temperature is ~ 360 °F.
- b. A bubble is established in the Pressurizer.
- c. 1A and 1B RCPs are running.
- d. RCS pressure is ~ 420 psig.
- e. 1C RCP was secured to add oil to the upper reservoir. The oil addition is now complete.
- f. Steps 4.3.1 through 4.3.10 of FNP-1-SOP-1.1 have been completed.
- g. The pre-job brief that is required will be done in a briefing room and when the pre-job brief is concluded, you will start at step 4.3.11 to start the 1C RCP.

Your task is to continue the startup of the 1C RCP per SOP-1.1, starting at Step 4.3.11.

e. Simulator JPM**CRO-239**TITLE: **Align Service Water to the AFW System**EVALUATION LOCATION: X SIMULATOR ONLYPROJECTED TIME: 10 MIN SIMULATOR IC NUMBER: IC-221 ALTERNATE PATH TIME CRITICAL PRA **JPM DIRECTIONS:**

1. Examinee will obtain all references from the simulator.
2. The actions of this task are intended to be performed on an Active Simulator in which the examinee may diagnose the correctness of system response to his/her actions and respond to any abnormal conditions which may arise.
3. Provide student with HANDOUT.
4. Allow student time to review control board.
5. Instructor will be provided to address alarms not related to evaluated task.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Align service water to AFW pumps
- Start 1A MDAFW pump

Examinee:	
Overall JPM Performance:	Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/11/13
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to **ALIGN SERVICE WATER TO THE AFW SYSTEM, THEN START THE 1A or 1B MDAFW PUMP**. The conditions under which this task is to be performed are:

- a. Just entered ESP-1.2, Post LOCA Cooldown and Depressurization.
- b. Foldout page criteria has been met to Align AFW pumps suction to Service Water.
- c. CST level is falling rapidly due to a tank rupture.
- d. The 1A / 1B MDAFW and TDAFW pumps were secured due to the onset of cavitation.
- e. A pre-job brief is NOT required.

Your task is to align service water to the AFW system, then start the 1A or 1B MDAFW pump per ESP-1.2 foldout page criteria.

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
<u> </u> START TIME		
NOTE: BOP keys are labeled for inventory purposes only, any key will fit any valve on BOP.		
1. (per Note) Obtain the keys for MOV-3209A and MOV-3209B.	Keys obtained. NOTE: Keys for BOP valves on Simulator are located outside the MCR, going towards the BOP, in a key locker on the side of the chart rack.	S / U
2. (Step 4.7.1) Notify Shift Chemist that SW will be added to the steam generators.	Shift Chemist is called and informed that SW will be supplied to the steam generators. (CUE from Booth operator: The Shift Chemist acknowledges.)	S / U
3. (step 4.7.2) Verify the service water system is in operation.	Service water system checked. Observes bus power is available, the pump breakers are closed, and header pressure is >70psig.	S / U
*4. (step 4.7.3) Open MOV-3209A.	Key placed in switch for MOV-3209A and taken to open. Observes Red light lit and Green Light out.	S / U
*5. (step 4.7.3) Open MOV-3209B.	Key placed in switch for MOV-3209B and taken to open. Observes Red light lit and Green Light out.	S / U
*6. (step 4.7.4) Open service water to MDAFW pump 1A MOV-3210A.	Handswitch for MOV-3210A taken to open. Observes Red light lit and Green Light out.	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*7. (step 4.7.4) Open service water to MDAFW pump 1B MOV-3210B.	Handswitch for MOV-3210B taken to open. Observes Red light lit and Green Light out.	S / U
*8. (step 4.7.4) Open service water to TDAFW pump MOV-3216.	Handswitch for MOV-3216 taken to open. Observes Red light lit and Green Light out.	S / U
9. (step 4.7.4.1) IF necessary to align TDAFWP suction from B Train service water, THEN perform the following:	Determines this is NOT necessary	S / U
10. (step 4.7.5) IF required, THEN place AFW system in operation per Section 4.1 or 4.3 of this SOP.	Operator goes to section 4.1 of SOP-22 for MDAFW pump start-up	S / U
11. (step 4.1.1) Verify 1A or 1B MDAFWP SUCT PRESS LO annunciator clear for the MDAFWP to be started. • JK1, 1A MDAFWP SUCT PRESS LO clear. • JK2, 1B MDAFWP SUCT PRESS LO clear.	Operator checks JK1 and JK2 not in alarm. Observes JK1 and JK2 white lights not lit.	S / U
12. (step 4.1.2) Fully close MDAFWP TO 1A, 1B and 1C SG FLOW CONT HIC 3227AA, BA and CA (0% demand).	Operator adjusts HIC 3227AA, BA and CA to 0% demand.	S / U
13. (step 4.1.3) Verify in the MOD position: • MDAFWP TO 1A, 1B and 1C SG Q1N23HV3227A, B and C • MDAFWP to 1A/1B/1C SG B TRN FCV3227	Operator checks 3227A, B, and C in MOD position. Operator checks MDAFWP to 1A/1B/1C SG B TRN FCV3227 hand switch in MOD position	S / U

EVALUATION CHECKLIST**RESULTS:
(CIRCLE)****ELEMENTS:****STANDARDS:**

*14. (step 4.1.4)

Verify that a startup transient is indicated on the pump motor ammeter and that pump discharge pressure increases for the selected MDAFWP to be started.

- Start 1A/1B MDAFWP

Operator rotates 1A/1B pump start switch to start position and releases switch.

Observes Red light lit, starting current on II3305A/B increases and discharge pressure on PI3213A/B rising

S / U

Terminate JPM after one MDAFW Pump is running.
--

STOP TIME

CRITICAL ELEMENTS: Critical Elements are denoted by an asterisk (*) before the element number.

GENERAL REFERENCES:

1. FNP-1-SOP-22.0, Version 68.4
2. FNP-1-ESP-1.2, Version 24
3. K/As: 061A1.05 RO-3.6 SRO-3.7
009EA1.11 RO-4.1 SRO-4.1
009EA2.39 RO-4.3 SRO-4.7

GENERAL TOOLS AND EQUIPMENT:

None

Critical ELEMENT justification:

ELEMENT	Evaluation
1	NON Critical: Valves in element 4 and 5 are operated with these keys but getting the key is not critical.
2	NON Critical: Notification step only
3	NON Critical: Check step only no actions required
4-8	CRITICAL: Completes part of the assigned task by establishing the mechanical line up of Service Water the AFW pump suction.
9	NON Critical: Evaluation step, even if evaluated incorrectly has no consequence.
10	NON Critical: Procedure flow path step, directing operator to next section.
11	NON Critical: Check step only no actions required
12	NON Critical: Valves will already be nearly closed and failure to fully close them would have no adverse effects on the plant.
13	NON Critical: Check step only no actions required
14	CRITICAL: Starting one MDAFW pump is part of the assigned task and therefore critical. Observing proper starting indications is NOT Critical.

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin, you are to **ALIGN SERVICE WATER TO THE AFW SYSTEM, THEN START THE 1A or 1B MDAFW PUMP**. The conditions under which this task is to be performed are:

- a. Just entered ESP-1.2, Post LOCA Cooldown and Depressurization.
- b. Foldout page criteria has been met to Align AFW pumps suction to Service Water.
- c. CST level is falling rapidly due to a tank rupture.
- d. The 1A / 1B MDAFW and TDAFW pumps were secured due to the onset of cavitation.
- e. A pre-job brief is NOT required.

Your task is to align service water to the AFW system, then start the 1A or 1B MDAFW pump per ESP-1.2 foldout page criteria.

f. Simulator JPM

CRO-406E	
TITLE: Two Train Verification Of ECCS Equipment	
EVALUATION LOCATION: <u> X </u> SIMULATOR ONLY	
PROJECTED TIME: <u> 5 MIN </u>	SIMULATOR IC NUMBER: <u> IC-222 </u>
ALTERNATE PATH <u> X </u> TIME CRITICAL <u> </u> PRA <u> </u>	

JPM DIRECTIONS:

1. Examinee will obtain all references from the simulator.
2. The actions of this task are intended to be performed on an Active Simulator in which the examinee may diagnose the correctness of system response to his/her actions and respond to any abnormal conditions which may arise.
3. Provide student with HANDOUT.
4. Allow student time to review control board.
5. Instructor will be provided to address alarms not related to evaluated task.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Recognize lack of support conditions for the operating diesel generator.
- Perform an emergency shutdown of the diesel generator.

Examinee:	
Overall JPM Performance:	Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/2/13
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to perform **TWO TRAIN VERIFICATION OF ECCS EQUIPMENT**. The conditions under which this task is to be performed are:

- a. A safety injection has occurred due to a LOCA in containment.
- b. Unit 2 service water to the 1B Diesel Generator is tagged closed.
- c. A pre-job brief is NOT required.

Your task is to Verify Two Trains of ECCS Equipment Aligned per EEP-0, Attachment 4.

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
<u> </u> START TIME		
1. (step 1.1) Check breaker DF01 closed.	Check DF01 closed. Observes DF01 red light lit. White power available lights lit for 'F' 4160V bus.	S / U
2. (step 1.2) Verify breaker DF02 closed.	Check DF02 closed. Observes DF02 red light lit. White power available lights lit for 'K' 4160V bus.	S / U
3. (step 1.3) Check breaker DG15 closed.	Check DG15 closed. Observes DG15 red light lit. White power available lights lit for 'G' 4160V bus.	S / U
4. (step 1.4) Verify breaker DG02 closed.	Examinee may take breaker DG02 to reset then to close. Observes DG02 green and amber lights lit. White power available lights not lit for 'L' 4160V bus.	S / U
RNO 1.4 Secure 1B DG per attachment 1 (student may use posted procedure).		
*5. (step 1.1) Attachment 1 Verify SI is RESET.	Train A and B SI reset pushbutton depressed. Observes MLB-1 1-1 and MLB1 11-1 are not lit.	S / U
*6. (step 1.2) Attachment 1 Place the affected diesel generator MODE SELECTOR SWITCH to MODE 2.	1B DG MODE SELECTOR SWITCH placed in MODE 2 position. Observes The MSS is in MODE 2.	S / U
*7. (step 1.3) Attachment 1 Depress the affected diesel generator DIESEL EMERG START RESET pushbutton.	1B diesel generator EMERG START RESET pushbutton depressed. Observes the DG EMERG START light goes out.	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*8. (step 1.4) Attachment 1 Depress affected diesel generator STOP pushbutton.	1B diesel generator STOP pushbutton depressed. Observes DIESEL STOP light lit.	S / U
*9. (step 1.5) Attachment 1 Place affected diesel generator MODE SELECTOR SWITCH to MODE 3.	1B diesel generator MODE SELECTOR SWITCH placed to MODE 3. Observes The MSS is in MODE 3. EPB annunciator VB1 alarms.	S / U
10. (step 1.6) Attachment 1 Depress the affected diesel generator DIESEL EMERG START RESET pushbutton.	1B diesel generator DIESEL EMERG START RESET button is depressed. Observes DG EMERG START light remains off.	S / U

STOP TIME

Terminate when all elements of the task have been completed.
--

CRITICAL ELEMENTS: Critical Elements are denoted by an asterisk (*) before the element number.

GENERAL REFERENCES:

1. FNP-1-EEP-0, Version 44.0
2. K/As: 064A4.06 RO-3.9 SRO-3.9

GENERAL TOOLS AND EQUIPMENT:

None

Critical ELEMENT justification:

<u>ELEMENT</u>	<u>Evaluation</u>
1-4	NON Critical: Elements have no consequential actions performed. Checking positions of breakers.
5	CRITICAL: Allows the Emergency Start Signal to clear to allow shutdown of DG.
6	CRITICAL: Position allows for DG to be shutdown from EPB.
7	CRITICAL: Resets the Emergency Restart signal allowing the DG to be shutdown.
8	CRITICAL: Shuts DG down.
9	CRITICAL: Prevents any AUTO starts from restarting the DG.
10	NON Critical: Clears any Emergency Start signals present. While in Mode 3 these signals have no effect on the diesel.

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin, you are to perform **TWO TRAIN VERIFICATION OF ECCS EQUIPMENT**. The conditions under which this task is to be performed are:

- a. A safety injection has occurred due to a LOCA in containment.
- b. Unit 2 service water to the 1B Diesel Generator is tagged closed.
- c. A pre-job brief is NOT required.

Your task is to Verify Two Trains of ECCS Equipment Aligned per EEP-0, Attachment 4.

g. Simulator JPM**CRO-406E****TITLE: Lower The Refueling Cavity Level Using The Residual Heat Removal System****EVALUATION LOCATION: X SIMULATOR ONLY****PROJECTED TIME: 15 MIN SIMULATOR IC NUMBER: IC-241****ALTERNATE PATH TIME CRITICAL PRA****JPM DIRECTIONS:**

1. Place student in quiet area with HANDOUT, reference material, and a copy of starting procedure to perform a pre-job brief.
2. The actions of this task are intended to be performed on an Active Simulator in which the examinee may diagnose the correctness of system response to his/her actions and respond to any abnormal conditions which may arise.
3. After pre-job brief complete, allow student time to review control board.
4. Instructor will be provided to address alarms not related to evaluated task.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Operate the RHR system to lower cavity level.

Examinee:	
Overall JPM Performance:	Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/14/13
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

SIMULATOR SETUP	
	Reset into IC-243
	Danger tag the following: <ul style="list-style-type: none"> ○ RCP hand switches ○ PZR heater control switches ○ 8809 MOV's ○ 8811 MOV's ○ 8812 MOV's ○ RMW pump
	Trend LT-2965B on the OATC IPC Computer
	Place working radios in booth and on OATC desk.

CONDITIONS

When I tell you to begin you are to **LOWER THE REFUELING CAVITY LEVEL USING THE RESIDUAL HEAT REMOVAL SYSTEM**. The conditions under which this task is to be performed are:

- a. Fuel is in the reactor vessel.
- b. The upper internals are on the stand in the lower cavity.
- c. The Tri-Nuclear Filter system is shutdown.
- d. The Cavity underwater lights are de-energized.
- e. The pressurizer is adequately vented to the PRT.
- f. "B" train RHR is in service with low press letdown aligned.
- g. "A" train RHR is operable and secured.
- h. Surveillances are current for both trains of RHR.
- i. The refueling cavity level is currently 153'0".
- j. A systems operator has been briefed and is in containment with a radio for communication with the control room.

Your task is to lower the refueling cavity level to 151.8' on IPC LT-2965B per SOP-7.0, Step 4.11.2.

INITIATING CUE: "You may begin."

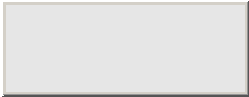
EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
_____ START TIME		
*1. (step 4.11.2.2) Close RHR to RCS hot legs X-connect MOV-8887B	Handswitch for MOV-8887A taken to close. Observes GREEN light is lit.	S / U
*2. (step 4.11.2.3) Close 1B RHR Hx to RCS cold leg iso MOV-8888A	Handswitch for MOV-8888A taken to close. Observes GREEN light is lit.	S / U
3. (step 4.11.2.4) Verify open RCS loop suction MOV-8701A & 8701B	MOV-8701A & 8701B position indication checked. Observes RED light is lit.	S / U
4. (step 4.11.2.5) Verify closed RHR to hot leg iso MOV-8889	MOV-8889 position indication checked. Observes GREEN light is lit.	S / U
5. (step 4.11.2.6) Verify pump seal cooler flow >5.5 gpm	SO directed to locally verify flow. (CUE from Booth operator: SO reports CCW seal flow is 7 gpm.)	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*6. (step 4.11.2.7) Start the 1A RHR pump	1A RHR pump handswitch taken to start. Observes the RED light lit, and ~25 amps indicated.	S / U
7. (step 4.11.2.8) Verify open 1A RHR miniflow MOV-602A	MOV-602A indicates open. Observes RED light is lit.	S / U

NOTE: FOR THE PERFORMANCE OF THE REMAINING STEPS, OPERATORS ARE ON STATION AT THE REFUELING CAVITY AND AT MOV-8881 ON A PORTABLE RADIO.

*8. (step 4.11.2.9) While monitoring the RWST and cavity levels, unlock and throttle open Q1E11V8881 to control cavity drain rate	SO directed to throttle open V-8881 and commence lowering level. (CUE from Booth operator: SO reports V-8881 throttled open.)	S / U
		
9. (step 4.11.3) Lower Refueling Cavity level to obtain one of the following conditions: <ul style="list-style-type: none"> • approximately 6 inches below the reactor vessel flange (draining to install removed components) • desired level 	Monitors level for desired condition. Observes IPC level indication lowering.	S / U
*10. (step 4.11.3.1) WHEN desired level obtained, THEN Stop 1A(1B) RHR PUMP started in step 4.11.2.7.	1A RHR pump handswitch taken to stop. Observes the GREEN light is lit and amps decrease to 0.	S / U

STOP TIME

Terminate when RHR pump secured.

CRITICAL ELEMENTS: Critical Elements are denoted by an asterisk (*) before the element number.

GENERAL REFERENCES:

1. FNP-1-SOP-7.0, Version 100.1
2. K/A: 034A1.02 RO-2.9 SRO-3.7

GENERAL TOOLS AND EQUIPMENT:

None

Critical ELEMENT justification:

<u>ELEMENT</u>	<u>Evaluation</u>
1	CRITICAL: Provides separation between operating train and train being used for draining.
2	CRITICAL: Isolates flow path to RCS
3	NON Critical: Check step only no operation performed.
4	NON Critical: Check step only no operation performed.
5	NON Critical: Check step only no operation performed.
6	CRITICAL: Starting pump provides pressure to move water to RWST.
7	NON Critical: Check step only no operation performed.
8	CRITICAL: Initiates flow to RWST draining cavity level.
9	NON Critical: Check step only no operation performed.
10	CRITICAL: Stopping pump secures lowering of cavity level.

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin you are to **LOWER THE REFUELING CAVITY LEVEL USING THE RESIDUAL HEAT REMOVAL SYSTEM.** The conditions under which this task is to be performed are:

- a. Fuel is in the reactor vessel.
- b. The upper internals are on the stand in the lower cavity.
- c. The Tri-Nuclear Filter system is shutdown.
- d. The Cavity underwater lights are de-energized.
- e. The pressurizer is adequately vented to the PRT.
- f. "B" train RHR is in service with low press letdown aligned.
- g. "A" train RHR is operable and secured.
- h. Surveillances are current for both trains of RHR.
- i. The refueling cavity level is currently 153'0".
- j. A systems operator has been briefed and is in containment with a radio for communication with the control room.

Your task is to lower the refueling cavity level to 151.8' on IPC LT-2965B per SOP-7.0, Step 4.11.2.

h. Simulator JPM

CRO-395D	
TITLE: OBTAIN THE VALUE OF THERMOCOUPLE J12	
EVALUATION LOCATION: <u> X </u> SIMULATOR	
PROJECTED TIME: <u> 7 MIN </u>	SIMULATOR IC NUMBER: <u> IC-243 </u>
ALTERNATE PATH <u> </u> TIME CRITICAL <u> </u> PRA <u> </u>	

JPM DIRECTIONS:

1. Examinee will obtain all references from the simulator.
2. The actions of this task are intended to be performed on an Active Simulator in which the examinee may diagnose the correctness of system response to his/her actions and respond to any abnormal conditions which may arise.
3. Provide student with HANDOUT.
4. Allow student time to review control board.
5. Instructor will be provided to address alarms not related to evaluated task.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Report the value of the specified CETC as indicated by SOP-68.0.

Examinee:	
Overall JPM Performance:	Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Howard Fitzwater	Date: 4/25/11
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to **OBTAIN THE VALUE OF THERMOCOUPLE J12**. The conditions under which this task is to be performed are:

- a. The Integrated Plant Computer (IPC) is NOT available.

Your task is to obtain the value of Core Exit Thermocouple J12 per FNP-1-SOP-68.0.

INITIATING CUE, “You may begin.”

NOTE TO EXAMINER: J12 ADDRESS IS IN TABLE 7, AND J12 IS IN CHANNEL ‘A’; a common error is that B train is manipulated during this task.

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
<u> </u> START TIME		
1. (step 4.6.2.1) Determine the two digit address for thermocouple J12	Table 7 used to identify CE 14 as address point and is an A train CETC.	S / U
* 2. (step 4.6.1 provides the guidance to set initial conditions required by 4.6.2.2 this action may or may not be conducted prior to step 4.6.2.2: “ With CET portion of the TMAX/CET push-button illuminated... ”) Place A train in CET	TMAX/CET pushbutton depressed once. Observes CET light lit.	S / U

AS found: TMAX mode
 1st button push: CET Mode
 2nd button push: return to TMAX mode
 May be repeated until desired mode achieved.

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
<p>* 3. (step 4.6.2.2) Select display to CE</p> <p>AS found: HI 1st button push: CE 2nd button push: ALL 3rd button push: return to HI mode May be repeated until desired mode achieved</p>	<p>$\frac{SUBMODE}{1st / 2nd}$ pushbutton depressed until “CE” displayed.</p>	S / U
<p>* 4. (step 4.6.2.3 and 4.6.2.4) Select display to CE00</p> <p>AS found: HI . 1st button push: CE . 2nd button push: ALL. 3rd button push: return to HI . mode May be repeated until desired mode achieved</p>	<p>$\frac{SUBMODE ACK}{ALARM ACK}$ pushbutton depressed until submode portion of the $\frac{SUBMODE}{1st / 2nd}$ pushbutton is illuminated and not flashing, “1st” portion of the $\frac{SUBMODE}{1st / 2nd}$ pushbutton is flashing.</p>	S / U
<p>* 5. (step 4.6.2.5) Align display to read CE 10</p>	<p>Depress $\frac{SUBMODE}{1st / 2nd}$ pushbutton until 1 appears in the “tens” digit.</p>	S / U
<p>* 6. (step 4.6.2.6) Align to select ones digit</p>	<p>Depress $\frac{SUBMODE ACK}{ALARM ACK}$ pushbutton.</p>	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
* 7. (step 4.6.2.7) Align display to read CE 14	Depress $\frac{SUBMODE}{1st / 2nd}$ pushbutton until 4 is displayed in the “ones” digit. 1st/2nd pushbutton depressed until CE 14 in monitor window.	S / U
* 8. (step 4.6.2.8) Determine value of J12	$\frac{SUBMODE ACK}{ALARM ACK}$ pushbutton depressed.	S / U

STOP TIME

Terminate when the value for thermocouple J12 is displayed.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) before the element number.

GENERAL REFERENCES:

1. FNP-1- SOP-68.0 Revision 8.1
2. K/As: 017A4.01 RO-3.8 SRO-4.1

GENERAL TOOLS AND EQUIPMENT:

None

Critical ELEMENT justification:**STEP****Evaluation**

1. **Not critical** since finding the correct value in the Table will be revealed at element 7; affect on the final outcome of the task will be captured at a later element (#7).
2. **CRITICAL** to accomplish the assigned TASK's objective
 - This button has to be in the correct alignment to get the correct value for the thermocouple.
3. **CRITICAL** to accomplish the assigned TASK's objective
 - This button has to be in the correct alignment to get the correct value for the thermocouple.
4. **CRITICAL** to accomplish the assigned TASK's objective
 - This button has to be in the correct alignment to get the correct value for the thermocouple.
5. **CRITICAL** to accomplish the assigned TASK's objective
 - This button has to be in the correct alignment to get the correct value for the thermocouple.
6. **CRITICAL** to accomplish the assigned TASK's objective
 - This button has to be in the correct alignment to get the correct value for the thermocouple.
7. **CRITICAL** to accomplish the assigned TASK's objective
 - This button has to be in the correct alignment to get the correct value for the thermocouple.
8. **CRITICAL** to accomplish the assigned TASK's objective
 - This button has to be in the correct alignment to get the correct value for the thermocouple.

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin, you are to **OBTAIN THE VALUE OF THERMOCOUPLE J12**. The conditions under which this task is to be performed are:

- a. The Integrated Plant Computer (IPC) is NOT available.

Your task is to obtain the value of Core Exit Thermocouple J12 per FNP-1-SOP-68.0.

i. In Plant JPM**SO-344**TITLE: **Start Up An Instrumentation Inverter**EVALUATION LOCATION: ____ SIMULATOR ____ CONTROL ROOM X PLANTPROJECTED TIME: 20 MIN SIMULATOR IC NUMBER: N/A

ALTERNATE PATH ____ TIME CRITICAL ____ PRA ____

JPM DIRECTIONS:

1. All actions will be **SIMULATED**.
2. Provide student HANDOUT and procedure
3. Allow student time to review conditions and procedure.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Place the A Instrument Inverter in service

Examinee:	
Overall JPM Performance:	Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/11/13
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to **START UP AN INSTRUMENTATION INVERTER**. The conditions under which this task is to be performed are:

- a. The Plant is in Mode 1.
- b. Instrumentation inverter 'A' is being returned to service after maintenance.

Your task is to place instrumentation inverter 'A' in service per FNP-1[2]-SOP-36.4 starting at step 4.1.2.

INITIATING CUE, "You may begin."

NOTE: THIS JPM MAY BE PERFORMED ON EITHER UNIT. THE UNIT TWO NUMBERS, IF DIFFERENT, ARE [BRACKETED].

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
<u> </u> START TIME		
1. (step 4.1.2.1) Verify the battery input breaker in OFF	Breakers verified in OFF. (CUE: the identified breaker(s) is as you described.)	S / U
2. (step 4.1.2.2) Verify the inverter output breaker in OFF	Breaker is verified in OFF. (CUE: the identified breaker(s) is as you described.)	S / U
3. (step 4.1.2.3) Verify closed respective inverter bypass AC supply breaker	In 120VAC Distribution Panel 'G' breaker #8 [#7] is verified closed. (CUE: the identified breaker(s) is as you described.)	S / U
*4. (step 4.1.2.4) Close the inverter 'A' DC supply breaker	LA-10 handswitch is taken to the closed position. (CUE: The indicating light changed from green to red and the mechanical indicator indicates closed.)	S / U
*5. (step 4.1.2.5) Place the battery input breaker in the ON position	The battery input breaker is taken to 'ON'. (CUE: the identified breaker(s) is as you described.)	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*6. (step 4.1.2.6) Place the inverter output breaker in the ON position	The inverter output breaker is taken to 'ON'. (CUE: the identified breaker(s) is as you described.)	S / U
*7. (step 4.1.2.7) Verify that the inverter is in sync with the bypass source	The Inverter 'In Sync' light should be lit and the 'Out Of Sync' light should be out. (CUE: In SYNC lamp is lit and OUT OF SYNC lamp is not.)	S / U
*8. (step 4.1.2.8) Transfer the MANUAL BYPASS switch to the NORMAL OPERATION position	The Manual Bypass Switch is transferred. (CUE: the identified switch is as you described.)	S / U
*9. (step 4.1.2.9) Press the INVERTER TO LOAD pushbutton	The INVERTER TO LOAD pushbutton is depressed.	S / U

NOTE: NON-CRITICAL ELEMENT 10 IS NOT PROCEDURALIZED ON UNIT 2.

10. (step 4.1.2.9.1 UNIT 1 ONLY) Verify the INVERTER POWERING LOAD lamp lit	INVERTER POWERING LOAD lamp checked. (CUE: INVERTER POWERING LOAD lamp is lit.)	S / U
11. Report to the CRO that inverter 'A' has been placed in service	The CRO is notified. (CUE: The CRO acknowledges.)	S / U

STOP TIME

Terminate after Control Room Operator is informed that inverter A has been placed in service.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) before the element number.

GENERAL REFERENCES:

- | | | | |
|----|--------------------------|--------|---------|
| 1. | FNP-1-SOP-36.4, Ver 81.0 | | |
| 2. | FNP-2-SOP-36.4, Ver 62.1 | | |
| 3. | K/As: 062A2.03 | RO-2.9 | SRO-3.4 |
| | 057AA1.01 | RO-3.7 | SRO-3.7 |

GENERAL TOOLS AND EQUIPMENT:

None

Critical ELEMENT justification:

<u>ELEMENT</u>	<u>Evaluation</u>
1-3	NOT Critical: Check steps only, no operations performed.
4-9	Critical: This is the assigned task, improper performance of any of these will result in the Inverter not being in-service.
10	NOT Critical: Check steps only, no operations performed.
11	NOT Critical: Notification step only.

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin, you are to **START UP AN INSTRUMENTATION INVERTER**. The conditions under which this task is to be performed are:

- a. The Plant is in Mode 1.
- b. Instrumentation inverter 'A' is being returned to service after maintenance.

Your task is to place instrumentation inverter 'A' in service per FNP-1[2]-SOP-36.4 starting at step 4.1.2.

j. In Plant JPM**Fire Pump-NEW**TITLE: **Start the MDFP and #2 DDFP locally**EVALUATION LOCATION: ____ SIMULATOR ____ CONTROL ROOM X PLANTPROJECTED TIME: 15 MIN SIMULATOR IC NUMBER: N/A

ALTERNATE PATH ____ TIME CRITICAL ____ PRA ____

JPM DIRECTIONS:

1. All actions will be **SIMULATED**.
2. Provide student HANDOUT and procedure
3. Allow student time to review conditions and procedure.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Locally start a MDFP and #2 DDFP in response to a plant fire

Examinee:
Overall JPM Performance: Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
Evaluator Comments (attach additional sheets if necessary)

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/11/13
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to **LOCALLY START THE MDFP AND #2DDFP**. The conditions under which this task is to be performed are:

- a. The Fire Brigade is currently fighting a fire.
- b. #1 DDFP has tripped.
- c. The MDFP and #2DDFP have failed to auto-start.
- d. A pre-job brief is not required.

You are being directed by the Shift Supervisor to and using FNP-0-SOP-61.0 perform the following:

1. locally start the MDFP starting at step 4.4
2. locally start the #2 DDFP starting at step 4.6

INITIATING CUE, "You may begin."

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
<u> </u> START TIME		
*1. (step 4.4.1) Place MDFP LOCAL/REMOTE switch to LOCAL.	Rotates switch to LOCAL position. (CUE: Switch is in LOCAL position.)	S / U
*2. (step 4.4.2) Depress START pushbutton.	Start button is depressed. (CUE: Start button is depressed, you hear the motor start.)	S / U
3. (step 4.4.3) Return LOCAL/REMOTE switch to REMOTE.	Rotates switch to REMOTE position. (CUE: the identified switch is as you described.)	S / U
4. (step 4.4.4) Place the hand switch controller for the jockey pump to STOP, to secure the jockey pump.	Hand switch placed to stop (CUE: Hand switch is in the STOP position)	S / U
5. (step 4.6.1) on #2 DDFP Verify the DDFP CLG WTR PRESS REG BYP valve throttled as follows: <ul style="list-style-type: none"> • IF starting #2 DDFP, THEN throttle open #2 DDFP COOLING WATER PRESSURE REGULATOR BYPASS, N1P43V0156, 45 degrees (valve is a 90 degree ball valve). 	Observes V0156 at 45 degrees. (CUE: the identified Valve is as you described)	S / U

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*6. (step 4.6.2) on #2 DDFP Place the DDFP local control panel selector switch to MAN A OR MAN B position.	Selector switch placed in MAN A or MAN B position. (CUE: the identified switch is as you described.)	S / U
7. (step 4.6.3) on #2 DDFP IF necessary, THEN perform the following to verify the "BATT A CONNECTED" and "BATT B CONNECTED" lights are lit: <ul style="list-style-type: none"> 4.6.3.1 At the local control panel, push the CIRCUIT BREAKER DC (AC) RESET pushbuttons for the following: <ul style="list-style-type: none"> 4.6.3.1.1 AC mini breaker. 4.6.3.1.2 DC mini breaker. (1 of 2) 4.6.3.1.3 DC mini breaker. (2 of 2) 4.6.3.2 Push the RESET pushbutton at the DDFP local control panel. 	Observes BATT A AND B CONNECTED lights lit (CUE: the identified LIGHTS ARE LIT)	S / U
*8. (step 4.6.4) on #2 DDFP Depress and maintain depressed the ENGINE START pushbutton for a minimum of 10 seconds, or until the selected DDFP starts.	Depresses and holds start switch for 10 seconds. (CUE: Start button depressed, you hear the engine start)	S / U

STOP TIME

Terminate after both fire water pumps are running.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) before the element number.

GENERAL REFERENCES:

- | | | | |
|----|-----------------|----------|---------|
| 1. | FNP-0-SOP-61.0, | Ver 46.0 | |
| 2. | K/As: 086A3.01 | RO-2.9 | SRO-3.3 |
| | 086A4.01 | RO-3.3 | SRO-3.3 |

GENERAL TOOLS AND EQUIPMENT:

None

Critical ELEMENT justification:

<u>ELEMENT</u>	<u>Evaluation</u>
1-2	Critical: This is the assigned task, these elements start the MDFP.
3	NOT Critical: Returns switch to normal position, not required for pump to remain running.
4	NOT Critical: Jockey pump operation has no effect on ability to provide fire water.
5	NOT Critical: Check step only, no operation performed.
6	Critical: This aligns a starting battery to crank the engine.
7	NOT Critical: Check step only, no operation performed.
8	Critical: This is the assigned task, this element starts the #2 DDFP.

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin, you are to **LOCALLY START THE MDFP AND #2DDFP**. The conditions under which this task is to be performed are:

- a. The Fire Brigade is currently fighting a fire.
- b. #1 DDFP has tripped.
- c. The MDFP and #2DDFP have failed to auto-start.
- d. A pre-job brief is not required.

You are being directed by the Shift Supervisor to and using FNP-0-SOP-61.0 perform the following:

1. locally start the MDFP starting at step 4.4
2. locally start the #2 DDFP starting at step 4.6

k. In Plant JPM**SO-386**TITLE: **Commence A Waste Gas Release**EVALUATION LOCATION: ____ SIMULATOR ____ CONTROL ROOM X PLANTPROJECTED TIME: 15 MIN SIMULATOR IC NUMBER: N/A ALTERNATE PATH X TIME CRITICAL ____ PRA ____**JPM DIRECTIONS:**

1. All actions will be **SIMULATED**.
2. Provide student HANDOUT and procedure.
3. Allow student time to review conditions and procedure.

TASK STANDARD: Upon successful completion of this JPM, the examinee will:

- Commence a #3 WGDT waste gas decay tank release.
- Respond to Vent Stack alarm and secure the release.

Examinee:	
Overall JPM Performance:	Satisfactory <input type="checkbox"/> Unsatisfactory <input type="checkbox"/>
Evaluator Comments (attach additional sheets if necessary)	

EXAMINER: _____

Developer	Aaron Forsha	Date: 2/11/13
NRC Approval	SEE NUREG 1021 FORM ES-301-3	

CONDITIONS

When I tell you to begin, you are to **COMMENCE A WASTE GAS RELEASE**. The conditions under which this task is to be performed are:

- a. Unit 2 is in Mode 1.
- b. The initial conditions of FNP-2-SOP-51.0 Appendix 3 have been completed.
- c. #3 WGDT is at 60 psig, and has been sampled and analyzed.
- d. A WGDT Batch Gaseous Waste Release Permit has been issued per CCP-208.
- e. The waste gas system is shut down per FNP-2-SOP-51.0.
- f. FNP-2-SOP-51.0, Appendix 3, has been completed up to and including the test on process radiation monitor R-14 which has been tested and restored to normal.

Your task is to continue the release of #3 WGDT using FNP-2-SOP-51.0 Appendix 3, starting at step 4.1.7.

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
_____ START TIME		
*1. (step 4.1.7) Open #3 WGDT outlet valve Q2G22V019C	TPNS number is recorded in SOP-51.1 and opened by turning the handwheel counter-clockwise. (CUE: the identified Valve is as you described)	S / U
*2. (step 4.1.8) Open bank 'A' GDT bank outlet valve Q2G22V017.	TPNS number is recorded in SOP-51.1 and opened by turning the handwheel counterclockwise. (CUE: the identified Valve is as you described)	S / U
3. (Step 4.1.9.1) Verify RCV-14 flow controller is set at zero position.	RCV-14 flow controller is verified at zero demand. (CUE: the identified controller is as you described)	S / U
4. (step 4.1.9.2) Verify the plant vent pressure regulator Q2G22V205 is set for 15 psi.	Checks setpoint on plant vent pressure regulator. (CUE: the identified indicator is as you described.)	S / U

NOTE: STUDENT SHOULD DESCRIBE THE METHOD FOR OBTAINING A MASTER VALVE KEY: THE KEY IS AVAILABLE ON THE RADSIDE OPERATOR KEY RING OR IT MAY BE CHECKED OUT FROM SSS OFFICE.

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*5. (step 4.1.10) Using Master Valve key, unlock and open RCV-14 upstream isolation Q2G22V089.	unlocks and turns handwheel counterclockwise until opened. (CUE: the identified Valve is as you described)	S / U
*6. (step 4.1.11) Open the RCV-14 downstream isolation Q2G22V207.	turns handwheel counterclockwise until opened (CUE: the identified Valve is as you described)	S / U
*7. (step 4.1.12) Turn GDT discharge valve to plant vent stack Q2G22V206, RCV-14 hand switch to open.	handswitch is turned to open. Observes the green light lit with zero demand on the controller. (CUE: The identified handswitch is as you described and the green light is lit.)	S / U
8. (step 4.1.13) Record start time and tank pressure in SOP-51.0 and notify the Shift Radio Chemist. <ul style="list-style-type: none"> Ensure examinee identifies correct pressure indicator and range. 	<ul style="list-style-type: none"> Start time and tank pressure are recorded in SOP-51.0. (The current time is the start time and #3 WGDT pressure is 60 psig.) Shift Radio chemist notified. (CUE: Shift Radio chemist acknowledges Waste Gas release start time and pressure) 	S / U
*9. (step 4.1.14) Slowly open GDT discharge valve to plant vent RCV-14 using the Waste Gas Discharge Control HIK-014 on the Waste Gas Panel and verify the following: (See 10 below)	HIK-014 adjusted open. Observes the red light lit with demand on the controller. (CUE: the red light is lit.)	S / U

(CUE Window 17 is flashing) When R-14 is checked for a reading, then say that an audible alarm is in and window 17 is flashing.

NOTE: When Annunciators are checked, provide the following (CUE Window 17 is flashing)

- When the student states they would look at the ARP, provide the ARP handout page.
- If student depresses SILENCE button provide the following (CUE: Audible alarm stops)
- If student depresses ACKNOWLEDGE provide the following (CUE: Window 17 is solid lit)
- If RCV-14 is checked after the audible alarm (CUE: Red and white lights lit, Green light is out)

EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
*10. (step 4.1.14.1) Verify R-14 count rate is less than R-14 setpoint	Observes R-14 count rate is increasing and above R-14 setpoint. (CUE: R-14 reads 15,000 counts and is increasing rapidly)	
<u>This step may not be accomplished due to the alarm.</u>		
11. (step 4.1.14.2) Check the pressure in the GDT is dropping slowly enough to ensure the release of the entire tank will take greater than 1 hour.	Observes #3 GDT pressure is dropping slow enough to ensure the release will take greater than 1 hour. (CUE: #3 GDT pressure drops 1 psig every 5 minutes.)	

NOTE: Examine may elect to close RCV-14 prior to addressing ARP. Critical element 12 can be satisfied by any method that secures the release.

*12. (ARP-14.0 Location 17) Verify waste gas discharge valve HV-014 closed. When/If the controller is turned to zero and then RCV-14 handswitch is taken to CLOSE, then ONLY the green light will be lit.	Observes RCV-14 red light lit. (CUE: the red light is lit.) Places RCV-14 handswitch in the CLOSE position. Observes green light lit. (CUE: the green light is lit and the white light is lit.)	S / U
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Information:

RCV-14 valve position red light is lit with the valve open and demand on the controller, the green light is lit when the valve is closed, and the white light is lit when the valve is closed but the controller has a demand other than zero.

STOP TIME

Terminate JPM when all elements of this JPM are completed.

CUE: Another operator will continue from here.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) preceding the element number.

GENERAL REFERENCES:

1. FNP-2-SOP-51.0, Version 49.2
2. FNP-2-CCP-213.1, Version 19.0
3. FNP-2-ARP-14, Version 5.0
3. Technical Specification
4. K/As: 071A2.02 RO-3.3 SRO-3.6
071A4.09 RO-3.3 SRO-3.5
071A4.26 RO-3.1 SRO-3.9

GENERAL TOOLS AND EQUIPMENT:

None

Critical ELEMENT justification:

<u>Element</u>	<u>Evaluation</u>
1, 2	Critical: Required for task completion: required to unisolate #3 WGDT from the release flowpath.
3, 4	NOT Critical: Components are normally in the required position, and do not have to be manipulated for successful completion of this task.
5-7	Critical: Required for task completion: required to unisolate #3 WGDT from the release flowpath.
8	NOT Critical: Task would be completed successfully without doing this element or by doing it incorrectly (recording the wrong tank pressure, reading the pressure guage incorrectly, recording the wrong time, etc.).
9	Critical: Required for task completion: required to open the only remaining valve in the release flowpath for the #3 WGDT.
10	Critical: Required to assess radiation alarm reading to determine if the alarm is erroneous and to check if the alarm setpoint has been exceeded.
11	NOT Critical: This task may not be done since the alarm has come in and the ARP will have the operator secure the release.
12	Critical: Secure the release is critical because of alarming condition and the auto isolation has failed.

COMMENTS:

HANDOUT

CONDITIONS

When I tell you to begin, you are to **COMMENCE A WASTE GAS RELEASE**. The conditions under which this task is to be performed are:

- a. Unit 2 is in Mode 1.
- b. The initial conditions of FNP-2-SOP-51.0 Appendix 3 have been completed.
- c. #3 WGDТ is at 60 psig, and has been sampled and analyzed.
- d. A WGDТ Batch Gaseous Waste Release Permit has been issued per CCP-208.
- e. The waste gas system is shut down per FNP-2-SOP-51.0.
- f. FNP-2-SOP-51.0, Appendix 3, has been completed up to and including the test on process radiation monitor R-14 which has been tested and restored to normal.

Your task is to continue the release of #3 WGDТ using FNP-2-SOP-51.0 Appendix 3, starting at step 4.1.7.

RType G2.57

BATCH GASEOUS WASTE RELEASE PERMIT
WASTE GAS DECAY TANK

UNIT # 2

GWRP # NRC JPM

PART I Operational Data: |

Gas Decay Tank No. 3 Tank Pressure 60 (psig)

Release Permit requested by: Shift Supervisor

Date Today Time 2 hours ago

PART II Pre-Release Data: |

RELEASE ESTIMATES FOR THIS SOURCE - See Attached

Maximum Monitor Setpoint: RE-14 14,000 CPM

Comment: _____

This permit authorizes the Batch Release of Gas Decay Tank No. 3 at
a release rate of 100 cfm

with a MINIMUM of 1 (enter 1 or 2) Fan Operation.

Start Date Today Expiration Date 2 days from today

Approved by: Shift Radiochemist Date Today
Time 1 hour ago

PART III Operational Data: |

Actual number of AUX BLDG MAIN EXHAUST FANS in operation: _____ (1 or 2)

RE14 SETPOINT CHANGE REQUIRED () Yes (x) No

AS FOUND SETPOINT 10,000cpm () N/A

AS LEFT SETPOINT _____ cpm () N/A AS LEFT SETPOINT VERIFIED BY: _____ (I&C)

DATE _____ TIME _____

RE14 CAL DUE DATE: Next Month _____

RE-14 Reading During Release _____ cpm

Post Release: _____ cpm

WGDT # _____ Initial Pressure _____ psig Final Pressure: _____ psig

SOP OTC #

RELEASE START DATE ____/____/____ TIME: ____:____

RELEASE END DATE ____/____/____ TIME: ____:____

RELEASE CONDUCTED BY: _____

Data Reviewed by: _____ Date ____/____/____ Time ____:____

PART IV CHM UPDATE: |

FOR DOSE CALCULATIONS - See Attached

FOR RELEASE RATES AND DURATION - See Attached

Comment: _____

Permit Updated by: _____ Date: ____/____/____ Time ____:____