

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

JPM NUMBER: 550

TITLE: DETERMINE CORRECT METHOD OF VERIFICATION ON A  
GIVEN SYSTEM

ADMIN: Conduct of Operations

PROVIDE CANDIDATE WITH A COPY OF: SPP-10.3 (If requested)

**ADMIN "A"**

SUBMITTED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

VALIDATED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

TRAINING

PLANT CONCURRENCE: \_\_\_\_\_

DATE: \_\_\_\_\_

OPERATIONS

\* Examination JPMs Require Operations Training Manager Approval or Designee Approval and  
Plant Concurrence

## BROWNS FERRY NUCLEAR PLANT JOB PERFORMANCE MEASURE

## REVISION LOG

[illegible]

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

OPERATOR: \_\_\_\_\_

RO \_\_\_\_\_ SRO \_\_\_\_\_ DATE: \_\_\_\_\_

JPM NUMBER: 550

TASK TITLE: DETERMINE CORRECT METHOD OF VERIFICATION ON A  
GIVEN SYSTEMK/A NUMBER: 2.1.29 K/A RATING: RO 4.1 SRO 4.0

\*\*\*\*\*

TASK STANDARD: DETERMINE CORRECT METHOD OF VERIFICATION ON A  
GIVEN SYSTEMPERFORMANCE LOCATION: CLASSROOM: X

REFERENCES/PROCEDURES NEEDED: SPP-10.3, Rev 1

VALIDATION TIME: CLASSROOM: \_\_\_\_\_

MAX. TIME ALLOWED: \_\_\_\_\_ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME: \_\_\_\_\_

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ADDITIONAL COMMENT SHEETS ATTACHED? YES \_\_\_\_\_ NO \_\_\_\_\_

RESULTS: SATISFACTORY \_\_\_\_\_ UNSATISFACTORY \_\_\_\_\_

EXAMINER SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

# Examiner Key

- A. Open Manual valve in a high Rad area – exposure rate 6 R/hr.  
(2) Perform Verification by alternate means, i.e. flow indication downstream of valve
- B. Closed Manual valve.  
(5) Turn the valve handwheel in the Closed direction and verify the valve stem does Not move
- C. Locked Manual valve Throttled 3 turns Open.  
(6) This valve cannot be Independently Verified (The 1<sup>st</sup> and 2<sup>nd</sup> verification already performed was adequate)
- D. Locked Closed Manual valve.  
(8) Verify the chain is in place and the locking mechanism is intact
- E. Open Manual valve.  
(4) Turn the valve handwheel in the Closed direction and verify the valve stem moves and return the valve to the Open position



# Candidate Handout

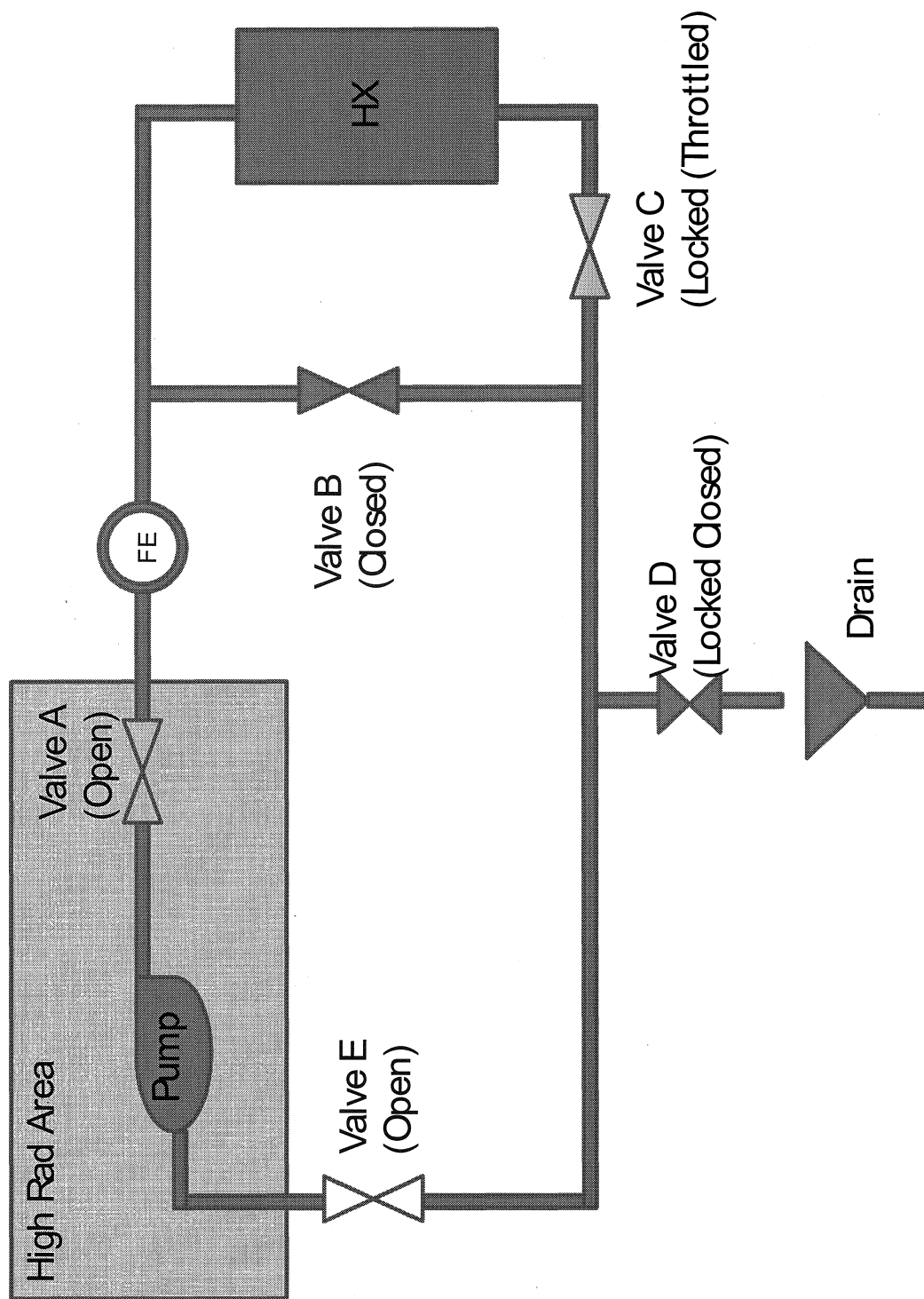
A valve checklist was performed on system X. All valves were 1<sup>st</sup> and 2<sup>nd</sup> party verified. When the checklist was complete, the system was placed in service. Then the US decided that an Independent Verification should have been performed on some of the valves. Select the proper method for Independent Verification of the following valves. (Assume each valve requires 2 ½ minutes to verify, all valves are manual valves with no remote position indication).

- A. Open Manual valve in a high Rad area – exposure rate 6 R/hr.
- B. Closed Manual valve.
- C. Locked Manual valve Throttled 3 turns Open.
- D. Locked Closed Manual valve.
- E. Open Manual valve.

- |    |       |  |
|----|-------|--|
| A. | _____ | For the valves (A – E),<br>Enter a number (1 – 8) that<br>corresponds to the correct<br>verification process used to<br>verify the valve position<br>and place it in the space<br>provided. (The numbers to<br>the right may be used more<br>than once or not at all). |
| B. | _____ |  |
| C. | _____ |  |
| D. | _____ |  |
| E. | _____ |  |

- 1. Perform Verification by alternate means, i.e. Red light illuminated and Green light extinguished on Control Room panel.
- 2. Perform Verification by alternate means, i.e. flow indication downstream of valve.
- 3. Turn the valve handwheel in the Open direction and verify valve stem does Not move.
- 4. Turn the valve handwheel in the Closed direction and verify the valve stem moves and return the valve to the Open position.
- 5. Turn the valve handwheel in the Closed direction and verify the valve stem does Not move.
- 6. This valve cannot be Independently Verified (The 1<sup>st</sup> and 2<sup>nd</sup> verification already performed was adequate).
- 7. Turn the valve handwheel in the Open direction and verify the valve stem moves and return the valve to the Closed position.
- 8. Verify the chain is in place and the locking mechanism is intact.

# Candidate Handout





<b>Tennessee Valley Authority</b>  <b>TVAN STANDARD PROGRAMS AND PROCESSES</b>	<b>TITLE</b>  <b>VERIFICATION PROGRAM</b>	<b>SPP-10.3</b> <b>Rev. 1</b> <b>Page 1 of 16</b> <hr/> Quality Related <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No PORC Required <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 10CFR50.59 Review <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <hr/> Effective Date <u>11/14/2003</u>						
RESPONSIBLE PEER TEAM: <u>Operations</u> <span style="margin-left: 350px;"><i>Organization</i></span>								
<b>CONCURRENCES</b>								
<table style="width: 100%; border: none;"> <tr> <td style="width: 40%; text-align: center;"> <u>J. L. Lewis</u>  <i>* Primary Sponsor</i> </td> <td style="width: 20%; text-align: center;"> WRL 9/16/03  8/11/03 </td> <td style="width: 40%; text-align: center;"> <u>7-15-03</u>  <i>Date</i> </td> </tr> <tr> <td style="text-align: center;"> <u>W. R. Lagergren</u>  <i>Peer Team Mentor</i> </td> <td></td> <td style="text-align: center;"> <u>7-23-03</u>  <i>Date</i> </td> </tr> </table>			<u>J. L. Lewis</u> <i>* Primary Sponsor</i>	WRL 9/16/03 8/11/03	<u>7-15-03</u> <i>Date</i>	<u>W. R. Lagergren</u> <i>Peer Team Mentor</i>		<u>7-23-03</u> <i>Date</i>
<u>J. L. Lewis</u> <i>* Primary Sponsor</i>	WRL 9/16/03 8/11/03	<u>7-15-03</u> <i>Date</i>						
<u>W. R. Lagergren</u> <i>Peer Team Mentor</i>		<u>7-23-03</u> <i>Date</i>						
<b>APPROVAL</b>								
For Nuclear Assurance Sponsored SPPs								
<table style="width: 100%; border: none;"> <tr> <td style="width: 40%; text-align: center;"> <u>N/A</u>  <i>General Manager, NA</i> </td> <td style="width: 60%; text-align: center;"> <u>                    </u>  <i>Date</i> </td> </tr> </table>			<u>N/A</u> <i>General Manager, NA</i>	<u>                    </u> <i>Date</i>				
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<table style="width: 100%; border: none;"> <tr> <td style="width: 40%; text-align: center;"> <u>Karl W. Singer</u>  <i>* Senior Vice President, Nuclear Operations</i> </td> <td style="width: 60%; text-align: center;"> <u>9/16/03</u>  <i>Date</i> </td> </tr> </table>			<u>Karl W. Singer</u> <i>* Senior Vice President, Nuclear Operations</i>	<u>9/16/03</u> <i>Date</i>				
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\* Site-specific changes are approved by Site Sponsor and Site Vice President (see PCF)

REVISION LOG

Revision Number	Effective Date	Pages Affected	Description of Revision
0	6/30/99 (COC & WBN) 7/2/99 BFN YSO 8/3/99 LATER SQN 8/6/99	All	Initial issue. This procedure replaces STD-12.6 (Corp.), SSP-12.6 (BFN & SQN), and SSP-12.06 (WBN).
1	11/14/03	2-7, 9-16	Revised to remove verification requirements for placing and removing clearances which have been incorporated into SPP-10.2. Added Section 3.5, and Subsections 3.5.1, 3.5.2, and 3.5.3. Added definitions to Section 5.0 for Peer-Checking and Self-Checking. Revised Appendix A to remove N/A from System 41 and System 84 (systems require verification). Removed SQN only requirement on Section 3.3.1.E.

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## 1.0 PURPOSE

This procedure establishes the requirements for and the criteria used to determine the applicable verification method for configuration control. The methods of verification are independent (IV) and second-party verification. For the purposes of this procedure and associated procedures/instructions, the term second-party verification is considered synonymous with concurrent verification (CV).

## 2.0 SCOPE

This procedure applies to all TVA Nuclear (TVAN) personnel and contractors performing activities affecting nuclear power plant systems. Self-checking techniques should be utilized to ensure the worker positively identifies the correct unit, train, and/or component, and reviews the intended action and expected response before performing the task.

This procedure does not apply to activities performed by the Quality organization or design verification activities.

Verifications required in association with clearance activities are performed in accordance with SPP-10.2, Clearance Program.

## 3.0 INSTRUCTIONS

### 3.1 Responsibilities

Operations Manager

A. The Operations Manager is responsible for the following:

1. Determining the verification method required and designating those systems and/or components requiring IV or second-party verification.

Appendix A provides the list of systems and components requiring IV or second-party verification.

2. Resolving disagreements between plant sections and making the final decision regarding the method of verification required.

Responsible Manager

B. The responsible manager is responsible for the following:

1. Designating IV or second-party verification requirements in appropriate plant procedures/instructions and work documents.
2. Ensuring that plant procedures/instructions and work documents specify IV or second-party verification when required.
3. Ensuring that personnel assigned to perform IV and second-party verifications are qualified.

Procedure Preparers

- C. The preparers of site procedures/instructions and work documents are responsible for the following:
  - 1. Ensuring that IV or second-party verification requirements are specified as appropriate.
  - 2. Ensuring the type of verification is clearly identified.
- D. Shift Manager

The shift manager (SM) shall be responsible for the following:

  - 1. Determining the corrective actions to be taken when discrepancies are discovered.
  - 2. Ensuring that personnel assigned to perform IV and second-party verification are qualified.
  - 3. Authorizing deviations from normal verification practices if needed.
- E. Training Manager

Develop, conduct, and document training of personnel engaged in verification activities.
- F. All Personnel

Inform their respective foreman or supervisor if they have been assigned a verification which they do not feel qualified to perform. In the event their respective supervisor is not available, they will contact the SM for resolution before continuing the verification.

**3.2 Qualifications**

Individuals assigned IV or second-party verification responsibilities shall meet the following qualification requirements:

- A. Technically qualified to perform the assigned task (experience, position description, familiarity with the task, etc., should be considered) as determined by the responsible manager.
- B. Completed training on verification program requirements.



### 3.3 Verification Techniques

#### Second Party (Concurrent) Verification Standard:

1. Using 3-way communication, performer and peer agree on the action to take, on which component, and for what purpose, confirmed by the guiding document.
2. Using self-checking, the performer and verifier individually confirm the correct component, label, etc. Flag the component if desired.
3. Performer performs predetermined action and only that action.
4. Verifier watches the actions of the performer to verify the actions are correct.
5. Verifier, at the moment of performing the action and without being influenced by the performer, confirms the actions of the performer are correct, and ascertains the proper configuration matches required condition after action is performed using one or more of the following means:
  - Hands-on verification that configuration is correct (e.g., checking valve position)
  - Observing remote indication
  - Observing correct system/equipment/component response
6. Performer and verifier confirm the new configuration agrees with the guiding document and signs the appropriate spaces provided in the procedure.

#### Independent Verification Standard:

**NOTE** In the true meaning of Independent Verification, the performer and the verifier may receive the pre-job brief together but not be associated together for the activity. In trying to keep the integrity of the verification, the verifier cannot rely on any visual/audible cues of the performer. The object of this verification process is to not pollute the verification with any information from the performer.

1. Performer self-checks the component to be manipulated.
2. Performer performs predetermined action and only that action.
3. Performer confirms new configuration agrees with guiding document and signs his/her signature in the spaces provided in guiding document.
4. At a separate time and not in the presence of the performer, the verifier self-checks the component that was manipulated to verify component identification matches the component required to be verified.

5. Verifier verifies the as-found configuration or condition matches the required position, without changing it, using one or more of the following means:
  - Hands-on verification that configuration is correct (e.g., manually checking valve position)
  - Observing remote indication
  - Observing correct system/equipment/component response
6. Verifier confirms new configuration or condition agrees with guiding document and signs his/her signature in the spaces provided in guiding document.
7. If as-found configuration or condition is incorrect, report the condition to supervision immediately.

**3.3.1 Valves**

- A. Valves that are to be verified open will be manipulated in the closed direction only as necessary to remove any slack from the operating mechanism and verify valve stem movement. The valve will then be fully opened, subject to normal precautions on backseating valves.
- B. Valves that are to be verified closed will be manipulated in the closed direction only as necessary to verify the valve is fully closed, and not binding or difficult to operate. Care must be exercised, however, to avoid overtorquing the valve operator and damaging the valve seat. If any doubt exists, SM should be contacted for resolution.
- C. To determine the position of a throttled valve, the total number of turns until the handwheel stops moving in the open/closed direction shall be counted. To set the position of a throttled valve, open/close the valve the required number of turns from the full closed/open position (handwheel will no longer move in the closed/open direction).
- D. Reach rod valve position indicators will not be used as the sole method of position verification.
- E. Locked valve and throttled valve position cannot be independently verified since these operations require the verifier to observe actions while they are being performed. Second-party verification shall be used to verify the position of locked and throttled valves in those cases where IV would normally be required.

### **3.3.2 Alternate Verification Techniques**

Alternate verification techniques may be used by the verifier where specified by approved procedures, valve and breaker line-up checklists, or at the discretion of shift supervisory personnel. Examples include the following:

- A. Use of remote position indicators. (Indicating lights in the control room, at the switchgear, or at local controls are the normal method of determining motor-operated and air-operated valve position.)
- B. Use of process parameters (e.g., pressure, flow, vibration, current, voltage, potential lamps, etc.).
- C. Observation of the valve stem to aid in determination of valve position if the valve stem is marked by paint (when fully closed) or other positive verification methods.
- D. Authorized scribe marks on valve stems, properly labeled with the throttled position.
- E. Functional mechanical position indicators.
- F. A post maintenance/modification functional test provided the testing verifies each component under consideration.

### **3.3.3 Circuit Breakers**

Circuit breaker verification will include a local inspection of the breaker, control power switches or fuses, and other equipment as outlined below:

- A. To verify a breaker is removed from service, the independent or second-party verifier will ensure control power is isolated (if required) by inspecting appropriate switches, fuses or fuse blocks, and ensure the breaker is racked out to the disconnected position, as applicable.
- B. To verify a breaker is restored to service, the independent or second-party verifier will ensure control power is energized by inspecting appropriate switches, indicating lights, fuses or fuse blocks, and will ensure the breaker is fully racked in with closing springs charged as applicable. Where practical, the end device should be operated following the reinstallation of a breaker. The verifier will also ensure the cubicle door is in good condition with all fasteners tight.

## **3.4 Verification Requirements**

When determination of these requirements is not clear, the responsible manager will designate the requirements. If there is disagreement, the operations manager will designate the requirements.

- 3.4.1** IV or second-party verification is required for those systems listed in Appendix A and shall include the following as a minimum:

- A. All valves, breakers, and other components in safety-related systems where an inappropriate positioning could adversely affect system/plant operation or containment integrity.
- B. All valves, breakers, and other components in fire protection system major flow paths, including fire fighting water supply and storage, carbon dioxide storage systems, fire protection systems, and all components necessary for the system to function and supply extinguishing media to the fire.
- C. All valves, breakers, and other components in gaseous and liquid radioactive waste handling and processing systems where an inappropriate positioning could result in radioactive material release to the environment.

**3.4.2 Activities Exempt From Independent and Second-Party Verification Requirements**

- A. Calculations performed by qualified computer software.
- B. Activities for which verifications would be required and one or more of the following conditions exist:
  - Out-of-service systems/channels/components for which configuration control will not be maintained and will be verified to be in the proper configuration during the return to operable status.
  - Activities involving significant radiation exposure. As a guideline, an exposure greater than 10 mrem TEDE to perform the verification would be considered excessive.
  - Activities occurring during emergency conditions (imminent danger to plant or personnel) requiring rapid personnel action.
  - Activities that could jeopardize personnel safety.
  - Components located within locked/covered/controlled access areas provided access to the area has not occurred since the last documented verification.

For these instances, the decision not to perform a verification is to be documented on the procedure/instruction or work document.

**3.4.3 Independent Verification Requirements**

IV is used to confirm that an activity or condition has been implemented in conformance with specified requirements. The individual performing the IV must physically check the condition without relying on observation or verbal confirmation by the initial performer. However, the independent verifier may be involved in unrelated portions of the same activity. IV is required for the following:

- A. Any critical activity that, if done improperly, could remain undetected until that structure, system, or component was called upon to mitigate an accident or transient as described in the FSAR, Fire Protection Plan, Security Plan, or ODCM. Critical implies the activity is absolutely necessary for Systems, Structures, and Components to function.
- B. Initial system lineups, or restoring components to their required position/condition following an outage where the system status was not maintained.
- C. Normal system line-up periodic checks conducted during operating conditions. In this case, the individual performing the periodic check of the original lineup is considered to be the independent verifier and an additional second check is not required. IV of locked components consists of checking that required locking devices are present and intact.
- D. Installation and removal of temporary alterations covered by the TACF Program.

#### 3.4.4 Second-Party Verification Requirements

Second-party verification is used in lieu of IV for the activities listed below. When performing a second-party verification, an agreement must be reached between the performer and the verifier that the activity/manipulation to be performed is correct before performance.

- A. Activities where performing an IV would by itself invalidate the actions or conditions the performer is attempting to establish.

##### EXAMPLE

Verification of throttled valve position, locked valve position, installation and removal of high voltage line or bus PT fuses, installation and removal of fuses in fuse blocks/clips which are normally hidden from view, etc.

- B. Activities which, if improperly accomplished or incorrectly identified, may cause any of the following:
  - Immediate plant trip or transient
  - Safety system actuation
  - Start of equipment
  - Equipment failure/damage
  - Release of radioactive material
  - Personnel injury

##### EXAMPLE

Removal or installation of wires, jumpers, or other connections; valve, switch, or breaker manipulations; removal or installation of fuses or circuit cards; etc.

### 3.5 Human Error Prevention

Self-checking helps prevent errors when 'touching' plant equipment to change its status or even when revising a plant document important for plant safety and reliability. Self-checking is particularly important during skill based tasks that could be performed without much conscious thought. The tool is required to be used at all times for manipulation of any plant equipment.

Peer-checking is the act of checking the correct component identification and subsequent manipulation prior to action being taken so that the actions to be taken will be correct. Unlike Concurrent Verification, peer-check may involve audio and/or visual cues and does not require documentation. Peer-Checking is used as defined in the Pre-Job Briefing. Most common uses are when mis-identification, mis-operation, or improper installation or assembly can have undesirable impact on people's safety or plant equipment. Other uses include a history of error or unfavorable experience with a particular action, or requested by a Peer in the field. Peer-Check is not required when utilizing CV or IV.

#### 3.5.1 Peer-Checking

Peer-checking is collaborative tool performed by two individuals. One acts as the doer, and the second person, a qualified peer, acts as the checker. The purpose of peer-checking is to prevent human error for a specific action, especially for critical steps or during a series of steps. Peer-Checking is merely two persons (performer and checker) self-checking in parallel, agreeing together that the action is the correct action to be performed and on the correct component.

Peer-checking can be confused with concurrent verification. Although the purpose of both techniques is to prevent error for a specific action, concurrent verification has the added purpose of configuration control. That is why the concurrent verification is documented with signatures in the guiding document. Peer-checking is a technique to avoid a mistake in the operation/manipulation of a component, while concurrent verification helps avoid placing an important component in an undesired configuration needed for either operability or functionality of the system, structure, or component.

- What action(s) is to be performed
- Why it is to be done
- How it is to be done
- When it is to be done
- Who is involved
- What can go wrong
- How to stop/correct/prevent an error or event

#### CUES:

- When mis-identification, mis-operation, or improper installation assembly can have adverse impact on people or plant equipment.

- Pre-determined in the Pre-Job Briefing
- Requested by a PEER in the field
- When required by the plant policy
- Adverse Operating experience with the particular action or series of actions.

Behavior Standard for Peer-Checking:

- The performer verbalizes the intended action out loud, pauses for the peer providing the peer-check to mentally process the action plan.
- The performer waits for verbal agreement from the peer providing the peer-check. The performer proceeds with the action only if the peer providing the peer-check verbally agreed with the intended action.
- The peer-check will be in visual and/or audible range of the performer.

At Risk Practices to Avoid with Peer-Checking:

- Used in place of Independent Verification or Second Party Verification.
- Checker not qualified with the task or is not experienced with the activity.
- Checker not paying close attention to the performer.
- Believing the performer will not err because of the performers experience or proficiency.
- Checker unable to view component to be manipulated.
- Checker not prepared to prevent an incorrect action taken by the performer.
- Asking for a PEER-Check without directing the request to a specific person by name.

**3.5.2 Self-Checking**

This technique focuses attention at important points in an activity before a specific act is performed. Once attention is focused, the individual takes a moment to think about the intended action and its expected outcome. Self-checking is particularly effective during skill-based tasks that could be performed without much conscious thought. Important steps to self-check involve touching plant equipment to change its status or may involve revising a document important for plant safety and reliability. In some cases these steps are determined by the component involved, which can initiate undesired outcomes if performed incorrectly.

Cues to Self-Check:

- Critical step identified during pre-job briefing
- Time pressure – feeling a being hurried
- Task interruption
- Impending change in system or equipment status (especially maintenance disassembly and reassembly)

Behavior Standards For Self-Checking:

1. Have controlling document in hand
2. Prior to manipulation use Touch-STAR when manipulating components:
  - **Stop** – Pause before performing operation/manipulation. Eliminate distractions, if necessary. Focus attention on the step to be performed.
  - **Think** – Verify the action is appropriate for equipment/system status. Anticipate expected result(s) of the action and its indications. Consider what actions to take should expected result not occur (contingency).
  - **Act** – Without losing eye contact, touch the component, label, etc. Compare component, label, etc., with checklist, procedure step, or drawing. State the component name or UNID allowed. Without losing physical contact established earlier, perform the action.
  - **Review** – Verify anticipated result obtained. Perform contingency, if expected result does not occur.
3. If distracted, involving loss of visual or physical contact, then repeat the process to verify the proper component is about to be manipulated.
4. Slow - deliberate pace when proceeding through critical steps.
5. Stop when questions or discrepancies are encountered.

At-Risk Behaviors To Avoid During Self-Checking:

- Carrying on a conversation while self-checking
- Self-checking without guiding document
- Attempting to perform more than one action at a time; no two-handed operations
- Continuing with the action when questions or discrepancies occur
- Looking at something other than component to be manipulated



#### 4.0 RECORDS

##### 4.1 QA Records

None

##### 4.2 Non-QA Records

None

#### 5.0 DEFINITIONS

**Second-Party/Concurrent Verification (CV)** - The act of verifying a condition, such as lifting a lead or installing a jumper, concurrent with the activities related to establishing the condition. The individual performing the second-party verification and the performer must reach agreement that the activity/manipulation to be performed is correct before performance. The terms second-party/concurrent verification are synonymous and may be used interchangeably. For the verification process, the main focus is on Configuration/Status Control.

**Independent Verification (IV)** - The act of checking a condition, such as a component position, separately from the act of establishing the condition. The individual performing the IV must physically check the condition without relying on observation or verbal confirmation by the initial performer. The verifier must be physically independent as well as independent by time. In the true meaning of Independent Verification, the performer and the verifier may receive the pre-job brief together but not be associated together for the activity. In trying to keep the integrity of the verification, the verifier cannot rely on any visual/audible cues of the performer. The object of this verification process is to not pollute the verification with any information from the performer.

**Peer-Checking** - The act of checking the correct component identification and subsequent manipulation prior to action being taken so that the actions to be taken will be correct. Unlike Concurrent Verification, peer-check may involve audio and/or visual cues and does not require documentation. Peer-Check is not required when utilizing CV or IV. When PEER-Checking, the main focus is on the action itself, not as much "Configuration Control."

**Self-Checking** - This technique focuses attention at important points in an activity before a specific act is performed. Once attention is focused, the individual takes a moment to think about the intended action and its expected outcome. Self-checking is particularly effective during skill-based tasks that could be performed without much conscious thought. Important steps to self-check involve touching plant equipment to change its status or may involve revising a document important for plant safety and reliability. In some cases these steps are determined by the component involved, which can initiate undesired outcomes if performed incorrectly.

APPENDIX A  
Page 1 of 2

SYSTEMS AND COMPONENTS REQUIRING INDEPENDENT OR SECOND-PARTY VERIFICATION

SYS	WBN	SQN	BFN
01	Main Steam (safety-related portion)	Main Steam System (safety-related portion)	Main Steam (safety-related portion)
03	Main Feedwater System (safety-related portion)	Main Feedwater System (safety-related portion)	Reactor Feedwater System (safety-related portion)
03	Auxiliary Feedwater System	Auxiliary Feedwater System	N/A
13	Fire Detection System	Fire Detection System	Fire Detection System
23	N/A	N/A	RHR Service Water System
26	High Pressure Fire Protection	High Pressure Fire Protection	High Pressure Fire Protection
30	Auxiliary Building Gas Treatment System, Lower Compartment Cooler Fans, Containment Air Return Fans	Auxiliary Building Gas Treatment System, MCR Ventilation System, Lower Compartment Cooler Fans, Containment Air Return Fans	HVAC (Refueling Zone, Reactor Zone, Turbine Bldg., Radwaste Bldg.)
31	MCR Ventilation	Covered by System 30.	Control Bay and Off-Gas Building HVAC (CREV)
32	Essential Air System	Essential Air System	Control Air System (Reactor Bldg. And Drywell)
39	CO <sub>2</sub> Storage and Fire Protection	CO <sub>2</sub> Storage and Fire Protection	CO <sub>2</sub> Storage and Fire Protection
41	Layup Water Treatment System	Layup Water Treatment System	Halon Fire Protection System
43	Post Accident Sampling System - Those parts of the system that isolate RCS, RHR, Containment and flush water	Post Accident Sampling System - Those parts of the system that isolate RCS, RHR, Containment and flush water	Sampling and Water Quality System - Those parts that isolate releases to the environment and establish primary and secondary containment
62	Chemical Volume & Control System	Chemical Volume & Control System	N/A
63	Emergency Core Cooling System	Emergency Core Cooling System	Standby Liquid Control System
64	N/A	N/A	Reactor Building Heating and Ventilation System, Primary Containment and Isolation System
65	Emergency Gas Treatment System	Emergency Gas Treatment System	Standby Gas Treatment System
66	N/A	N/A	Offgas System
67	Essential Raw Cooling Water System	Essential Raw Cooling Water System	Emergency Equipment Cooling Water System
68	Reactor Coolant System	Reactor Coolant System	Reactor Recirculation System
69	N/A	N/A	Reactor Water Cleanup System (RWCU)

APPENDIX A  
Page 2 of 2

SYSTEMS AND COMPONENTS REQUIRING INDEPENDENT OR SECOND-PARTY VERIFICATION

SYS	WBN	SQN	BFN
70	Component Cooling Water System	Component Cooling Water System	Rx Bldg Closed Cooling Water System (RBCCW)
71	N/A	N/A	Reactor Core Isolation Cooling System (RCIC)
72	Containment Spray System	Containment Spray System	Auxiliary Decay Heat Removal
73	N/A	N/A	High Pressure Coolant Injection System (HPCI)
74	Residual Heat Removal (RHR) System	Residual Heat Removal (RHR) System	Residual Heat Removal System (RHR)
75	N/A	N/A	Core Spray System
76	N/A	N/A	Containment Inerting System
77	Radwaste Systems - Those parts that isolate releases to the environment	Radwaste Systems - Those parts that isolate releases to the environment	Liquid Radwaste System (Floor and Equipment Drains) - Those parts that isolate releases to the environment and establish primary and secondary containment
78	Spent Fuel Pit Cooling System	Spent Fuel Pit Cooling System	Fuel Pool Cooling and Cleanup System
82	Emergency Diesel Generators	Emergency Diesel Generators	Standby Diesel Generators
83	Hydrogen Recombination	Hydrogen Recombination	N/A
84	Flood Mode Boration System	Flood Mode Boration System	Containment Atmosphere Dilution System
85	Rod Control	Rod Control	Control Rod Drive Hydraulics
86	Refer to System 82	Refer to System 82	Diesel Air Start System
88	Containment Isolation System - including valves/components that provide a containment isolation function	Containment Isolation System - including valves/components that provide a containment isolation function	N/A
90	Radiation monitoring systems - Those parts of the systems that provide isolation functions to effluent pathways	Radiation monitoring systems - Those parts of the systems that provide isolation functions to effluent pathways	Radiation monitoring system - Those parts that isolate releases to the environment and establish primary and secondary containment
99	ESFAS & RPS	ESFAS & RPS	Reactor Protection System
268	Permanent Hydrogen Mitigation	Permanent Hydrogen Mitigation	N/A
--	Reactor core (Fuel and component locations)	Reactor core (Fuel and component locations)	Reactor core (Fuel and component locations)
--	Class 1E Electrical Distribution System.	Class 1E Electrical Distribution System.	Class 1E Electrical Distribution System.

**NOTE** N/A indicates that the associated system number is not utilized at the referenced plant.

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

JPM NUMBER: 540

TITLE: DETERMINATION OF OVERTIME ELIGIBILITY

ADMIN: Conduct of Operations

PROVIDE CANDIDATE WITH A COPY OF: OSIL 25 & SPP-1.5 (Only If Requested)

**ADMIN "B"**

SUBMITTED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

VALIDATED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

TRAINING

PLANT CONCURRENCE: \_\_\_\_\_

DATE: \_\_\_\_\_

OPERATIONS

\* Examination JPMs Require Operations Training Manager Approval or Designee Approval and Plant Concurrence

## BROWNS FERRY NUCLEAR PLANT JOB PERFORMANCE MEASURE

## REVISION LOG

[illegible]

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

OPERATOR: \_\_\_\_\_

RO \_\_\_\_\_ SRO \_\_\_\_\_ DATE: \_\_\_\_\_

JPM NUMBER: 540

TASK TITLE: DETERMINATION OF OVERTIME ELIGIBILITY

K/A NUMBER: 2.1.1 K/A RATING: RO 3.7 SRO 3.8

\*\*\*\*\*

TASK STANDARD: GIVEN APPROPRIATE INFORMATION, DETERMINE  
OPERATOR OVERTIME ELIGIBILITY.

PERFORMANCE LOCATION: \_\_\_\_\_ CLASSROOM: X

REFERENCES/PROCEDURES NEEDED: OSIL 25 8-29, SPP-1.5 Rev 5

VALIDATION TIME: \_\_\_\_\_ CLASSROOM: 15:00

MAX. TIME ALLOWED: \_\_\_\_\_ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME: \_\_\_\_\_

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ADDITIONAL COMMENT SHEETS ATTACHED? YES \_\_\_\_\_ NO \_\_\_\_\_

RESULTS: SATISFACTORY \_\_\_\_\_ UNSATISFACTORY \_\_\_\_\_

EXAMINER SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

\*\*\*\*\*

**Classroom**

\*\*\*\*\*

**INITIAL CONDITIONS:** A startup is planned for the following shift. One Reactor Operator must be held over two hours for startup. The following is the work history (excluding shift turnover time) of the available reactor operators on shift (hours reflect those worked PRIOR to the 2 hour holdover). A break of at least 8 hours occurred between all work periods.

**INITIATING CUES:** Evaluate the work history for all 5 operators. Determine for each Operator if;

- A. They can be held over for two hours WITHOUT a waiver, AND;
- B. They can be held over for two hours WITH a waiver, AND;
- C. They cannot be held over WITH or WITHOUT a waiver

**EXAMINER'S SOLUTION**

**DO NOT GIVE TO STUDENT**

Step	Description	Standard	SAT/UNSAT
	Reference SPP-1.5, OSIL 25	Current Revision SPP-1.5 and OSIL 25 (If requested)	
1	Evaluate Operator 1	Determine Operator #1 would exceed 24 hours in a 48 hour period and would require overtime authorization	A - NO B - YES C - NA
2	Evaluate Operator 2	Determine Operator #2 would exceed 72 hours in a 7 day period and exceed 24 hours in a 48 hour period and would require overtime authorization	A - NO B - YES C - NA
3	Evaluate Operator 3	Determine Operator #3 is already on waiver for greater than 72 in 7 days and would exceed 85 hours in a 7 day period which cannot be waived per OSIL-25	A - NO B - NO C - YES
4	Evaluate Operator 4	Determine that Operator #4 would not exceed any overtime guidelines	A - YES B - NA C - NA
5	Evaluate Operator 5	Determine Operator #5 would exceed 72 hours in a 7 day period and would require overtime authorization	A - NO B - YES C - NA

ALL STEPS ARE CRITICAL - 4 of 5 CORRECT TO PASS JPM (80%).



### Examiner's Copy

A startup is planned for the following shift. One Reactor Operator must be held over two hours for startup. The following is the work history (excluding shift turnover time) of the available reactor operators on shift (hours reflect those worked PRIOR to the 2 hour holdover). A break of at least 8 hours occurred between all work periods

DAY	1	2	3	4	5	6	7	8 Today	can work without waiver			can work with waiver			Cannot work with or without waver		
Operator #1	12	12	12	12	0	0	12	12	yes	no	na	yes	no	na	yes	no	na
Operator #2	0	12	12	12	0	12	12	12	yes	no	na	yes	no	na	yes	no	na
Operator #3	0	12	12	12	12	12	12	12	yes	no	na	yes	no	na	yes	no	na
Operator #4	12	12	12	0	12	12	10	12	yes	no	na	yes	no	na	yes	no	na
Operator #5	0	10	8	8	12	12	12	10	yes	no	na	yes	no	na	yes	no	na

**INITIATING CUES:** Evaluate the work history for all 5 operators. Determine for each Operator if;

- A. They can be held over for two hours **WITHOUT** a waiver, **AND**;
- B. They can be held over for two hours **WITH** a waiver, **AND**;
- C. They cannot be held over **WITH** or **WITHOUT** a waver

Circle the correct responses above for each operator

**ALL STEPS ARE CRITICAL - 4 of 5 CORRECT TO PASS JPM (80%).**

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

\*\*\*\*\*

**CANDIDATE HANDOUT**

\*\*\*\*\*

**INITIAL CONDITIONS:** A startup is planned for the following shift. One Reactor Operator must be held over two hours for startup. The following is the work history (excluding shift turnover time) of the available reactor operators on shift (hours reflect those worked PRIOR to the 2 hour holdover). A break of at least 8 hours occurred between all work periods.

**INITIATING CUES:** Evaluate the work history for all 5 operators. Determine for each Operator if;

- A. They can be held over for two hours WITHOUT a waiver, AND;
- B. They can be held over for two hours WITH a waiver, AND;
- C. They cannot be held over WITH or WITHOUT a waver

**CANDIDATE HANDOUT****TASK CONDITIONS:**

A startup is planned for the following shift. One Reactor Operator must be held over two hours for startup. The following is the work history (excluding shift turnover time) of the available reactor operators on shift (hours reflect those worked PRIOR to the 2 hour holdover). A break of at least 8 hours occurred between all work periods

DAY	1	2	3	4	5	6	7	8 Today	can work without waiver			can work with waiver			Cannot work with or without waver		
Operator #1	12	12	12	12	0	0	12	12	yes	no	na	yes	no	na	yes	no	na
Operator #2	0	12	12	12	0	12	12	12	yes	no	na	yes	no	na	yes	no	na
Operator #3	0	12	12	12	12	12	12	12	yes	no	na	yes	no	na	yes	no	na
Operator #4	12	12	12	0	12	12	10	12	yes	no	na	yes	no	na	yes	no	na
Operator #5	0	10	8	8	12	12	12	10	yes	no	na	yes	no	na	yes	no	na

**INITIATING CUES:** Evaluate the work history for all 5 operators. Determine for each Operator if;

**A. They can be held over for two hours WITHOUT a waiver, AND;**

**B. They can be held over for two hours WITH a waiver, AND;**

**C. They cannot be held over WITH or WITHOUT a waver**

Circle the correct responses above for each operator

C

C

C

## 1.0 PURPOSE

Provide for uniformity in filling vacant overtime shifts, implementing regulatory restrictions with regard to hours worked, instructions for work in excess of 8 hours and 16 hours, establish Operations leave policy, and establish the Operator Relief policy.

## 2.0 REFERENCES

SPP-1.5, Overtime Restrictions (Regulatory)  
NUREG-0737 I.A.1.3 (IE Circular No. 80-02)  
NRC Generic Letters 82-12 and 83-14  
BP-110 and 107  
R30 940316 859  
SPP-1.2, Fitness For Duty  
BFPER 99-012810-000  
BFPER 99-012812-000

## 3.0 DEFINITIONS

NONE

## 4.0 INSTRUCTIONS

### 4.1 Filling Overtime for Employees on Continuous Shifts

- 4.1.1 Employees in temporary classifications are considered as permanent employees for the purpose of filling overtime.
- 4.1.2 When the overtime position to be filled requires documented qualifications or training, employees selected to work overtime shall meet these requirements in addition to being in the appropriate classification. **Reference Attachment 2 when calling in for overtime.**
- 4.1.3 The Shift Manager will be responsible for designating the required overtime positions, and these positions will be filled in the order listed below, provided that employees may be called without exceeding the overtime limits described in Standard Programs and Practices (SPP-1.5).

Vacancies of normally assigned positions caused by pre-approved annual leave will be filled by use of a sign up sheet for employees in classification (reference Attachment 3). The Shift Manager is responsible for uniquely identifying the required positions to be filled by overtime in the Master Leave Book. The Unit 1 Operator or the Operations Clerk will refer to the Master Leave Book to obtain the number of required positions, which have been uniquely identified by the Shift Manager, for the sign up sheet. Once the sign up sheet has been filled out, the Shift Manager will review and approve the sign up sheet then the Unit Operator will start the calling process at approximately 1300 on Sunday. The sign up sheet will begin on Monday at 0700 for the beginning of each week. The sign up sheet will list the date and shift for each vacancy. The Unit 1 Operator will call the low overtime person on the sign up sheet on Sunday beginning at approximately 1300 to inform him/her what shift he/she is to work during the next week. If you sign up and you are the low person, you are expected to work that shift. All other overtime will be filled by the following:

Original Signed by Robert Marsh  
Operations Superintendent

08/29/2005  
DATE

4.1 Filling Overtime for Employees on Continuous Shifts (Continued)

- 4.1.3.1 Employees in classification in which the overtime shifts are to be worked are first offered the shift on their off-days in order of their overtime hours, provided it will not require them to work 16 consecutive hours.
- 4.1.3.2 If no one is available in group 1 above, employees in classification who have had one 8-hour offshift and who will not have to work 16 consecutive hours are offered the shift in order of their overtime hours.
- 4.1.3.3 If no one is available in groups 1 or 2 above, employees onshift in classification who are working overtime on their offdays are offered the shift in order of their overtime hours.

NOTE: \*Agreed to by Operations Superintendent and Job Steward: All trainees will be offered overtime in accordance with the overtime procedures, but SHALL NOT BE FORCED OVER.

- 4.1.3.4 If no one is available in groups 1, 2, or 3 above, employees onshift in classification are offered the shift in order of their overtime hours. If the employee is involved in a shift swap that could cause him to violate nuclear staff work hours as outlined in SPP-1.5, this will require the Plant Manager's (or Duty Plant Manager's) approval. Complete Form SPP 1.5-1.
- 4.1.3.5 If no one is available in groups 1-4 above, those employees who were bypassed initially because they would have exceeded 24 hours in any 48-hour period, or 72 hours in a seven-day period will be offered the shift on a voluntary basis following steps 1-4 above; provided that **no employee may work more than 85 hours in any seven-day period.** Exceeding 24 hours in any 48-hour period, or 72 hours in a seven-day period would require a deviation from the overtime limits set forth in SPP-1.5. This is documented using Form SPP 1.5-1.
- 4.1.3.6 If no one is available in groups 1-5 above, the employee low on overtime onshift in classification and who is not on overtime is held over. (If a person is working evening shift and is on annual leave (A/L) the following day, he or she cannot be forced over to work a midnight shift. The person may elect to have their shift changed and save the A/L.) Normally, an employee will not be required to double over 16 hours, more than every other day. If the employee is involved in a shift swap that would cause him to violate nuclear staff work hours as outlined in SPP-1.5, this will require the Plant Manager's (or Duty Plant Manager's) approval. Complete Form SPP 1.5-1. Employees not exceeding the overtime limits set forth in SPP-1.5 would be given priority over those requiring deviations, provided that no employee may work more than 85 hours in a seven-day period.

4.1 Filling Overtime for Employees on Continuous Shifts (Continued)

- 4.1.3.7 If the employees held over requests relief, the employees on the incoming shift in classification are called at home. It is not necessary that he/she wait or that the Shift Manager (SM) wait until the shift actually starts to obtain a relief.
- 4.1.3.8 An employee on scheduled A/L is not called in until employees onshift and those on offdays are required to work more than one shift per day.
- 4.1.3.9 Use the Following guidance to fill upcoming vacancies in the Work Control Center SRO (WCC SRO) and the Shift Support Tagging (SST) positions, as deemed necessary by the Shift Manager.
  - 1. WCC SRO
    - a. Call out for Unit Supervisors that are currently on their off days.
    - b. If no one accepts; call out for Shift Managers currently on their off days.
  - 2. SST
    - a. Call the qualified Unit Operator (UO) per the call-out procedure, do not skip over non step 3 qualified people (arrange position swaps as necessary), if no one accepts;
    - b. Force UO on shift per call-out procedure (arrange position swaps as necessary), force qualified UO on-shift if position swaps will not meet minimum manning requirements.
- 4.1.3.10 To ensure administrative requirements are met for having 2 active licenses in the Unit 1 and 2 spaces, Unit 1 is to be manned with an Active Licensed Unit Operator. This is an Administrative appointment and not required by the Code of Federal Regulations or Technical Specifications when the Unit is de-Fueled.

4.2 Filling Overtime on Holidays

Vacancies are filled in overtime order of those individuals that were "Holidayed Off" on that shift (Not for all shifts that day, but just for the shift in question). Persons holidayed off for the day shift will be called for the day shift in overtime order, then any additional vacancies will be filled in accordance with the overtime procedure. The same would apply for all shifts on that holiday.

4.3 Filling Overtime for Operations Employees not on Continuous Shifts

- 4.3.1 Overtime for Operations employees not on continuous shifts is filled in accordance with the General Agreement, which states that overtime shall be distributed among the qualified employees in the group in which the overtime is worked.
- 4.3.2 Mandatory overtime is filled with the qualified employee in the group with the lowest hours of overtime worked.

4.4 Recording Overtime for all Operations Employees

- 4.4.1 Records of paid overtime worked or refused are kept by the Operations clerk on a biweekly basis and are made available upon request to labor representatives.
- 4.4.2 For Operations employees, overtime hours refused are not considered in determining overtime hours.
- 4.4.3 Overtime hours are zeroed for all employees at the end of the pay year.
- 4.4.4 Operations employees who are hired or transferred between locations are recorded with an amount of overtime equal to the average of the new classification and location. Reclassified Operations employees at the same location retain their accumulated overtime hours.

4.5 Regulatory Restrictions With Regard to Work Hours

Fatigue, especially if due to loss of sleep, results in a marked deterioration of a person's response to visual signals, increases the time for a person to make a decision, and result in more personnel errors. Additionally, as a person becomes more fatigued the person tends to ignore more and more signals. In recognition of this, limitations have been established in the references for personnel work hours.

**INSTRUCTIONS**

- The controls shall apply to the plant staff who perform safety-related functions (Senior Reactor Operators, Reactor Operators, and Assistant Unit Operators (AUOs)).
  - a. Work no more than 16 hours straight (not including shift turnover time).
  - b. Have a break of 8 hours or more (which can include shift turnover time) between all work periods.
  - c. Work no more than 24 hours in any 48-hour period (excluding shift turnover time).
  - d. Work no more than 72 hours in any 7-day period (excluding shift turnover time).
- For shift swaps which exceed the guidelines stated above, a written request must be submitted to the Operations office as far in advance as possible and not less than 48 hours in advance, except in emergencies. The request must include the shifts requested to be swapped and the reason the shift swap is needed. Swaps will be allowed if the reason is determined to be legitimate, pending approval of the Plant Manager or Duty Plant Manager.



- These authorized deviations to the working hour guidelines shall be documented utilizing Form SPP 1.5-1 and available for NRC review.
- Only when it is necessary, due to emergencies or critical load situations, should supervisors permit any employee to work more than 16 continuous hours without a non work period.

#### Work in Excess of 16 Hours

Anyone required to work 16 continuous hours or more shall, upon being relieved, report to the SM for instructions on when to return to work. These instructions will provide a non work period of at least eight continuous hours before returning to work. He/she will be paid his/her regular rate for that part of the rest period which falls within the hours of his/her regularly scheduled straight-time shift. If the work period is followed by a scheduled rest period of greater than eight hours, it is not necessary to contact the SM.

The Plant Manager or Site Vice President may authorize deviations from the overtime restrictions on the Overtime Limitation Exception Report (Form 1.5-1). Their designees may approve deviations other than exceeding 16 hours straight. Form 1.5-2 will be used during periods of extended shutdown for refueling major maintenance, or major plant modification as determined by Plant Manager. The deviation will be based on the following criteria:

1. Unusual circumstances exist.
2. Significant reduction in personnel effectiveness would be highly unlikely.

The exact work to be performed is specified in the Overtime Limitation Exception Report in sufficient detail for the authorizing manager to review and conclude that significant reduction in personnel effectiveness would be highly unlikely.

The form must be filled out and approved before the individual(s) exceeds the overtime limit. If approval is received by telecon, the Preparer shall document that approval was via telecon, initial, date, and given by whom.

5.0 Leave: General Requirements

All leave requests, personal annual leave (PAL), sick leave (S/L) and annual leave (A/L), shall be made through the Shift Manager. The SM Operations Manager or Operations Superintendent SHALL approve all leave. In accordance with the rules of the General Agreement, employees requesting PAL must notify the SM at least four (4) hours before the beginning of the PAL shift. This will be strictly enforced. The Operations Clerk will only record leave as directed by the Shift Manager. The SM shall also complete Attachment 1.

5.1 Annual Leave for Trades and Labor, Salary Policy and Management Personnel in Operations

- 5.1.1 If one feels he/she must be off and can justify leave to the Operations Manager's/ Superintendent's office, he/she may request Absent Without Leave (AWOL) which the SM may grant. AWOL status should be used as this allows proper Operations management leave disposition. If placed on AWOL, Operations Manager/Superintendent's office must be contacted for disposition of the AWOL. The AWOL may be converted to A/L or unapproved absence, based upon Operations Management evaluation. Leave Without Pay (LWOP) is not to be granted by the SM.
- 5.1.2 Each shift shall have a minimum of six (6) AUOs for emergency response duties, five (5) qualified UOs, three (3) USs, and one (1) SM. This requirement can be met with regularly scheduled on-shift personnel or filled by calling overtime. PAL should be granted as long as this requirement is met.
- 5.1.3 If PAL is granted, the Operations clerk will be notified to list it as such on the time sheet and the accumulated PAL listing. PAL shall not be combined with (either before or after) a TVA paid holiday.

5.2 Sick Leave for Trades and Labor Salary Policy and Management Personnel in Operations

- 5.2.1 Sick leave is an excellent form of insurance for employees to use for valid medical reasons. In order to ensure equitable administration of this benefit, the following guidelines should be followed.
- 5.2.2 The Operations Superintendent should review on a monthly basis the S/L used by all employees in Operations. Each individual's situation should be reviewed on a case-by-case basis to determine if any S/L abuse exists. Some of the items to be taken into consideration include:
  - 1. Any effect being on a rotating shift has on an individual.
  - 2. The locations of the employee's residence and the doctor's office.
  - 3. The negative impact of an employee feeling compelled to report for work when it is not prudent; i.e., the employee may have a contagious condition.

- 5.2.3 Patterns of S/L use which indicate potential misuse should be discussed with the employee in an informal meeting to determine the actual cause. If, after this meeting to obtain information, additional discussions are needed, then a formal meeting will be held in which the employee's representative should be present. If these meetings do not achieve the desired result, formal disciplinary action may be initiated. Formal disciplinary action shall not begin until after these two meetings have taken place. S/L which is substantiated by appropriate medical evidence is not a basis for disciplinary action.
- 5.2.4 One of the greatest benefits to employees of prudent use of S/L is having an adequate reserve of leave to ensure continuity of regular pay in the event of a serious illness or accident. An employee's leave record may affect approval of advanced S/L.
- 5.2.5 S/L is granted for use consistent with the instructions in BP-114 and Personnel Manual Instruction, Section 3, which states that S/L is granted when an employee:
- a. is incapacitated for duties because of sickness, injury, or pregnancy and confinement;
  - b. receives medical, dental, or optical exam or treatment;
  - c. is required to give care and attendance to a member of his or her immediate family who is afflicted with a quarantinable communicable disease; or
  - d. would jeopardize the health of others by being present at his or her post of duty because of exposure to a quarantinable communicable disease. (Quarantinable communicable disease is identified by Executive Order 12452 and currently includes such diseases as Cholera, Diphtheria, Infectious Tuberculosis, Plague, Smallpox, Yellow Fever and suspected viral hemorrhagic fevers such as Lassa Margurg, Ebola, Congo Crimean and others not yet isolated or named.)

6.0 Operator Relief

When no qualified Unit Operator is available to relieve the Unit 1 Control Room, Unit 2 or 3 Board or Desk positions, the following guidelines shall be used for relief/breaks:

- 6.1 Reliefs/Breaks should only be for a short duration, 15 minutes or less.
- 6.2 There will always be 2 Reactor Operators in Unit's 1 and 2 Control Rooms and 2 Reactor Operators in Unit 3 Control Room (except as noted in 6.7).
- 6.3 The Unit 2 Desk Operator will be the relief Operator. The Unit 2 Desk Operator will relieve the Unit 1 Operator, the Unit 2 Board Operator, and the Unit 3 Desk Operator. The expectation is that there will always be a Unit 1 Board Operator unless he/she is required to report to Unit 2 during a transient. When the Unit 2 Desk Operator relieves the Unit 1 Operator, the Operator will be assigned to the Unit 1 board with the expectation that the Operator will be available to report to Unit 2 as needed. There will always be a Unit 2 Board Operator.
- 6.4 To maintain consistency on the Unit 3 board, the Unit 3 Desk Operator is the relief for the Unit 3 Board Operator. This only happens when the Unit 2 Desk Operator relieves the Unit 3 Desk Operator, and in turn, the Unit 3 Desk Operator then relieves the Unit 3 Board Operator.
- 6.5 Turnovers shall be thorough, complete, and include the standard announcement.
- 6.6 The Unit 2 and 3 Control Room SROs will approve of the relief prior to it's initiation, and can deny the relief as he deems necessary.
- 6.7 Managers are not to relieve Reactor Operators unless an emergency exists. However, managers may be assigned to the Control Room for additional oversight if it becomes necessary to reduce the Control Room Reactor Operator compliment by one Reactor Operator without having a relief as previously described. In this case, there would be no official assumption of control manipulation, or log entry duties, by the manager.
- 6.8 The relieved operator will make the affected Control Room SRO aware of his destination, and will report back to his assigned work station immediately upon being summoned, or hearing a Public Address (PA) announcement that their Unit has scrambled or the unit conditions have degraded.

## DAILY LEAVE REPORT

DATE \_\_\_\_\_

[illegible]

**Instructions for filling out the Call-in Request Sheet**

- 1) The Unit Operator and / or the Operations Clerk will assign the number of positions required to be filled for the shift in question. This will encompass the required positions and number required in each position including extra personnel required to support shift activities.
- 2) Shift Manager signs (signature) the call-in request sheet prior to initiating the call-in signifying he concurs with the positions and the number of persons required to fill the shift compliment. This can include any additional personnel required to support extra shift tasks.
- 3) Columns will be filled out in "YES/NO" format using the following criteria;
  - WORK, "Do you want to work the required shift"? This is to determine whether the individual wants to work the entire shift.
  - WAIVER, "Will you require a waiver to work the entire shift"?
  - FIT FOR DUTY, "Are you fit for duty"? (See Fitness For Duty Below)
  - ALCOHOL, "Have you consumed alcohol in the past 5 hours"? ( See Fitness For Duty Below)
  - INITIALS, The Unit Operator (caller) initials in the row for the individual which has been called.
- 4) The Shift Manager and the Unit Operator (or Operations Clerk) will then sign the bottom of the Call-in request and forward the sheet to the Operations Clerk. The Operations clerk will file the Call-in request in a fire proof cabinet for the required retention period.

**FITNESS FOR DUTY**

The criteria listed below is to be used to determine the correct methodology in determining Fit For Duty status.

An employee is expected to not consume alcohol 5 hours prior to reporting for SCHEDULED work and to report fit and within FFD guidelines. If called for unscheduled work the employee's suitability for work must be determined.

A. The following must be done whenever a worker is being called in for unscheduled work.

1. The caller will ask and will document on a call-in request sheet the worker's response to the following two questions.
  - a. Are you fit to report to work?
  - b. Have you consumed alcohol within the past 5 hours?

If the answer to the last question is yes, and the individual is called in, document how much alcohol was consumed and when.

**FITNESS FOR DUTY  
(Cont))**

2. The worker must advise the caller and the supervisor if he or she believes that he/she is unfit to report for work.
3. The caller will then decide whether or not to have the person report to work.
4. If the answer to the alcohol consumption question is "yes" then Nuclear Security on site should be notified and be requested to administer a saliva test. This test must be administered as soon as the person arrives on site.
5. If the test results are 0.039 or below, the supervisor shall determine if the employee can be permitted to work. The employee will not be subject to disciplinary action.
6. If the results are 0.040 or above the employee will not be permitted to work. The worker can be paid callout pay. This will NOT be considered a positive test for FFD purposes.

**B. Emergency Response Center Personnel**

Emergency Response Center Personnel who are called by an automated electronic system are responsible for:

1. Advising the center if he/she believes that they are unfit to report for duty.
2. Advising the center on reporting if alcohol has been consumed within the past five hours.

**OSIL-25**  
**PAGE 3 OF 3**  
**08/29/05**  
**Attachment 2**

## Shift

Date \_\_\_\_\_

US \_\_\_\_\_  
STA \_\_\_\_\_

UO \_\_\_\_\_  
SSS \_\_\_\_\_

**AUO**  
**1<sup>st</sup> responders**

SM \_\_\_\_\_  
(Signature)

[illegible]

If the answer to the alcohol consumption question is “yes” Nuclear Security on site should be notified and requested to administer a saliva test to the employee. Document how much alcohol was consumed and when. This test should be administered when the person arrives on-site.

**Duty Official Comments:** \_\_\_\_\_  
\_\_\_\_\_

SM Review: \_\_\_\_\_ Operator Performing: \_\_\_\_\_ Page \_\_\_\_ of \_\_\_\_  
(Signature) (Signature)

Retention Period:1 year

Responsibility: Operations Shift Clerk



**TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT  
OPERATIONS SECTION INSTRUCTION LETTER  
OVERTIME, LEAVE, AND RELIEF POLICY**

**OSIL-25  
PAGE 1 OF 4  
08/29/05  
Attachment 3**

**AUO Day Shift Overtime Sign Up Sheet**

**Week Beginning: \_\_\_\_\_ and Ending: \_\_\_\_\_**

Monday Date	Tuesday Date	Wednesday Date	Thursday Date	Friday Date	Saturday Date	Sunday Date
# Needed	# Needed	# Needed	# Needed	# Needed	# Needed	# Needed

Shift Manager Check if this is a Non-Training Week: \_\_\_\_\_  
Shift Manager

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

**TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT  
OPERATIONS SECTION INSTRUCTION LETTER  
OVERTIME, LEAVE, AND RELIEF POLICY**

**OSIL-25  
PAGE 2 OF 4  
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Attachment 3**

**AUO Night Shift Overtime Sign Up Sheet**

**Week Beginning: \_\_\_\_\_ and Ending: \_\_\_\_\_**

Monday Date	Tuesday Date	Wednesday Date	Thursday Date	Friday Date	Saturday Date	Sunday Date
# Needed	# Needed	# Needed	# Needed	# Needed	# Needed	# Needed

Shift Manager Check if this is a Non-Training Week: \_\_\_\_\_  
Shift Manager

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

**TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT  
OPERATIONS SECTION INSTRUCTION LETTER  
OVERTIME, LEAVE, AND RELIEF POLICY**

**OSIL-25  
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Attachment 3**

**UO Day Shift Overtime Sign Up Sheet**

**Week Beginning: \_\_\_\_\_ and Ending: \_\_\_\_\_**

Monday Date	Tuesday Date	Wednesday Date	Thursday Date	Friday Date	Saturday Date	Sunday Date
# Needed	# Needed	# Needed	# Needed	# Needed	# Needed	# Needed

Shift Manager Check if this is a Non-Training Week: \_\_\_\_\_  
Shift Manager

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

**TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT  
OPERATIONS SECTION INSTRUCTION LETTER  
OVERTIME, LEAVE, AND RELIEF POLICY**

**OSIL-25  
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08/29/05  
Attachment 3**

**UO Night Shift Overtime Sign Up Sheet**

**Week Beginning: \_\_\_\_\_ and Ending: \_\_\_\_\_**

Monday Date	Tuesday Date	Wednesday Date	Thursday Date	Friday Date	Saturday Date	Sunday Date
# Needed	# Needed	# Needed	# Needed	# Needed	# Needed	# Needed

Shift Manager Check if this is a Non-Training Week: \_\_\_\_\_  
Shift Manager

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

C

C

C



**TVAN Standard  
Programs and  
Processes**

**TITLE**

**Overtime Restrictions  
(Regulatory)**

**SPP-1.5  
Rev. 0005  
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Quality Related ☒ Yes ☐ No

PORC Required ☒ Yes ☐ No

Effective Date 05-04-2007

Responsible Peer Team: **Plant Managers**

Concurred by: David A. Kulisek 4/24/07  
Primary Sponsor Date

Concurred by: N/A N/A  
Peer Team Mentor Date

Approved by: N/A N/A  
General Manager, NA Date

Approved by: Yahya Sadre for PDS 4/30/07  
Date

\*Senior Vice President, Nuclear Operations  
\*Site-specific changes are approved by Site Sponsor  
and Site Vice President (see PCF)

<b>TVAN Standard Programs and Processes</b>	<b>Overtime Restrictions (Regulatory)</b>	<b>SPP-1.5 Rev. 0005 Page 2 of 10</b>
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#### Revision Log

<b>Revision or Change Number</b>	<b>Effective Date</b>	<b>Affected Page Numbers</b>	<b>Description of Revision/Change</b>
0	10/8/97	All	Replaces STD-1.7, SSP-1.7 at SQN and BFN; and SSP-1.07 at WBN.
1	5/20/99	2, 4-10	Revised to allow Plant Manager or Site Vice President to delegate approval of exception to overtime during outages, and modified requirements for review of the monthly overtime exception report.
2	11/15/99	2, 5, 8, 9	Added exception to paragraph 3.B.3 and adjusted Forms SPP-1.5-1 and SPP-1.5-2 accordingly (minor/editorial change).
3	10/25/01	2-10	Revised to implement Browns Ferry (BFN) Technical Specifications change 403. The following BFN specific changes were made: removed allowance for Site Vice President to delegate approval of exception to overtime during outages, deleted requirements for Plant Manager review of the monthly overtime exception report, and added a requirement to conduct a periodic independent review of overtime use by Human Resources. Also, incorporated actions from SQN and WBN PERs including: added statement concerning FFD Program to scope. Paragraph 3.B.3 example was modified for the 8-hour break period. Responsibilities for individuals, supervisors and management were added. Turnover Time, Break / 8-hour break, and Work Time and were added to the definitions.

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#### Revision Log

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
4	7/7/04	2-8	Revised to reflect management expectations for supervisors to ask if an individual will exceed any OT limits when or prior to: (1) holding over anyone to perform safety related work; (2) calling anyone in to perform or directly supervise safety related work; and, (3) during outages, prior to starting safety related work. (WBN PER 02-003508-000 CA2), and to eliminate scheduling personnel in excess of overtime limits (WBN PER 02-003508-000 CA3) and to clarify, and make consistent with Tech Specs, which positions require exception forms be completed (WBN PER 02-003508-000 CA4). Additionally, eliminated the use of blanket authorizations and clarified that exemptions were to be used only in "very unusual circumstances" as identified in NRC GL 82-12. These were cited in a NRC violation issued to ANO on 7/19/02.
5	05/04/07	3, 9, 10	<p>This document has been converted from Word 95 to Word 2002 (XP) using Rev. 4.</p> <p>Minor/editorial change: Added Requirements and References section 6.0.</p> <p>Minor/editorial change: Revised Form SPP-1.5-1 to allow for Employee Identification Number (EIN) instead of a Social Security Number (SQN PER 94551-001).</p>



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## 1.0 PURPOSE

- A. This SPP establishes TVAN's regulatory overtime program to meet regulatory requirements and as specified in individual plant Technical Specifications. This procedure does not eliminate adherence to any of the requirements of the TVAN Fitness for Duty Program (ref. SPP-1.2).
- B. The intent of these controls are to prevent situations where fatigue could reduce the ability of operating personnel to keep the reactor in a safe condition, and to assure that critical plant operating personnel are not assigned to shift duties while in a fatigued condition which could significantly reduce their mental alertness or decision making ability.

## 2.0 SCOPE

- A. The following personnel are required to meet the limitations specified in this SPP: senior reactor operators [SROs], licensed reactor operators [ROs], radiological control technicians (health physicists), auxiliary operators (assistant unit operators [AUOs]), and key maintenance personnel (see 5.0 Definitions), including craft and contractors performing safety-related activities in the capacity of the TVA positions listed.
- B. Although not specifically restricted by Technical Specifications, the limitations specified in this SPP should be used as a guide for all personnel performing work.

## 3.0 INSTRUCTIONS

### 3.1 Requirements

- A. Adequate shift coverage shall be maintained without routine heavy use of overtime. The objective shall be to have personnel within the scope of this SPP, work an 8, 10, or 12-hour day, a nominal 40-hour week while the plant is operating.
- B. On a temporary basis, substantial amounts of overtime may be used as required:
  - To support unforeseen problems, or
  - During extended periods of shutdown for refueling outages or
  - Major maintenance projects or
  - Major plant modifications

In these cases the following restrictions apply:

1. An employee may work no more than 16 hours straight, excluding shift turnover time (see 5.0 Definitions). For exceptions, see 3.1D below.

As an example an employee has worked on shift 16 continuous hours. At the end of the shift it takes one hour for shift turnover which means the employee has worked 17 continuous hours. Since the one hour over 16 was for shift turnover, an authorization for deviation from the overtime limitation is not required.

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### 3.1 Requirements (continued)

2. An employee may work no more than 16 hours in any 24-hour period, 24 hours in a 48-hour period, or 72 hours in any 7-day period, excluding shift turnover time (see 5.0 Definitions). For exceptions, see 3.1D below.

For example a 7-day period is any combination of 7 consecutive days or rolling days (such as Monday through Sunday or Tuesday through Monday). Hours worked over 72 require authorization for exception to the limitation, excluding shift turnover (for exceptions, see 3.1D below).

3. Employees are to receive at least an 8-hour break (see 5.0 Definitions) between work periods, including shift turnover time (see 5.0 Definitions). For exceptions, see 3.1C below.

The intent of this requirement is to ensure workers have at least 8 hours off work for recuperation to prevent fatigue. A work period is the normal working shift each day such as 5 eight hour shifts or 4 ten hour shifts etc. and does include both work time and turnover time as defined in Section 5.0 Definitions. Therefore, the limitations for the 8-hour break can be applied by the following:

- a. **An employee must have had at least a continuous 8-hour break within the previous rolling 24-hour period. Turnover time is not included in the break time.**
- b. If the employee has not had a continuous break of at least 8-hours within the previous rolling 24-hour period, an approved Exception Report must be obtained prior to exceeding 16 hours past the end of the last 8-hour continuous break.
- c. For example, an employee has been working his normal 8-hour shift starting at 0730 to 1600 and then has a 1/2-hour turnover (turnover ends at 1630). The end of the last 8-hour break was at 0730. At 2000 he is called back to work and reports at 2100. His break time has been 4-1/2 hours. He does not require an approved exception since he had greater than an 8-hour break within the previous 24-hours (2100 the day before to 0730 that morning). However, if this same employee was called and reported in at 2400, an approved Exception Report would be required for not having had an 8-hour continuous break. (Neither the break from 2400 to 0730 that morning or from 1630 to 2400 that night provides a continuous 8-hour break.) Continuing with the first scenario, the employee reports to work at 2100 and works to 2400 and then has a 1/2-hour turnover to 0030. At 2330, an Exception Report for failing to have a 8-hour break must be approved (prior to exceeding 16 hours from the end of the last 8-hour break). Additionally, if the employee reports to work at his normal time of 0730 an approved Exception Report must be completed prior to his return. The employee can not return to work prior to 0830 without having an approved Exception Report for not having the continuous 8-hour break.

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### 3.1 Requirements (continued)

4. When substantial overtime is required, it shall be assessed and monitored to ensure the above-listed restrictions are met. Assignment of overtime is made after consideration of such factors as on going activities, expected duration, and personnel involved, with the intent to minimize potential impact on safety-related activities.
5. When a control board operator must work overtime, every effort must be made to remove the operator from the responsibility of operating the control room board.
- C. Personnel performing safety-related activities (in the capacity of the TVA positions listed herein) should not be scheduled to exceed any overtime limit.
- D. The Plant Manager or Plant Manager's designees may authorize deviations from the overtime restrictions on the Overtime Limitation Exception Report (Form SPP-1.5-1).
  1. The Plant Manager's designees may approve deviations other than exceeding 16 hours straight.
  2. During outages, the Plant Manager may delegate the authority to exceed 16 hours to the Outage Manager or the Assistant Plant Manager.
  3. The deviation will be based on the following criteria.
    - a. Very unusual circumstances exist.
    - b. Significant reduction in personnel effectiveness would be highly unlikely.
- E. The exact work to be performed is specified in the Overtime Limitation Exception Report in sufficient detail for the authorizing manager to review and conclude that significant reduction in personnel effectiveness would be highly unlikely.
- F. The form must be filled out and approved before the individual(s) exceeds the overtime limit. If approval is received by telecon, the preparer shall document that approval was via telecon, initial, date, and given by whom.
- G. The Plant Manager **shall designate periodic independent reviews to monitor** program compliance and to ensure excessive hours have not been assigned, and that Overtime Limitation deviations are being requested and authorized when required.

### 3.2 Responsibilities

- A. Employees are responsible for notifying their supervisor of the potential for exceeding the limits specified in this procedure well in advance of such occurrence. Employees may not exceed the limits specified by this procedure or exceed the hours as approved by an Exception Report. Employees must have an 8-hour break as defined in this procedure or an Exception Report must be approved prior to starting work and/or a pre-work turnover.
- B. Supervisors will ask if an individual will exceed any overtime limits prior to holding anyone over to perform safety-related work.

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### 3.2 Responsibilities (continued)

- C. Anyone calling someone in to perform or directly supervise safety-related work will ask if the individual will exceed any overtime limits.
- D. During outages, prior to starting safety-related work, the supervisor will ensure that each individual will not exceed any overtime limit.
- E. Supervisors or designee are responsible for preparing the applicable Exception Report, ensuring that a significant reduction in personnel effectiveness would be highly unlikely, and obtaining management approval prior to an employee exceeding the limits as specified in this procedure. This includes obtaining required authorization for an employee not having an 8-hour break as defined in this procedure. The Supervisor or designee is responsible for distribution of approved Exception Reports as shown on the report.
- F. Management (as limited by this procedure) is responsible for assessing the need for exceeding overtime/break limits including the justification that a significant reduction in personnel effectiveness would be highly unlikely. If appropriate, authorization is provided on the Exception Report.

## 4.0 RECORDS

### 4.1 QA Records

None

### 4.2 Non-QA Records

Form SPP-1.5-1, Overtime Limitation Exception Report

## 5.0 DEFINITIONS

### EMPLOYEE STATUS:

Every 24-hour day can be broken into three categories of time, Turnover, Work, or Break. The sum of these three times will always be 24. Therefore, for the purposes of this procedure, all employees are always in one of the three statuses, either working or in turnover or on break as defined by:

- **Break / 8-hour Break** - For the purposes of this procedure, an 8-hour break is considered to be continuous. The initiation of the break period is **after** the completion of work time or any turnover time following work time. The break period ends at the time the employee starts work time or a pre-work turnover time.
- **Turnover Time** - For the purposes of this procedure, turnover time is neither counted as work time nor break time. Turnover time is conducted prior to work time and/or at the end of work time. Therefore, the 16 hours straight, 16 hours in any 24, 24 hours in a 48-hour period, or 72 hours in any 7-day period does not include time spent in turnover. Likewise, hours spent in turnover are not included as part of the 8-hour break period.

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## 5.0 DEFINITIONS (continued)

- **Work Time** - For the purposes of this procedure, work time is the time spent working (including lunch etc.) and DOES NOT include time in Turnover (both pre-work or at the end of work). The limitations of 16 hours straight, 16 hours in any 24-hour period, 24 hours in a 48-hour period, and 72 hours in any 7-day period apply to work time.

**Key Maintenance Personnel** - The term applies to all TVAN and contractor personnel who are subject to performing maintenance, repair, calibration or testing of safety-related structures, systems or components or personnel who are directly supervising such activities.

## 6.0 REQUIREMENTS AND REFERENCES

Requirements and References are contained in the "SPP-1.5 REQ & REF" document.

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**Appendix A  
(Page 1 of 1)**

**SPP-1.5-1 Overtime Limitation Exception Report**

**OVERTIME LIMITATION EXCEPTION REPORT**

The following employees (three or less) are authorized to work overtime in excess of the overtime limits specified in paragraphs Section 3.1B.1 and 3.1B.2 of SPP-1.5. This report must be maintained and available for NRC review.

Name	SSN/EIN	Organization	Hours Exceeding Requirements	
			Date	# Hours Time Limit Will Be Exceeded
a.				Time:
b.				Time:
c.				Time:

1. Specify specific reason for cause of overtime (i.e., another employee on S/L, unexpected job, etc.).

2. Specify requirement(s) for exception: ☐ 16 hours continuous ☐ 8-hour work break  
☐ 16 hrs. in 24 ☐ 24 hrs. in 48 ☐ 72 hrs. in 7-day period
3. Specify exact work to be performed and brief description (include procedure number, workplan number, work request number, or support of other specific activity):

4. State justification for exceeding the overtime limits. Justification should address considerations and actions taken to minimize potential impacts on safety-related activities (i.e., rescheduling of task, assignment of alternate employee to task, etc.) and reasoning for the determination that a significant reduction in effectiveness of the personnel involved will not result. This analysis should include considerations such as the total amount of time worked/anticipated, break periods taken/planned, type of activity to be performed, etc., for personnel to ensure that fatigue is not/will not be a factor.

Prepared by \_\_\_\_\_  
Print Name

Prepared by \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_ Ext. \_\_\_\_\_  
Signature

**THE ABOVE ACTIVITY IS CONSIDERED AN UNUSUAL CIRCUMSTANCE AND WARRANTS EXCEEDING THE OVERTIME RESTRICTIONS.**

Approved by \_\_\_\_\_  
Print Name/Position

Approved by \_\_\_\_\_ Date \_\_\_\_\_  
Plant Manager/Authorized Designee Signature

**FOR ADDITIONAL SPACE, USE REVERSE SIDE OF THIS FORM.**

Distributed to: Plant Manager's Office  
Originator (Employees Section Manager)

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

JPM NUMBER: 510

TITLE: EVALUATE RECOMBINER PERFORMANCE

ADMIN: Equipment Control

PROVIDE CANDIDATE WITH A COPY OF: 3-OI-66, section 6.1

**ADMIN "C"**

SUBMITTED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

VALIDATED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

TRAINING

PLANT CONCURRENCE: \_\_\_\_\_

DATE: \_\_\_\_\_

OPERATIONS

\* Examination JPMs Require Operations Training Manager Approval or Designee Approval and Plant Concurrence



## BROWNS FERRY NUCLEAR PLANT JOB PERFORMANCE MEASURE

## REVISION LOG

[illegible]

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

OPERATOR: \_\_\_\_\_

RO \_\_\_\_\_ SRO \_\_\_\_\_ DATE: \_\_\_\_\_

JPM NUMBER: 510

TASK TITLE: EVALUATE RECOMBINER PERFORMANCE

K/A NUMBER: 2.1.7 K/A RATING: RO 4.4 SRO 4.7

\*\*\*\*\*

TASK STANDARD: EVALUATE OFF-GAS RECOMBINER PERFORMANCE

PERFORMANCE LOCATION: \_\_\_\_\_ CLASSROOM: X

REFERENCES/PROCEDURES NEEDED: 3-OI-66, Rev 56

VALIDATION TIME: \_\_\_\_\_ CLASSROOM: 12:00

MAX. TIME ALLOWED: \_\_\_\_\_ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME: \_\_\_\_\_

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ADDITIONAL COMMENT SHEETS ATTACHED? YES \_\_\_\_\_ NO \_\_\_\_\_

RESULTS: SATISFACTORY \_\_\_\_\_ UNSATISFACTORY \_\_\_\_\_

EXAMINER SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

\*\*\*\*\*

**Classroom**

\*\*\*\*\*

**INITIAL CONDITIONS:** You are the desk operator. A startup is in progress on Unit 3 and reactor power has been raised to 99% rated thermal power. The Hydrogen Water Chemistry System is out of service IAW 3-OI-4. Off-Gas Preheater, Recombiner and SJAES are in operation in accordance with Section 5.0. The operating steam jet is operating properly.

**INITIATING CUES:** The Shift Operations Supervisor directs you to evaluate Off-Gas Recombiner 3A performance in accordance with 3-OI-66, Section 6.1.

3-TI-66-75A	393 °F
3-TI-66-75B	320 °F
3-TRS-66-77A Center temp	618 °F
3-TRS-66-77B Center temp	380 °F
Rx Power Thermal	3430 mwth
3-H2R-66-96	operable - both pens reading .24% H <sub>2</sub>

START TIME \_\_\_\_\_

## 6.1 Recombiner Performance Evaluation

### NOTES

- 1) The production of hydrogen and oxygen in the reactor is dependent upon reactor power level and upon the amount of hydrogen injected by the Hydrogen Water Chemistry System if in service. Since the recombination of hydrogen and oxygen is exothermic, the operating temperature of the recombiner is also dependent upon power level and the status of the HWC System.
- 2) Following startup, while still at low power, recombiner performance and hydrogen concentration should be closely monitored.

\*\*\*\*\*  
PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL X

[1] **PERFORM** a recombiner performance evaluation as follows:

- [1.1] **DETERMINE** the in-service recombiner inlet temperature as indicated on RECOMBINER 3A(3B), INLET TEMP 3-TI-66-75A(B), Panel 3-9-53.

### STANDARD:

Determined Recombiner 3A inlet temp 3-TI-66-75A, Panel 3-9-53 from handout.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL X

- [1.2] **DETERMINE** the in-service recombiner operating (center) temperature as indicated on RECOMBINER 3A/3B TEMPERATURE recorder, 3-TRS-66-77, Panel 3-9-53.

STANDARD:

Determined the in-service recombiner operating (center) temperature as indicated on Recombiner 3A temperature recorder, 3-TRS-66-77, Panel 3-9-53 (from handout).

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL X NOT CRITICAL \_\_\_\_\_

- [1.3] **CALCULATE** the temperature difference ( $\Delta T$ ) between the values obtained in Steps 6.1[1] and 6.1[2].

STANDARD:

Calculated Recombiner 3A inlet/center  $\Delta t$  and determined  $\Delta t$  is 225 °F

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL  X

[1.4] **DETERMINE** the reactor thermal power (MWt) from process computer.

STANDARD:

Determined reactor thermal power from the handout.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL  X

[1.5] **USING** Illustration 1, **PLOT** the corresponding point of reactor power in MWt and  $\Delta T$ .

STANDARD:

Using illustration 1, Determined  $\Delta t$  corresponding to 3430 MWT is 240.1 °F.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL X NOT CRITICAL       

[1.6] **VERIFY** point on illustration 1 is above or equal to the appropriate line (HWC in service or HWC out of service)

STANDARD:

Determines from Illustration 1 that calculated  $\Delta t$  vs MWt plots BELOW the HWC Out of Service (solid) line (Critical).

Stops task performance and informs SRO that acceptance criteria is NOT met. (Not Critical)

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

---

---

**CUE: SRO acknowledges acceptance criteria not met and directs performer to continue in the procedure and determine the required action to take.**

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL X

[2] **IF** the in-service recombiner performance is below the minimum allowable,  
**THEN:**

[2.1] **CHECK** Off-Gas Preheater, Recombiner and SJAEs are in  
operation in accordance with Section 5.0.

STANDARD:

N/A - Given in initial conditions.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL X

[2.2] **MONITOR** the OFFGAS HYDROGEN ANALYZER recorder,  
3-H2R-66-96 on Panel 3-9-53.

STANDARD:

Monitors the Offgas Hydrogen Analyzer recorder, 3-H2R-66-96 on Panel 3-9-53 (from  
handout both points operable and reading .24% H2.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL X

[2.3] IF both hydrogen analyzers are inoperable, THEN

**NOTIFY** Chemistry to obtain a grab sample to determine hydrogen concentration.

STANDARD:

Determined Step [2.3] is N/A.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL X NOT CRITICAL \_\_\_\_\_

[2.4] IF a malfunction of the SJAE is suspected, THEN

**REFER TO** Section 8.4 and **TRANSFER** SJAEs.

STANDARD:

Given in initial conditions that in service steam jet is operating properly and does NOT transfer SJAEs (Not Critical Unless determines to swap SJAE).

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL  X

[3] IF off-gas hydrogen rises above 1%, THEN

REFER TO 3-AOI-66-1.

CUE: [If asked] Off-Gas H<sub>2</sub> has not changed (from the handout value)

STANDARD:

Determines off-gas hydrogen has NOT risen above 1% from handout.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**CAUTION**

Off-Gas System valves are potentially spark-producing when operated; therefore, **WHEN** hydrogen concentration is suspected of being greater than 4%, **THEN**

**DO NOT TAKE** any action that will change off-gas valve positions until after the unit is shut down.

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL  X  NOT CRITICAL

[4] IF analysis or hydrogen analyzers show hydrogen concentration is below 4%, THEN

PLACE standby recombiner in operation.  
REFER TO Section 8.3.

STANDARD:

Determines the required action is to PLACE standby recombiner in operation IAW Section 8.3.

SAT   UNSAT   N/A   COMMENTS:

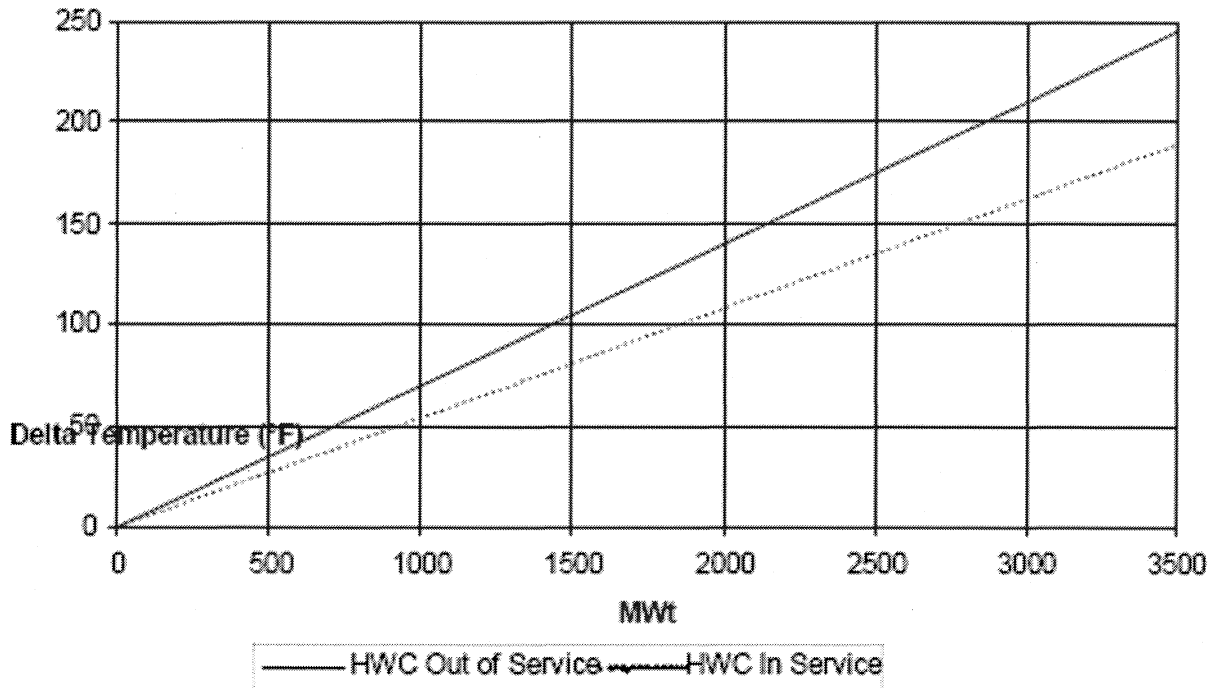
**CUE: That completes this task.**

END OF TASK

STOP TIME

**Illustration 1  
(Page 1 of 1)**

**Recombine Performance Evaluation -  $\Delta T$  to Reactor Power**



Evaluation is satisfactory when intersection point of  $\Delta T$  to Reactor Power is above the appropriate line.

For 3458mwtf

HWC in service  $\Delta T \geq 190^{\circ}\text{F}$

HWC out of service  $\Delta T \geq 242^{\circ}\text{F}$

CURVE FACTORS

Normal Water Chemistry (NWC)  $\Delta T = 0.070^{\circ}\text{F}$  per MWt

Hydrogen Water Chemistry (HWC)  $\Delta T = 0.055^{\circ}\text{F}$  per MWt

## BROWNS FERRY NUCLEAR PLANT JOB PERFORMANCE MEASURE

\*\*\*\*\*

### Classroom

\*\*\*\*\*

**INITIAL CONDITIONS:** You are the desk operator. A startup is in progress on Unit 3 and reactor power has been raised to 99% rated thermal power. The Hydrogen Water Chemistry System is out of service IAW 3-OI-4. Off-Gas Preheater, Recombiner and SJAEs are in operation in accordance with Section 5.0. The operating steam jet is operating properly.

**INITIATING CUES:** The Shift Operations Supervisor directs you to evaluate Off-Gas Recombiner 3A performance in accordance with 3-OI-66, Section 6.1.

3-TI-66-75A	393 °F
3-TI-66-75B	320 °F
3-TRS-66-77A Center temp	618 °F
3-TRS-66-77B Center temp	380 °F
Rx Power Thermal	3430 mwth
3-H2R-66-96	operable - both pens reading .24% H <sub>2</sub>

C

C

C

BFN Unit 3	Off-Gas System	3-OI-66 Rev. 0056 Page 50 of 115
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## 6.0 SYSTEM OPERATIONS

### 6.1 Recombiner Performance Evaluation

#### NOTES

- 1) The production of hydrogen and oxygen in the reactor is dependent upon reactor power level and upon the amount of hydrogen injected by the Hydrogen Water Chemistry System if in service. Since the recombination of hydrogen and oxygen is exothermic, the operating temperature of the recombiner is also dependent upon power level and the status of the HWC System.
- 2) Following startup, while still at low power, recombiner performance and hydrogen concentration should be closely monitored.

[1] **PERFORM** a recombiner performance evaluation as follows:

- |       |   |                          |
|-------|---|--------------------------|
| [1.1] | <b>DETERMINE</b> the in-service recombiner inlet temperature as indicated on RECOMBINER 3A(3B), INLET TEMP 3-TI-66-75A(B), Panel 3-9-53.                    | <input type="checkbox"/> |
| [1.2] | <b>DETERMINE</b> the in-service recombiner operating (center) temperature as indicated on RECOMBINER 3A/3B TEMPERATURE recorder, 3-TRS-66-77, Panel 3-9-53. | <input type="checkbox"/> |
| [1.3] | <b>CALCULATE</b> the temperature difference ( $\Delta T$ ) between the values obtained in Steps 6.1[1] and 6.1[2].  | <input type="checkbox"/> |
| [1.4] | <b>DETERMINE</b> the reactor thermal power (MWt) from process computer.   | <input type="checkbox"/> |
| [1.5] | <b>USING</b> Illustration 1, <b>PLOT</b> the corresponding point of reactor power in MWt and $\Delta T$ .   | <input type="checkbox"/> |
| [1.6] | <b>VERIFY</b> point on illustration 1 is above or equal to the appropriate line (HWC in service or HWC out of service)                                      | <input type="checkbox"/> |

<b>BFN Unit 3</b>	<b>Off-Gas System</b>	<b>3-OI-66 Rev. 0056 Page 51 of 115</b>
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## 6.1 Recombiner Performance Evaluation (continued)

- [2] **IF** the in-service recombinder performance is below the minimum allowable, **THEN:**
- [2.1] **CHECK** Off-Gas Preheater, Recombiner and SJAEs are in operation in accordance with Section 5.0. ☐
  - [2.2] **MONITOR** the OFFGAS HYDROGEN ANALYZER recorder, 3-H2R-66-96 on Panel 3-9-53. ☐
  - [2.3] **IF** both hydrogen analyzers are inoperable, **THEN**  
**NOTIFY** Chemistry to obtain a grab sample to determine hydrogen concentration. ☐
  - [2.4] **IF** a malfunction of the SJAE is suspected, **THEN**  
**REFER TO** Section 8.4 and **TRANSFER** SJAEs. ☐
- [3] **IF** off-gas hydrogen rises above 1%, **THEN**  
**REFER TO** 3-AOI-66-1. ☐

### CAUTION

Off-Gas System valves are potentially spark-producing when operated; therefore, **WHEN** hydrogen concentration is suspected of being greater than 4%, **THEN**

**DO NOT TAKE** any action that will change off-gas valve positions until after the unit is shut down.

- [4] **IF** analysis or hydrogen analyzers show hydrogen concentration is below 4%, **THEN**  
**PLACE** standby recombinder in operation.  
**REFER TO** Section 8.3. ☐



**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

JPM NUMBER: 548

TITLE: REVIEW A RADIOLOGICAL SURVEY MAP

PROVIDE CANDIDATE WITH A COPY OF: jpm548survey.doc  
(in color – do NOT use 3-hole punch)

**ADMIN “D”**

SUBMITTED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

VALIDATED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

TRAINING

PLANT CONCURRENCE: \_\_\_\_\_

DATE: \_\_\_\_\_

OPERATIONS

\* Examination JPMs Require Operations Training Manager Approval or Designee Approval and Plant Concurrence

## BROWNS FERRY NUCLEAR PLANT JOB PERFORMANCE MEASURE

## REVISION LOG

[illegible]

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

OPERATOR: \_\_\_\_\_

RO \_\_\_\_\_ SRO \_\_\_\_\_ DATE: \_\_\_\_\_

JPM NUMBER: 544

TASK TITLE: REVIEW A RADIOLOGICAL SURVEY MAP

K/A NUMBER: 2.3.10 K/A RATING: RO 2.9 SRO 3.3

\*\*\*\*\*

TASK STANDARD: REVIEW A RADIOLOGICAL SURVEY MAP TO DETERMINE IF A  
TASK CAN BE COMPLETED WITHOUT EXCEEDING EXPOSURE  
LIMITS.PERFORMANCE LOCATION: CLASSROOM: X

REFERENCES/PROCEDURES NEEDED: Handout: jpm544survey.doc

VALIDATION TIME: CLASSROOM: \_\_\_\_\_

MAX. TIME ALLOWED: \_\_\_\_\_ (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME: \_\_\_\_\_

COMMENTS: jpm548survey.doc is Required to accompany this JPM – PRINT IN  
COLOR - Do NOT use 3-hole punch paper-

ADDITIONAL COMMENT SHEETS ATTACHED? YES \_\_\_\_\_ NO \_\_\_\_\_

RESULTS: SATISFACTORY \_\_\_\_\_ UNSATISFACTORY \_\_\_\_\_

EXAMINER SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

\*\*\*\*\*

**Classroom**

\*\*\*\*\*

**EXAMINER KEY**

**INITIAL CONDITIONS:** You are a Browns Ferry employee who has obtained an accumulative yearly dose of 750 mrem.

**INITIATING CUES:** Given the following survey map, DETERMINE the following:

- Dress-out requirements associated with RADIOLOGICAL EXPOSURE.
- Whether you can complete the assigned task in the area without exceeding your TVA administrative yearly dose limit.
- Whether you can complete the assigned task in the area without exceeding the RWP entry limits.

The job will require you to vent the RWCU Regenerative Hx and to manually close the 3-FCV-69-2 valve and place a mechanical restraining device on the valve. The RWCU Regenerative Hx will be vented from the scaffold at the south end of the Hx's (a scaffold has been erected to be used for venting - cannot leave scaffold while venting is in progress), and will require 30 minutes for venting. Then proceed to 3-FCV-69-2 valve to manually close and install the mechanical restraining device, it should require 10 minutes to close the valve and another 15 minutes to install the mechanical restraining device. The map of the room has radiological survey information you must interpret to successfully complete this JPM. Assume the 30cm reading will be the whole body dose received at each location.

Key Continued on next page

**EXAMINER KEY****ANSWER**

Dress-out requirements;

1. Shoe covers, one pair
2. No personal outer clothing \_\_\_\_\_ **(NOT critical)**
3. Coveralls, one pair
4. Face Shield
5. Gloves, rubber, two pair
6. cloth inserts
7. modesty clothing \_\_\_\_\_ **(NOT critical)**
8. Surgeon's cap \_\_\_\_\_ **(NOT critical)**
9. Booties, plastic, 2 pair
10. Rain suit
11. Hood
12. Safety Belt & Lifeline \_\_\_\_\_ **(NOT critical)**

2 Hx's at 30 min

$30/60 = .5$  hrs

$.5 \times 250 = 125$  mrem to vent Hx

10 min to close the valve + 15 min to install the device = 25 min

$25/60 = 0.42$  hrs

$0.42 \times 100 = 42$  mrem to close the valve & install the device

$125 + 42 = 167$

$167 + 750 = 917$  (**yes** - within TVA annual limit of 1R) **(Critical)**

work areas at 30cm dose rate 250 & 100 are both < 500mrem rate alarm

$167 < 200$  dose alarm limit of RWP **AND within remaining rad margin of 250**

Therefore (**yes** - within the limits of the RWP) **(Critical)**

**i.e. DO NOT EXCEED 250 mrem PER ENTRY OR DOSE MARGIN (RAD-REMAINING ALLOWABLE DOSE)**

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

\*\*\*\*\*

**Classroom**

\*\*\*\*\*

**STUDENT HANDOUT**

**INITIAL CONDITIONS:** You are a Browns Ferry employee who has obtained an accumulative yearly dose of 750 mrem.

**INITIATING CUES:** Given the following survey map, DETERMINE the following:

- Dress-out requirements associated with RADIOLOGICAL EXPOSURE.
- Whether you can complete the assigned task in the area without exceeding your TVA administrative yearly dose limit.
- Whether you can complete the assigned task in the area without exceeding the RWP entry limits.

The job will require you to vent the RWCU Regenerative Hx and to manually close the 3-FCV-69-2 valve and place a mechanical restraining device on the valve. The RWCU Regenerative Hx will be vented from the scaffold at the south end of the Hx's (a scaffold has been erected to be used for venting - cannot leave scaffold while venting is in progress), and will require 30 minutes for venting. Then proceed to 3-FCV-69-2 valve to manually close and install the mechanical restraining device, it should require 10 minutes to close the valve and another 15 minutes to install the mechanical restraining device. The map of the room has radiological survey information you must interpret to successfully complete this JPM. Assume the 30cm reading will be the whole body dose received at each location.

## RADIOLOGICAL WORK PERMIT

### BRIEFING REQUIRED EVERY ENTRY

**GENERAL DESCRIPTION**

Status: Active	Start Date: 01-Jan-This year	End Date: 01-Jan-Next year
Type: SPECIFIC	MAP ID:	Outage: Y
Task: ROUTINE PLANT MAINTENANCE		Name:
HP	CONTINUOUS	PSE: N
		Authorization Type: INDIVIDUAL
ALARA Review Number: 0A-0010	Primary Work Doc:	
Person-mrem Estimate: 1904	Person-Hrs Estimate: 1082	
Dose Alarm: 200	Dose Rate Alarm: 500	
DAC-Hrs Tracked: N		
Work Area Description: Unit 3 Areas All Elevations		

**DESCRIPTION OF WORK TO BE PERFORMED**

Unit 3 Maintenance on RWCU (69) Systems	(LHRA VARIOUS DRESS) 200 / 250 / 500
---	--------------------------------------

**ANTI-CONTAMINATION CLOTHING REQUIREMENTS**

1 LAB COAT	1,2 BOOTIES, CLOTH, ONE PAIR
1,2 GLOVES, RUBBER, ONE PAIR	1,2,3 CLOTH INSERTS
1,2,3 SHOE COVERS, ONE PAIR	1,2,3 MODESTY CLOTHING
1,2,3 NO PERSONAL OUTER CLOTHING	1,2,3 SURGEON'S CAP
2,3 COVERALLS, ONE PAIR	3 BOOTIES, PLASTIC, TWO PAIR
3 FACE SHIELD	3 RAIN SUIT
3 GLOVES, RUBBER, TWO PAIR	3,4 HOOD

**DOSIMETRY REQUIREMENTS**

ELECTRONIC DOSIMETER	TLD
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**BRIEFING REQUIREMENTS**

PRE-JOB BRIEFING	
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**EQUIS**

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**WORK STEPS**

1 MANAGEMENT / WO WALKDOWN
2 3-CI-412
3 OPS VALVE LINEUP - 3-OI-69 & HX VENTING
4 07-712928-000
5 06-722560-000
6 06-727133-000
7 06-722556-000
8 06-722559-000
9 06-718308-002
10 06-722558-000

**RADIOLOGICAL WORK PERMIT**  
**BRIEFING REQUIRED EVERY ENTRY****WORKER INSTRUCTIONS**

- |   |
|---|
| 1 DRESSOUT CODE APPLICATIONS<br>1) FLOOR LEVEL INSP, LOW TO MODERATE CONTAMINATION.<br>2) MINOR MAINTENANCE, NO PRIMARY SYSTEM BREACH.<br>3) PRIMARY SYSTEM BREACH, HEAT EXCHANGER VENTING.<br>4) ANY WORK ABOVE FLOOR LEVEL REQUIRES SAFETY BELT W/ LIFELINE.<br>5) REQUIRED TO WEAR HEADGEAR OTHER THAN PERSONAL HARDHAT. |
| 2 MONITOR YOUR ED (DAD) FREQUENTLY, EXIT THE AREA PRIOR TO REACHING THE DOSE ALARM SET POINT OR UPON RECEIVING ANY UNEXPECTED ALARMS.   |
| 3 DO NOT EXCEED 250 mrem PER ENTRY OR DOSE MARGIN (RAD-REMAINING ALLOWABLE DOSE).   |
| 4 REMOTE MONITORING , PEA , OR SIMILAR DEVICE REQUIRED.   |
| 5 ED (DAD) TO BE BAGGED (WRAPPED) AND WORN OUTSIDE OF C-ZONE CLOTHING.  |
| 6 REVIEW PLANNED WORK OR INSPECTIONS WITH RAD PROTECTION PRIOR TO ENTRY.  |
| 7 UTILIZE TIME, DISTANCE, AND SHIELDING ALARA PRINCIPLES.   |
| 8 REVIEW APPROPRIATE SURVEY DATA PRIOR TO ENTRY. NOTE AND AVOID POSTED HOT SPOTS. LOCATE AND UTILIZE LOW DOSE WAITING AREAS.  |
| 9 RADWORKER SHALL ADHERE TO ANY SPECIAL INSTRUCTIONS (APR, ETC) ON WHICH HE/SHE HAS BEEN BRIEFED BY RAD PROTECTION.   |
| 10 NOTIFY RADCON PRIOR TO ANY SYSTEM BREACH.  |
| 11 RAD PROTECTION COVERAGE MAY BE PROVIDED FROM OUTSIDE THE C-ZONE.   |
| 12 SECURE ALL HOSES, ELECTRICAL CORDS, WELDING LEADS AND OTHER SERVICES ENTERING THE C-ZONE AT THE C-ZONE BOUNDARY AND NOTIFY RAD PROTECTION.   |
| 13 NOTIFY RAD PROTECTION OF ANY UNUSUAL RADIOLOGICAL CONDITIONS (FOR EXAMPLE: WATER, LEAKS, RADIATION MONITOR ALARMS).  |
| 14 RAD PROTECTION PERMISSION REQUIRED PRIOR TO WELDING, GRINDING, BUFFING OR OTHER SURFACE DISTURBING ACTIVITIES.   |
| 15 DURING PERIODS WHEN HIS-20 IS IN THE LOCAL MODE, THE DEFAULT SETPOINT FOR THIS RWP IS 100 mrem/hr DOSE RATE ALARM, 50 mrem DOSE ALARM, AND 60 mrem LIMIT PER ENTRY.  |

**APPROVAL**

Prepared by: TJFRANK Approved by: MJHAZEL Final Approval: JWSMITH3
--

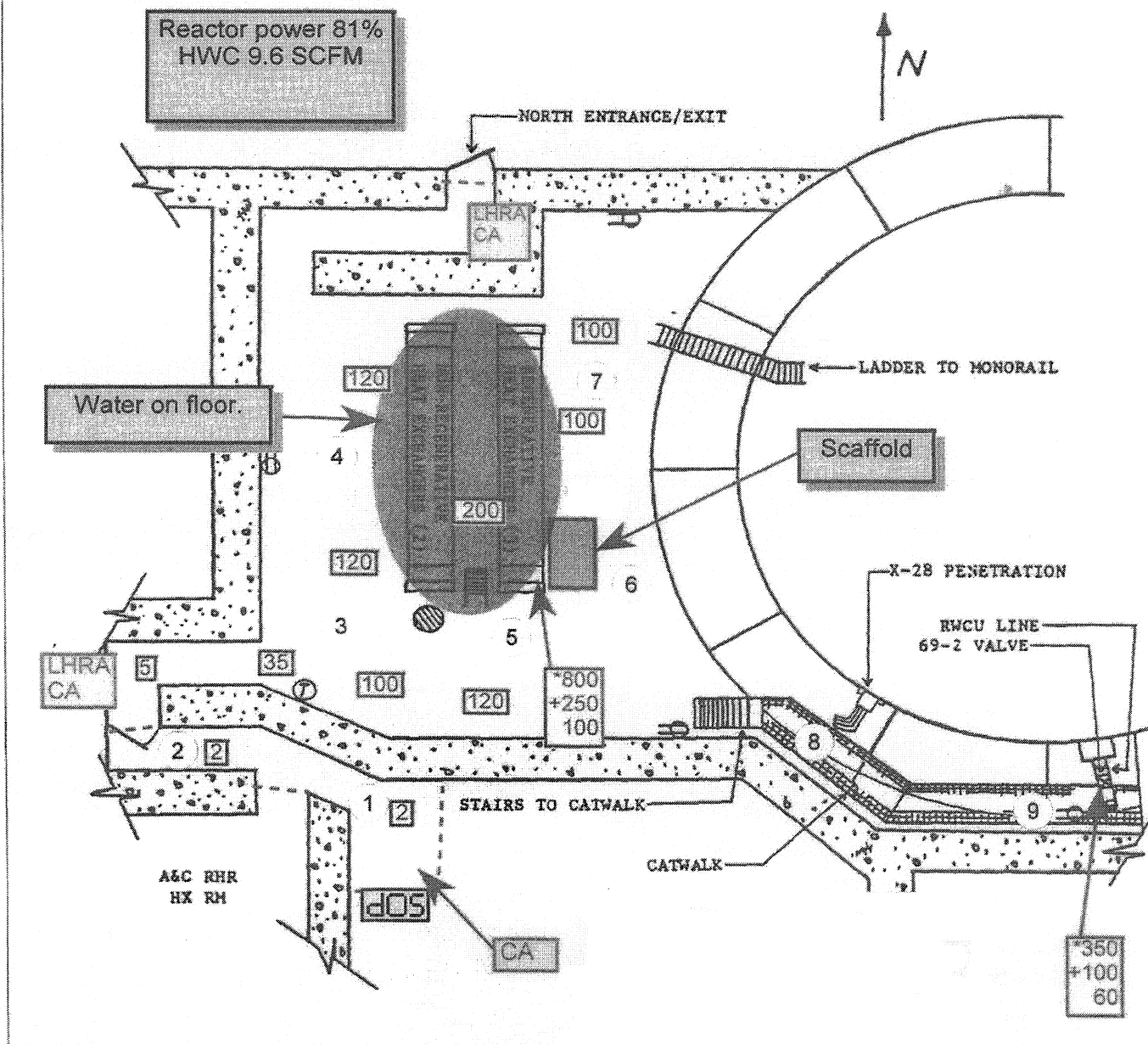
End of RWP



# Browns Ferry Radiological Survey

M0044.tif - M0044 Unit 3 RXB 593' RWCU Heat Exchanger Rm Survey # 021407-2

Date/Time: Today



Postings			Contamination Results:	
M0044 RX-3 593 RWCU HTX Room			1)	20000 DPM/100 cm2
OPS venting heat exchangers.			2)	40000 DPM/100 cm2
ND Beta			3)	300000 DPM/100 cm2
HWC 9.6 scfm power @81%			4)	1300000 mrad/hr/100 cm2
Surveyed by: Rose, Edward D.			5)	200000 DPM/100 cm2
Instrument Nos.: 534105,448,562898			6)	250000 DPM/100 cm2
			7)	400000 DPM/100 cm2
			8)	80000 DPM/100 cm2
			9)	200000 DPM/100 cm2
Date	Survey #	Surveyed By:	<b>Symbol Legend (for example only)</b> <div> Dose Rate  *150 ← Contact Reading  +75 ← 30 cm Reading  20 ← General Area  15 Smear    15 Air Sample    RM    15 Wipe </div> <div> HS-50 Hot Spot  PCA Posting  Drip Bag  15 Wipe </div>	

Survey printed on: Today



## RADIOLOGICAL WORK PERMIT

### BRIEFING REQUIRED EVERY ENTRY

**GENERAL DESCRIPTION**

Status: Active	Start Date: 01-Jan-This year	End Date: 01-Jan-Next year
Type: SPECIFIC	MAP ID:	Outage: Y
Task: ROUTINE PLANT MAINTENANCE		Name:
HP	CONTINUOUS	PSE: N
		Authorization Type: INDIVIDUAL
ALARA Review Number: 0A-0010	Primary Work Doc:	
Person-mrem Estimate: 1904	Person-Hrs Estimate: 1082	
Dose Alarm: 200	Dose Rate Alarm: 500	
DAC-Hrs Tracked: N		
Work Area Description: Unit 3 Areas All Elevations		

**DESCRIPTION OF WORK TO BE PERFORMED**

Unit 3 Maintenance on RWCU (69) Systems	(LHRA VARIOUS DRESS) 200 / 250 / 500
---	--------------------------------------

**ANTI-CONTAMINATION CLOTHING REQUIREMENTS**

1 LAB COAT	1,2 BOOTIES, CLOTH, ONE PAIR
1,2 GLOVES, RUBBER, ONE PAIR	1,2,3 CLOTH INSERTS
1,2,3 SHOE COVERS, ONE PAIR	1,2,3 MODESTY CLOTHING
1,2,3 NO PERSONAL OUTER CLOTHING	1,2,3 SURGEON'S CAP
2,3 COVERALLS, ONE PAIR	3 BOOTIES, PLASTIC, TWO PAIR
3 FACE SHIELD	3 RAIN SUIT
3 GLOVES, RUBBER, TWO PAIR	3,4 HOOD

**DOSIMETRY REQUIREMENTS**

ELECTRONIC DOSIMETER	TLD
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**BRIEFING REQUIREMENTS**

PRE-JOB BRIEFING	
------------------	--

**EQUIS**

--	--	--

**WORK STEPS**

1	MANAGEMENT / WO WALKDOWN
2	3-CI-412
3	OPS VALVE LINEUP - 3-OI-69 & HX VENTING
4	07-712928-000
5	06-722560-000
6	06-727133-000
7	06-722556-000
8	06-722559-000
9	06-718308-002
10	06-722558-000

**RADIOLOGICAL WORK PERMIT**  
**BRIEFING REQUIRED EVERY ENTRY****WORKER INSTRUCTIONS**

1 DRESSOUT CODE APPLICATIONS 1) FLOOR LEVEL INSP, LOW TO MODERATE CONTAMINATION. 2) MINOR MAINTENANCE, NO PRIMARY SYSTEM BREACH. 3) PRIMARY SYSTEM BREACH, HEAT EXCHANGER VENTING. 4) ANY WORK ABOVE FLOOR LEVEL REQUIRES SAFETY BELT W/ LIFELINE. 5) REQUIRED TO WEAR HEADGEAR OTHER THAN PERSONAL HARDHAT.
2 MONITOR YOUR ED (DAD) FREQUENTLY, EXIT THE AREA PRIOR TO REACHING THE DOSE ALARM SET POINT OR UPON RECEIVING ANY UNEXPECTED ALARMS.
3 DO NOT EXCEED 250 mrem PER ENTRY OR DOSE MARGIN (RAD-REMAINING ALLOWABLE DOSE).
4 REMOTE MONITORING , PEA , OR SIMILAR DEVICE REQUIRED.
5 ED (DAD) TO BE BAGGED (WRAPPED) AND WORN OUTSIDE OF C-ZONE CLOTHING.
6 REVIEW PLANNED WORK OR INSPECTIONS WITH RAD PROTECTION PRIOR TO ENTRY.
7 UTILIZE TIME, DISTANCE, AND SHIELDING ALARA PRINCIPLES.
8 REVIEW APPROPRIATE SURVEY DATA PRIOR TO ENTRY. NOTE AND AVOID POSTED HOT SPOTS. LOCATE AND UTILIZE LOW DOSE WAITING AREAS.
9 RADWORKER SHALL ADHERE TO ANY SPECIAL INSTRUCTIONS (APR, ETC) ON WHICH HE/SHE HAS BEEN BRIEFED BY RAD PROTECTION.
10 NOTIFY RADCON PRIOR TO ANY SYSTEM BREACH.
11 RAD PROTECTION COVERAGE MAY BE PROVIDED FROM OUTSIDE THE C-ZONE.
12 SECURE ALL HOSES, ELECTRICAL CORDS, WELDING LEADS AND OTHER SERVICES ENTERING THE C-ZONE AT THE C-ZONE BOUNDARY AND NOTIFY RAD PROTECTION.
13 NOTIFY RAD PROTECTION OF ANY UNUSUAL RADIOLOGICAL CONDITIONS (FOR EXAMPLE: WATER, LEAKS, RADIATION MONITOR ALARMS).
14 RAD PROTECTION PERMISSION REQUIRED PRIOR TO WELDING, GRINDING, BUFFING OR OTHER SURFACE DISTURBING ACTIVITIES.
15 DURING PERIODS WHEN HIS-20 IS IN THE LOCAL MODE, THE DEFAULT SETPOINT FOR THIS RWP IS 100 mrem/hr DOSE RATE ALARM, 50 mrem DOSE ALARM, AND 60 mrem LIMIT PER ENTRY.

**APPROVAL**

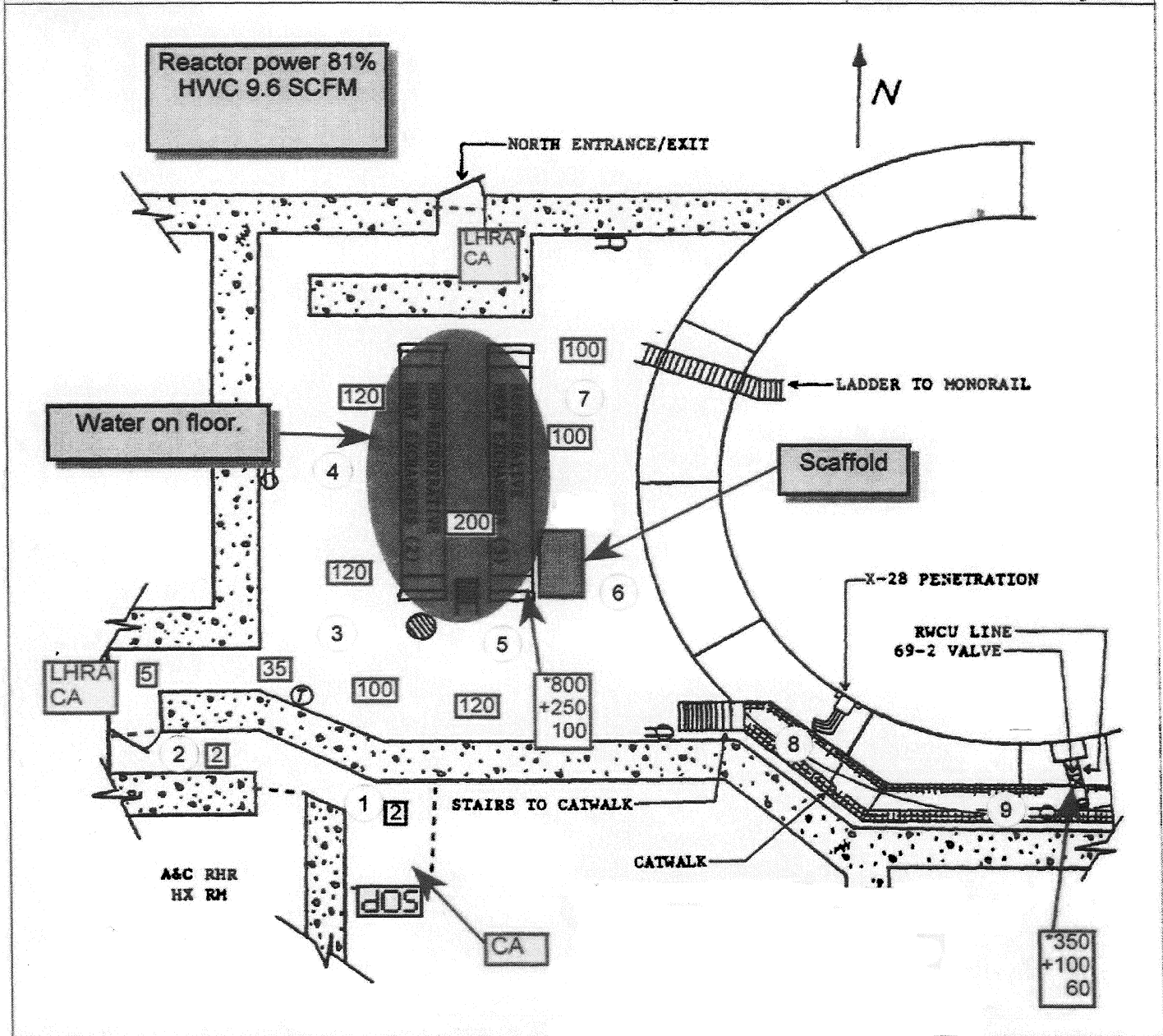
Prepared by: TJFRANK  
Approved by: MJHAZEL  
Final Approval: JWSMITH3

End of RWP

## Browns Ferry Radiological Survey

**M0044.tif - M0044 Unit 3 RXB 593' RWCU Heat Exchanger Rcd Survey # 021407-2**

Date/Time: Today



Postings			Contamination Results:	
M0044 RX-3 593 RWCU HTX Room			1)	20000 DPM/100 cm <sup>2</sup>
OPS venting heat exchangers.			2)	40000 DPM/100 cm <sup>2</sup>
ND Beta			3)	300000 DPM/100 cm <sup>2</sup>
HWC 9.6 scfm power @81%			4)	1300000 mrad/hr/100 cm <sup>2</sup>
			5)	200000 DPM/100 cm <sup>2</sup>
			6)	250000 DPM/100 cm <sup>2</sup>
			7)	400000 DPM/100 cm <sup>2</sup>
			8)	80000 DPM/100 cm <sup>2</sup>
			9)	200000 DPM/100 cm <sup>2</sup>
Surveyed by: Rose, Edward D.				
Instrument Nos.: 534105,448,562898				
Date	Survey #	Surveyed By:		

**Symbol Legend (for example only)**

Dose Rate	<div style="border: 1px solid black; padding: 2px;">HS-50</div>	Hot Spot
*150 ← Contact Reading	<div style="border: 1px solid black; padding: 2px;">PCA</div>	Posting
+ 75 ← 30 cm Reading	<div style="border: 1px solid black; padding: 2px; text-align: center;">1</div>	Drip Bag
20 ← General Area	<div style="border: 1px solid black; padding: 2px; text-align: center;">0</div>	FM
<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">15</div> Smear	<div style="border: 1px solid black; padding: 2px; display: inline-block;">15</div> Air Sample	<div style="border: 1px solid black; padding: 2px; display: inline-block;">15</div> Wipe

Survey printed on: **Today**

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

JPM NUMBER: 480TC

TITLE: CLASSIFY THE EVENT PER THE REP (GENERAL - LOSS OF  
ALL PWR TO ALL UNIT SPECIFIC 4KV S/D BDS >3 HOURS)

ADMIN: Emergency Plan (SRO ONLY)

**ADMIN "E"**

SUBMITTED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

VALIDATED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

TRAINING

PLANT CONCURRENCE: \_\_\_\_\_

DATE: \_\_\_\_\_

OPERATIONS

\* Examination JPMs Require Operations Training Manager Approval or Designee Approval and  
Plant Concurrence

## BROWNS FERRY NUCLEAR PLANT JOB PERFORMANCE MEASURE

## REVISION LOG

[illegible]

**BROWNS FERRY NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

OPERATOR: \_\_\_\_\_

RO \_\_\_\_\_ SRO \_\_\_\_\_ DATE: \_\_\_\_\_

JPM NUMBER: 480TC

TASK NUMBER: S-000-EM-21(SRO ONLY)

TASK TITLE: CLASSIFY THE EVENT PER THE REP (GENERAL - LOSS OF  
ALL PWR TO ALL UNIT SPECIFIC 4KV S/D BDS >3 HOURS)

K/A NUMBER: 2.4.38 K/A RATING: RO 2.2 SRO 4.0

\*\*\*\*\*

TASK STANDARD: CLASSIFY THE EVENT AS A GENERAL EMERGENCY (5.1-G)  
BASED ON LOSS OF ALL POWER TO UNIT SPECIFIC 4KV SHUTDOWN BDS ON  
ANY UNIT FOR >3 HOURS. MAKE NOTIFICATIONS SUCH THAT;  
(TIME ODS NOTIFIED) – (TIME DECLARED)  $\leq$  5 MINUTES  
(TIME NRC NOTIFIED) – (TIME DECLARED)  $\leq$  60 MINUTES

PERFORMANCE LOCATION: SIMULATOR X PLANT \_\_\_\_\_ CONTROL ROOM \_\_\_\_\_

REFERENCES/PROCEDURES NEEDED: EPIP-1, Rev 43, EPIP-5, Rev 37

VALIDATION TIME: SIMULATOR: 20 min LOCAL: \_\_\_\_\_

MAX. TIME ALLOWED: 5/60 (FOR TIME CRITICAL JPMs ONLY)

PERFORMANCE TIME: \_\_\_\_\_

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ADDITIONAL COMMENT SHEETS ATTACHED? YES \_\_\_\_\_ NO \_\_\_\_\_

RESULTS: SATISFACTORY \_\_\_\_\_ UNSATISFACTORY \_\_\_\_\_

EXAMINER SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_



## BROWNS FERRY NUCLEAR PLANT JOB PERFORMANCE MEASURE

\*\*\*\*\*

**IN-SIMULATOR:** I will explain the initial conditions and state the task to be performed. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

\*\*\*\*\*

**INITIAL CONDITIONS:** You are the SHIFT MANAGER. Unit 3 was in MODE 2 at 2% power when a severe storm caused damage to the switchyard with loss of ALL OFFSITE POWER at 1300 hours. Also, an unisolable rupture occurred in the EECW system for Unit 3 Diesels and cannot be repaired for 4 hours. All Unit 3 Diesels are lost due to the loss of cooling water. Unit 3 shutdown boards cannot be crosstied to Unit 1/2. EOI-1 has been entered and all rods inserted on the scram; SGBT A & B are operating and no elevated radiological stack release is predicted.

**INITIATING CUES:** The UNIT SUPERVISOR has informed you of the EECW line rupture causing loss of all Unit 3 Diesels with an estimated time of repair being 1700. It is now 1314. Using the following parameters provided to you by the Control Room operating crew, CLASSIFY THE EVENT according to the EIPs and perform any required actions. The TSC and CECC are not staffed.

Reactor Level	-40 inches on Emergency Range, controlled by RCIC (slowly rising)
Reactor Pressure	950 controlled by SRV's (MSIV's isolated)
DW Pressure	1.38 psig
DW Temperature	145 °F
Torus Temperature	91 °F
PSC Pressure	1.0 psig
Torus Level	-2 inches
Wind Speed 5 mph, Wind Direction	– from 60 degrees

**(SOME portions of this JPM are TIME CRITICAL)**

START TIME \_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL   X   NOT CRITICAL       

Refers to EPIP-1 to classify the emergency event

STANDARD:

SRO/SED refers to EPIP 1, Section 5, Loss of AC Power and declares a GENERAL EMERGENCY (5.1-G) based on Loss of voltage to ALL unit specific 4KV Shutdown Boards from Table 5.1 AND restoration of at least one 4KV Shutdown Board is NOT likely within three hours.

SAT        UNSAT        N/A        COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL   X   NOT CRITICAL       

Implements EPIP-5, GENERAL EMERGENCY

STANDARD:

SRO/SED recognizes/implements a GENERAL EMERGENCY per EPIP-5.

SAT        UNSAT        N/A        COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

<b>BROWNS FERRY</b>	<b>GENERAL EMERGENCY</b>	<b>EPIP-4</b>
-------------------------	--------------------------	---------------

### 3.0 EMERGENCY CLASSIFICATION ACTIONS

This section of the procedure is utilized for actions to be taken when the initial General Emergency classification is originating from the Control Room. If the Technical Support Center is operational, utilize the instructions found in Appendix E of this procedure for actions to be taken upon the General Emergency classification being declared.

#### 3.1 Activation of the Emergency Response Organization (ERO)

##### **CAUTION**

Ongoing or anticipated security events may present a danger to normal staffing of the Emergency Response Organization. Select the "Staging Area" option when events are ongoing or anticipated that may present a danger to normal ERO staffing as determined by the SED and/or Nuclear Security.

##### **NOTE**

Normally Appendix B, "Unit Operator Notifications", is conducted by a Unit 1, Unit Operator, Depending upon the affected unit, this action may be delegated to a Unit Operator on an unaffected unit.

\*\*\*\*\*

TIME EVENT DECLARED \_\_\_\_\_

PERFORMANCE STEP: CRITICAL   X   NOT CRITICAL \_\_\_\_\_

3.1.1 NOTIFY...a Unit Operator of the General Emergency  
Classification,

AND

3.1.2 DIRECT...the Unit Operator to implement Appendix B,  
activating the paging system using option;

- DRILL
- EMERGENCY
- STAGING AREA (See caution note above)

STANDARD:

DIRECTS Unit Operator to make notifications per Appendix B.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

CRITICAL   X   NOT CRITICAL       

2. Completion of Appendix A for the General Emergency Classification includes the development of a Protective Action Recommendation (PAR) when the CECC is not operational. Utilize Appendix G, PAR flowchart when determining PAR, if required. PAR must be made by SM/SED

APPENDIX A is complete with EAL Designator 5.1-G GENERAL EMERGENCY status and a PAR Recommendation 2. EOI-1 has been entered and all rods inserted on the scram. Loss of ALL OFFSITE power and EECW piping rupture causing loss to Unit 3 Diesel Generators--estimated time of repair for leak is 4 hours. Unable to crosstie 4KV Shutdown Boards with Unit 1/2. Reactor level -40 inches on Emergency Range controlled by RCIC (MSIV's are isolated). Reactor pressure 950 controlled by SRV's, DW pressure 1.38 psig, DW temperature 145 °F, Torus temperature 91 °F, Torus level -2 inches, Torus pressure 1.0 psig. Wind speed is 5 MPH and direction is North. Unit 3 conditions are fairly stable with no abnormal radiological releases offsite.

(Classification of event and PAR Recommendation are CRITICAL, description is NOT.)

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

.....

.....

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL   X   NOT CRITICAL       

3.2.2 NOTIFY...the ODS, utilizing the “Direct Ring-Down” telephone or at extension 5-751-1700 or 5-751-2495.

AND

REPORT...to the ODS the information recorded on Appendix A.

AND

FAX...a copy of Appendix A to the ODS for confirmation of information at 5-751-8620.

**CUE: [As ODS] Repeat back information given by Candidate.**

## Faxing to the ODS will be simulated

STANDARD:

Contacts the ODS within 5 minutes of declaring the event and simulates sending fax.  
(Only contacting the ODS within 5 minutes is Critical)

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

---

RECORD TIME ODS NOTIFIED \_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL X

3.2.3 IF... the ODS was contacted,

THEN... the State of Alabama notification action is complete.

AND

RE-ENTER at Step 3.3. Otherwise continue.

STANDARD:

Continues to step 3.3, since ODS was notified.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

NOTE

- The State of Alabama should be contacted within 15 minutes of the emergency classification.
- Completion of Appendix A for the General Emergency Classification includes the development of a Protective Action Recommendation (PAR) when the CECC is not operational. Utilize Appendix G, PAR flowchart when determining PAR, when required. PAR must be made by SM/SED.

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL X

3.2.4 IF...the ODS cannot be contacted within 10 minutes,

THEN... **NOTIFY** and **REPORT** the information recorded on Appendix A to the following:

Limestone County (after hours)	9-232-2631 9-232-0111
Morgan County (after hours)	9-1-256-351-4620 9-1-256-353-2515 Option 0
Lawrence County (after hours)	9-1-256-974-7641 9-1-256-974-7911
Lauderdale County (after hours)	9-1-256-7664201 9-1-256-760-9117

State of Alabama at:

24 Hours  
Primary: 9-1-205-280-2310  
Backup: 9-1-800-843-0699  
Backup: 9-1-334-324-0076

**AND**

**FAX**...a copy of Appendix A to the State of Alabama for confirmation of information at 9-1-205-280-2495.

STANDARD:

N/A – The ODS was notified.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL  X

3.3 ODS State of Alabama Notification Confirmation

Receive a confirmation call from the ODS verifying that the notification of the State of Alabama was completed. Do this concurrently with the implementation of this procedure.

**CUE: (3 minutes after fax) Request simulator console operator to call and confirm that the ODS has received the fax and to report that the severe weather will continue in the area for the next hour.**

STANDARD:

Continues in procedure until conformation call is received and acknowledges receipt.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**CAUTION**

Ongoing or anticipated security events may present a danger to site personnel. Do not conduct the notification of site personnel PA message during an ongoing or anticipated security event. All pertinent site personnel PA messages will be conducted per AOI-100-8 for security events.

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL X

3.4 Notification of Site Personnel

CONDUCT a Plant PA announcement similar to the following:  
(Dial 687 to obtain the Plant PA)

Let me have your attention please.

This is (name) \_\_\_\_\_.

A General Emergency Classification has been declared.

We are currently implementing EPIP-5.

If you have not already done so, please report to your assigned emergency center at this time.

STANDARD:

P. A. Announcement was made giving name, General Emergency status on Unit 3, and informs plant personnel that EPIP-5 is being implemented and directs plant personnel to report to their assigned Emergency Response Facility, if they haven't already done so.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**CAUTION**

Do not initiate Assembly / Accountability when:

1. A severe weather condition exists or is projected on-site, such as a Tornado.
2. An on-site security risk condition exists that may present a danger to site personnel during the Assembly / Accountability process as determined by SED/Nuclear Security.

\*\*\*\*\*

PERFORMANCE STEP:                      CRITICAL    \_\_\_\_\_    NOT CRITICAL      X  

3.5    Assembly / Accountability

3.5.1    IF... Assembly / Accountability has not been conducted,

THEN... IMPLEMENT EPIP-8, Appendix C concurrently with this procedure. This action may be delegated.

3.5.2    IF... an order to evacuate non-emergency responders has not been issued,

THEN... upon completion of Assembly / Accountability, INITIATE the order to "Evacuate Non-Emergency Responders," through implementation of EPIP-8, Appendix F, concurrently with this procedure.

3.5.3    IF... conditions exist that do not allow for an Assembly / Accountability or Evacuation at this time,

THEN... CONTINUE to assess the situation, implementing EPIP-8 as applicable.

**CUE: The STA is implementing EPIP-8 as needed.**

STANDARD:

Acknowledges that STA is performing EPIP-8 and continues to step 3.6

SAT    \_\_\_\_\_    UNSAT    \_\_\_\_\_    N/A    \_\_\_\_\_    COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL  X

3.6 Dose Assessment

EVALUATE...the need for dose assessment.

IF...dose assessment is needed,

THEN...CONTACT, if operational, the Central Emergency Control Center (CECC) at 5-751-1614.

OR

IF...the CECC is not operational,

THEN...CONTACT, the Radiological Protection Shift Supervisor or designee at 7865 and request the implementation of EPIP-13 for dose assessment.

**CUE: The CECC is not operational at this time.**

STANDARD:

SRO/SED acknowledges that the CECC is not staffed and contacts the Radiological Protection Shift Supervisor and request the implementation of EPIP-13, if deemed necessary.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**CUE: As Radcon Shift Supervisor, report – Implementing EPIP-13.**

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL X NOT CRITICAL       

### 3.7 Notification of the Nuclear Regulatory Commission (NRC)

**NOTE**

If possible, when making notifications to the NRC, utilize the Emergency Notification System (ENS). Dial the first number listed on the sticker affixed to the ENS telephone by dialing 9-1- "The Ten Digit Number Listed on the ENS Telephones". If the number is busy, then select in order, the alternate numbers until a connection is achieved. No access codes should be required.

NOTIFY...the NRC immediately but no later than one hour after the emergency has been declared.

IF...REQUESTED by the NRC to maintain an open and continuous line of communications,

THEN... MAINTAIN an open and continuous line of communications as directed by NRC.

STANDARD:

SRO/SED notified NRC within 60 minutes on the Simulator by calling the console operator and requesting NRC.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

---

RECORD TIME NRC NOTIFIED

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL X

3.8 Review of Procedure

Review this procedure to ensure that all steps and actions have been completed and all place keeping blocks have been checked or denoted as instructed. This action may be delegated.

**CUE: The STA is available to review the procedure for you.**

STANDARD:

SRO/SED reviews procedure to ensure all steps and actions have been completed, placekeeping blocks checked as instructed.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

### 3.9 Monitor / Re-evaluate the Event

Monitoring and reevaluation of plant events along with communicating significant changes should be performed continuously as a function of the emergency response. Methods used to communicate significant changes are not formalized and may vary depending upon staffing levels as well as availability of personnel or equipment. Appendix C provides a systematic approach to monitor/reevaluate and communicate significant changes in plant conditions.

Utilize Appendix C to monitor/re-evaluate and communicate plant conditions and significant changes. Significant changes in plant conditions are at a minimum when other EAL conditions exist indicating the current emergency classification.

**CUE: The assistant plant manager (duty SED, SRO) is here to relieve you. That completes this task.**

END OF TASK

STOP TIME \_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL X

PERFORMER demonstrated the use of SELF CHECKING during this JPM

STANDARD:

PERFORMER verified applicable components by utilizing SELF CHECKING in accordance with plant standards.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

\*\*\*\*\*

PERFORMANCE STEP: CRITICAL \_\_\_\_\_ NOT CRITICAL X

PERFORMER demonstrated the use of 3-WAY COMMUNICATION during this JPM

STANDARD:

PERFORMER utilized 3-WAY COMMUNICATION in accordance with plant standards.

SAT \_\_\_\_\_ UNSAT \_\_\_\_\_ N/A \_\_\_\_\_ COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



**Browns Ferry****General Emergency****EPIP-5**

Appendix A

Page 1 of 1

**GENERAL EMERGENCY INITIAL INFORMATION FORM**1. ☒ This is a Drill ☐ This is an Actual Event – Repeat - This is an Actual Event2. This is Name. Browns Ferry has declared a **General Emergency**affecting: ☐ Unit 1 ☐ Unit 2 ☒ Unit 3 ☐ Common3. EAL Designator(s): 5.1-G **(Critical)**4. Brief description of event: Loss of all off-site power to Unit 3 and loss of all Diesels to Unit 3 (due to loss of EECW) for >3 hours (predicted – 4 hrs). RWL -40" and slowly rising with RCIC, Rx pressure 950 psig with SRV's, DW pressure 1.38 psig, DW temp 145°F, Torus pressure 1 psig, Torus temp 91°F

5. Radiological Conditions: (Check one under both Airborne and Liquid column)

Airborne Releases OffsiteLiquid Releases Offsite☐ Minor releases within federally approved limits<sub>1</sub>☐ Minor releases within federally approved limits<sub>1</sub>☐ Releases above federally approved limits<sub>1</sub>☐ Releases above federally approved limits<sub>1</sub>☒ Release information not known☒ Release information not known6. Event Declared: Time: Time Date: Today

7. Meteorological conditions are: (Use 91 Meter Data on the Met Tower)

Wind Direction is from 60 degrees Wind Speed 5 mph8. Provide Protective Action Recommendation: Check either 1 or 2 or 3. **(Critical)**☐ Recommendation 1

- EVACUATE LISTED SECTORS (2 mile Radius & 10 miles downwind)
- Shelter all other non-listed sectors.
- Consider issuance of POTASSIUM IODINE in accordance with the State Plan.

R  
E  
C  
  
1Wind From  
Degrees  
  
(Mark wind  
direction from  
step 7)R  
E  
C  
  
2☒ Recommendation 2

- EVACUATE LISTED SECTORS (2 mile radius & 5 mile downwind)
- SHELTER all other non-listed sectors.
- Consider issuance of POTASSIUM IODIDE in accordance with the State Plan.

A-2, B-2, F-2, G-2, E-5, -10, F-5, -10, G-5, -10

4 - 40

A-2, B-2, F-2, G-2, E-5, F-5, G-5

A-2, B-2, F-2, G-2, F-5, -10, G-5, -10, H-10

41- 73

A-2, B-2, F-2, G-2, F-5, G-5

A-2, B-2, F-2, G-2, G-5, -10, H-10, I-10

74 - 92

A-2, B-2, F-2, G-2, G-5

A-2, B-2, F-2, G-2, A-5, G-5, H-10, I-10, J-10, K-10

93 - 137

A-2, B-2, F-2, G-2, A-5, G-5

A-2, B-2, F-2, G-2, A-5, -10, I-10, J-10, K-10

138 - 203

A-2, B-2, F-2, G-2, A-5

A-2, B-2, F-2, G-2, A-5, -10, B-5, -10

204 - 282

A-2, B-2, F-2, G-2, A-5, B-5

A-2, B-2, F-2, G-2, B-5, -10, C-10, D-10, E-5, -10

283 - 326

A-2, B-2, F-2, G-2, B-5, E-5

A-2, B-2, F-2, G-2, C-10, D-10, E-5, -10, F-5, -10

327 - 3

A-2, B-2, F-2, G-2, E-5, F-5

☐ Recommendation 3

- SHELTER all sectors
- CONSIDER issuance of Potassium Iodide in accordance with the State Plan.

9. Please repeat the information you have received to ensure accuracy.

Action: When completed, fax this appendix as prescribed by procedure.

## BROWNS FERRY NUCLEAR PLANT JOB PERFORMANCE MEASURE

\*\*\*\*\*

**IN-SIMULATOR:** I will explain the initial conditions and state the task to be performed. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. When your task is given, you will repeat the task and I will acknowledge "That's Correct". (OR "That's Incorrect", if applicable). When you have completed your assigned task, you will say, "my task is complete" and I will acknowledge that your task is complete.

\*\*\*\*\*

**INITIAL CONDITIONS:** You are the SHIFT MANAGER. Unit 3 was in MODE 2 at 2% power when a severe storm caused damage to the switchyard with loss of ALL OFFSITE POWER at 1300 hours. Also, an unisolable rupture occurred in the EECW system for Unit 3 Diesels and cannot be repaired for 4 hours. All Unit 3 Diesels are lost due to the loss of cooling water. Unit 3 shutdown boards cannot be crosstied to Unit 1/2. EOI-1 has been entered and all rods inserted on the scram; SGBT A & B are operating and no elevated radiological stack release is predicted.

**INITIATING CUES:** The UNIT SUPERVISOR has informed you of the EECW line rupture causing loss of all Unit 3 Diesels with an estimated time of repair being 1700. It is now 1314. Using the following parameters provided to you by the Control Room operating crew, CLASSIFY THE EVENT according to the EIPs and perform any required actions. The TSC and CECC are not staffed.

Reactor Level	-40 inches on Emergency Range, controlled by RCIC (slowly rising)
Reactor Pressure	950 controlled by SRV's (MSIV's isolated)
DW Pressure	1.38 psig
DW Temperature	145 °F
Torus Temperature	91 °F
PSC Pressure	1.0 psig
Torus Level	-2 inches
Wind Speed 5 mph, Wind Direction	– from 60 degrees

**(SOME portions of this JPM are TIME CRITICAL)**

C

C

C

# **LOSS OF POWER 5.0**

**NOTES**

- 5.1-U** Loss of normal and alternate supply voltage implies inability to restore voltage from any qualified source to normal or alternate feeder for at least one of the unit specific boards within 15 minutes. At least two boards must be energized from Diesel power to meet this classification. If only one board can be energized and that board has only one source of power then refer to EAL 5.1-A1 or 5.1-A2.
- 5.1-A1** Only one source of power (Diesel or Offsite) is available to any one of the listed unit specific 4KV Shutdown Boards. No power is available to the three remaining boards.
- 5.1-A2** Loss of voltage to all unit specific 4KV Shutdown Boards applies to those boards which normally supply emergency AC power to the affected unit only. Determination of the event classification depends on the affected unit operating mode. For units in operation 5.1-S would apply.
- 5.1-S** Loss of voltage to all unit specific 4KV Shutdown Boards applies to those boards which normally supply emergency AC power to the affected unit only. Determination of the event classification depends on the affected unit operating mode. For units in Shutdown or Refuel 5.1-A2 would apply.
- 5.1-G** Loss of voltage to all unit specific 4KV Shutdown Boards applies to those boards which normally supply emergency AC power to the affected unit only.

**CURVES/TABLES:**

Table 5.1 UNIT 4KV SHUTDOWN BOARD APPLICABILITY	
APPLICABLE UNIT	APPLICABLE 4KV SHUTDOWN BOARDS
UNIT 1	A, B, C, and D
UNIT 2	A, B, C, and D
UNIT 3	3A, 3B, 3C, and 3D

**LOSS OF AC POWER**

Description					Description					
5.1-U		NOTE	TABLE	US						UNUSUAL EVENT
Loss of normal and alternate supply voltage to ALL unit specific 4KV shutdown boards from Table 5.1 for greater than 15 minutes <b>AND</b> At least two Diesel Generators supplying power to unit specific 4KV shutdown boards listing in Table 5.1. OPERATING CONDITION: ALL										
5.1-A1		NOTE	TABLE	US	5.1-A2		NOTE	TABLE	US	ALERT
Loss of voltage to ANY THREE unit specific 4KV shutdown boards from Table 5.1 for greater than 15 minutes <b>AND</b> Only ONE source of power available to the remaining board.  OPERATING CONDITION: Mode 1 or 2 or 3					Loss of voltage to ALL unit specific 4KV shutdown boards from Table 5.1 for greater than 15 minutes.  OPERATING CONDITION: Mode 4 or 5 or Defueled					
5.1-S		NOTE	TABLE	US						SITE EMERGENCY
Loss of voltage to ALL unit specific 4KV shutdown boards from Table 5.1 for greater than 15 minutes.       OPERATING CONDITION: Mode 1 or 2 or 3										
5.1-G		NOTE	TABLE	US						GENERAL EMERGENCY
Loss of voltage to ALL unit specific 4KV shutdown boards from Table 5.1 <b>AND</b> Either of the following conditions exists; • Restoration of at least one 4KV shutdown board is NOT likely within three hours. • Adequate core cooling can NOT be assured.   OPERATING CONDITION: Mode 1 or 2 or 3										

C

C

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**EPIP- 5**

**GENERAL EMERGENCY**

**REVISION 37**

PREPARED BY: RANDY WALDREP

PHONE: 2038

RESPONSIBLE ORGANIZATION: EMERGENCY PREPAREDNESS

APPROVED BY: Tony Elms

DATE: 03/30/2008

EFFECTIVE DATE: 04/10/2008

LEVEL OF USE: REFERENCE USE

**QUALITY-RELATED**



## HISTORY OF REVISION / REVIEW

<u>REV. NO.</u>	<u>REVISED PAGES</u>	<u>REASON FOR CURRENT REVISION</u>	
34	11	IC-42	EPIP-5, rev. 34 - The Protective Action Recommendation Logic Diagram is being revised to include a specific sheltering recommendation for a short term release. This change was made to incorporate criteria contained in NRC Regulatory Issue Summary 2004-13, Consideration of Sheltering in Licensee's Range of Protective Action Recommendations. Additionally the direct contact telephone number for Lawrence County is being changed at Lawrence County's request. The current number is a Emergency Management Agency number, but the new revised number is more accessible.
35	ALL	IC-43	EPIP-5, rev. 35 reflects formatting changes to increase ease of use. The guidance for monitoring/re-evaluating the event was moved to Appendix C. The follow-up information form became Appendix D (previously Attachment D). The instructions for TSC implementation of EPIP-5 was moved to Appendix E. A flow illustration was added as Appendix F. The Protective Action Recommendation chart became Appendix G (previously Attachment C). Additionally, the revision incorporates identified changes resulting from annual review, standardization issues, areas for improvements identified by users, cautions regarding onsite protective actions (RIS 2004-15) as well as other editorial changes.
36	4,11,18	IC-44	EPIP-5, revision 36 converted the document from W95 to XP and added a new phone number for Lauderdale County EMA. Added caution statement to Appendix B for Unit Operator actions prior to steps 3-6.
37	4,6,7,14,18, 20,21	IC-45	Note supporting step 3.2.4 and Appendix E step 1.3 revised to change "should" regarding state notifications to "shall". Caution note supporting step 3.5.1, Appendix C step 2.0 and Appendix E step 4.1 revised to add example 3 of when assembly/accountability should not be initiated. Section 3.7 and Appendix E step 6.0 revised to add a caution to ensure that all previous emergency classifications have been communicated to the NRC (PER 138293, Corrective Action 1).

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## 1.0 INTRODUCTION

### 1.1 Purpose

The purpose of this procedure is to provide for the timely notification of appropriate individuals or organizations when the Shift Manager or the Site Emergency Director (SED) has determined through the use of EPIP-1 that an event has occurred which is classified as a General Emergency. Additionally, this procedure provides for periodic evaluation of the current situation by the Shift Manager/SED to determine whether the General Emergency should be terminated or continued.

This procedure is initiated by implementation of EPIP-1, "Emergency Classification Procedure." Initial classifications are conducted from the body of this instruction. Classifications that are made following the Technical Support Center becoming operational is accomplished from an appendix of this procedure.

## 2.0 REFERENCES

### 2.1 Industry Documents

- A. NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
- B. 10 CFR 50.47, Code of Federal Regulations
- C. 10 CFR 72.75, Code of Federal Regulations

### 2.2 Plant Instructions

- A. TVA Radiological Emergency Plan
- B. EPIP - 1, "Emergency Classification Procedure"
- C. EPIP - 2, "Notification of Unusual Event"
- D. EPIP - 3, "Alert"
- E. EPIP - 4, "Site Area Emergency"

BROWNS FERRY	GENERAL EMERGENCY	<b>EPIP-5</b>
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### 3.0 EMERGENCY CLASSIFICATION ACTIONS

This section of the procedure is utilized for actions to be taken when the initial General Emergency, emergency classification is originating from the Control Room. If the Technical Support Center is operational, utilize the instructions found in Appendix E of this procedure for actions to be taken upon the General Emergency, emergency classification being declared.

#### 3.1 Activation of the Emergency Response Organization (ERO)

##### **CAUTION**

Ongoing or anticipated security events may present a danger to normal staffing of the Emergency Response Organization. Select the "Staging Area" option when events are ongoing or anticipated that may present a danger to normal ERO staffing as determined by the SED and/or Nuclear Security.

##### **NOTE**

Normally Appendix B, "Unit Operator Notifications", is conducted by a Unit 1, Unit Operator, Depending upon the affected, unit this action may be delegated to a Unit Operator on an unaffected unit.

3.1.1 **NOTIFY**...a Unit Operator of the General Emergency  
Emergency Classification,

☐

##### **AND**

3.1.2 **DIRECT**...the Unit Operator to implement Appendix B,  
activating the paging system using option

- ☐ DRILL
- ☐ EMERGENCY
- ☐ STAGING AREA (See caution note above)

BROWNS FERRY	GENERAL EMERGENCY	<b>EPIP-5</b>
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### 3.2 Operations Duty Specialist (ODS) Notification / State of Alabama Notification

#### NOTE

1. The ODS should be notified within 5 minutes after the emergency has been declared.
2. Completion of Appendix A for the General Emergency Classification includes the development of a Protective Action Recommendation (PAR) when the CECC is not operational. Utilize Appendix G, PAR flowchart when determining PAR, if required. PAR must be made by SM/SED.

3.2.1 **COMPLETE** Appendix A (Initial Notification Form). Utilize  
Appendix G, "Protective Action  
Recommendation", flowchart as appropriate.

☐

3.2.2 **NOTIFY**...the ODS, utilizing the "Direct Ring-Down"  
telephone or at extension 5-751-1700 or  
5-751-2495

**AND**

**REPORT**...to the ODS the information recorded on  
Appendix A.

\_\_\_\_\_/\_\_\_\_\_  
Initials Time

**AND**

**FAX**...a copy of Appendix A to the ODS for confirmation of  
information at 5-751-8620.

☐

3.2.3 IF... the ODS was contacted,

THEN... the State of Alabama notification action is  
complete.

**AND**

**RE-ENTER** at Step 3.3. Otherwise continue.

**NOTE**

- The State of Alabama shall be contacted within 15 minutes of the emergency classification.
- Completion of Appendix A for the General Emergency Classification includes the development of a Protective Action Recommendation (PAR) when the CECC is not operational. Utilize Appendix G, PAR flowchart when determining PAR, when required. PAR must be made by SM/SED.

3.2.4 IF...the ODS cannot be contacted within 10 minutes,

THEN... **NOTIFY** and **REPORT** the information recorded on Appendix A to the following:

- |                                      |   |  |
|--------------------------------------|---|--|
| • Limestone County<br>(after hours)  | 9-232-2631<br>9-232-0111                      | <u>      </u> / <u>      </u><br>Initials Time |
| • Morgan County<br>(after hours)     | 9-1-256-351-4620<br>9-1-256-353-2515 Option 0 | <u>      </u> / <u>      </u><br>Initials Time |
| • Lawrence County<br>(after hours)   | 9-1-256-974-7641<br>9-1-256-974-7911          | <u>      </u> / <u>      </u><br>Initials Time |
| • Lauderdale County<br>(after hours) | 9-1-256-760-6363<br>9-1-256-760-9117          | <u>      </u> / <u>      </u><br>Initials Time |
| • State of Alabama at:               |   | <u>      </u> / <u>      </u><br>Initials Time |

24 Hours

Primary: 9-1-205-280-2310

Backup: 9-1-800-843-0699

Backup: 9-1-334-324-0076

**AND**

**FAX**...a copy of Appendix A to the State of Alabama for confirmation of information at 9-1-205-280-2495.



BROWNS FERRY	GENERAL EMERGENCY	EPIP-5
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### 3.3 ODS State of Alabama Notification Confirmation

Receive a confirmation call from the ODS verifying that the notification of the State of Alabama was completed. Do this concurrently with the implementation of this procedure.

\_\_\_\_\_/\_\_\_\_\_  
Initials Time  
(N/A this step if  
State was  
contacted directly)

### 3.4 Notification of Site Personnel

#### **CAUTION**

Ongoing or anticipated security events may present a danger to site personnel. Do not conduct the notification of site personnel PA message during an ongoing or anticipated security event. All pertinent site personnel PA messages will be conducted per AOI-100-8 for security events.

**CONDUCT** a Plant PA announcement similar to the following:  
(Dial 687 to obtain the Plant PA)



Let me have your attention please.  
This is (name) \_\_\_\_\_.  
A General Emergency, Emergency Classification has been declared.  
We are currently implementing EPIP-5.  
If you have not already done so, please report to your assigned emergency center at this time.

### 3.5 Assembly / Accountability

#### **CAUTION**

Do not initiate Assembly / Accountability when:

1. A severe weather condition exists or is projected on-site, such as a Tornado.
2. An on-site security risk condition exists that may present a danger to site personnel during the Assembly / Accountability process as determined by SED/Nuclear Security.
3. Rapid Evacuation of the Protected Area (REPA) has been conducted.

3.5.1 IF... Assembly / Accountability has not been conducted, ☐

THEN... **IMPLEMENT** EPIP-8, Appendix C concurrently with this procedure. This action may be delegated.

3.5.2 IF... an order to evacuate non-emergency responders has not been issued, ☐

THEN... upon completion of Assembly / Accountability, **INITIATE** the order to "Evacuate Non-Emergency Responders," through implementation of EPIP-8, Appendix F, concurrently with this procedure.

3.5.3 IF... conditions exist that do not allow for an Assembly / Accountability or Evacuation at this time, ☐

THEN... **CONTINUE** to assess the situation, implementing EPIP-8 as applicable.

### 3.6 Dose Assessment

**EVALUATE**...the need for dose assessment. ☐

IF...dose assessment is needed,

THEN...**CONTACT**, if operational, the Central Emergency Control Center (CECC) at 5-751-1614.

**OR**

IF...the CECC is not operational,

THEN...**CONTACT**, the Radiological Protection Shift Supervisor or designee at 7865 and request the implementation of EPIP-13 for dose assessment.



### 3.7 Notification of the Nuclear Regulatory Commission (NRC)

#### **CAUTION**

Ensure that previous declared emergency classifications have been communicated to NRC, specifically in fast breaking events, where emergency classifications are rapidly changing.

#### **NOTE**

If possible, when making notifications to the NRC, utilize the Emergency Notification System (ENS). Dial the first number listed on the sticker affixed to the ENS telephone by dialing 9-1- "The Ten Digit Number Listed on the ENS Telephones". If the number is busy, then select in order, the alternate numbers until a connection is achieved. No access codes should be required.

**NOTIFY**...the NRC immediately but no later than one hour after the emergency has been declared. ☐

IF... **REQUESTED** by the NRC to maintain an open and continuous line of communications,

THEN... **MAINTAIN** an open and continuous line of communications as directed by NRC.

### 3.8 Review of Procedure

Review this procedure to ensure that all steps and actions have been completed and all place keeping blocks have been checked or denoted as instructed. This action may be delegated. ☐

### 3.9 Monitor / Re-evaluate the Event

Monitoring and reevaluation of plant events along with communicating significant changes should be performed continuously as a function of the emergency response. Methods used to communicate significant changes are not formalized and may vary depending upon staffing levels as well as availability of personnel or equipment. Appendix C provides a systematic approach to monitor/re-evaluate and communicate significant changes in plant conditions.

Utilize Appendix C to monitor/re-evaluate and communicate plant conditions and significant changes. Significant changes in plant conditions are at a minimum when other EAL conditions exist indicating the current emergency classification.

<b>BROWNS FERRY</b>	<b>GENERAL EMERGENCY</b>	<b>EPIP-5</b>
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#### 4.0 DOCUMENTATION

##### 4.1 **Emergency Records**

The records generated due to declaration of an emergency classification are considered Lifetime Retention Non-QA records. These records shall be forwarded to the BFN EP Manager. The records necessary to demonstrate performance are then submitted to the Corporate EP Manager for storage.

##### 4.2 **Drill and Exercise Records**

The records deemed necessary to demonstrate performance of key actions during drills are considered Non-QA records. These records shall be forwarded to the BFN EP Manager. The BFN EP Manager shall retain records necessary to demonstrate six-year plan requirements for six years. The BFN EP Manager shall retain other records in this category for three years.

#### 5.0 ILLUSTRATIONS /APPENDICES

- Appendix A - General Emergency Initial Notification Form
- Appendix B - Unit Operator Notifications
- Appendix C - Monitor / Re-Evaluate the Event
- Appendix D - General Emergency Follow-up Information Form
- Appendix E - Technical Support Center General Emergency Classification Instruction
- Appendix F - EPIP-5 Procedure Flow Illustration
- Appendix G - Protective Action Recommendation Flowchart

LAST TEXT

## APPENDIX A

Page 1 of 1

## GENERAL EMERGENCY INITIAL NOTIFICATION FORM

1. ☐ This is a Drill ☐ This is an Actual Event - Repeat - This is an Actual Event

2. This is \_\_\_\_\_, Browns Ferry has declared a **GENERAL EMERGENCY**  
affecting: ☐ Unit 1 ☐ Unit 2 ☐ Unit 3 ☐ Common

3. EAL Designator(s): \_\_\_\_\_

4. Brief Description of the Event: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Radiological Conditions: (Check one under both Airborne and Liquid column.)  
**Airborne Releases Offsite** **Liquid Releases Offsite**  
☐ Minor releases within federally approved limits<sup>1</sup> ☐ Minor releases within federally approved limits<sup>1</sup>  
☐ Releases above federally approved limits<sup>1</sup> ☐ Releases above federally approved limits<sup>1</sup>  
☐ Release information not known ☐ Release information not known  
 ( <sup>1</sup>Tech Specs ) ( <sup>1</sup>Tech Specs )

6. Event Declared: Time: \_\_\_\_\_ Date: \_\_\_\_\_

7. The Meteorological Conditions are: (Use 91 meter data from the Met Tower)  
 Wind Direction is FROM: \_\_\_\_\_ degrees Wind Speed: \_\_\_\_\_ m.p.h

8. Provide Protective Action Recommendation: Check either 1 or 2 or 3.

<input type="checkbox"/> Recommendation 1	R E C	WIND FROM DEGREES	R E C	<input type="checkbox"/> Recommendation 2
<ul style="list-style-type: none"> <li>• EVACUATE LISTED SECTORS (2 mile Radius &amp; 10 miles downwind)</li> <li>• Shelter all other non-listed sectors.</li> <li>• Consider issuance of POTASSIUM IODINE in accordance with the State Plan.</li> </ul>	1	(Mark wind direction from Step 7)	2	<ul style="list-style-type: none"> <li>• EVACUATE LISTED SECTORS (2 mile radius &amp; 5 mile downwind)</li> <li>• SHELTER all other non-listed sectors.</li> <li>• Consider issuance of POTASSIUM IODIDE in accordance with the State Plan.</li> </ul>
A-2, B-2, F-2, G-2, E-5, -10, F-5, -10, G-5, -10		4 - 40		A-2, B-2, F-2, G-2, E-5, F-5, G-5
A-2, B-2, F-2, G-2, F-5, -10, G-5, -10, H-10		41 - 73		A-2, B-2, F-2, G-2, F-5, G-5
A-2, B-2, F-2, G-2, G-5, -10, H-10, I-10		74 - 92		A-2, B-2, F-2, G-2, G-5
A-2, B-2, F-2, G-2, A-5, G-5, H-10, I-10, J-10, K-10		93 - 137		A-2, B-2, F-2, G-2, A-5, G-5
A-2, B-2, F-2, G-2, A-5, -10, I-10, J-10, K-10		138 - 203		A-2, B-2, F-2, G-2, A-5
A-2, B-2, F-2, G-2, A-5, -10, B-5, -10		204 - 282		A-2, B-2, F-2, G-2, A-5, B-5
A-2, B-2, F-2, G-2, B-5, -10, C-10, D-10, E-5, -10		283 - 326		A-2, B-2, F-2, G-2, B-5, E-5
A-2, B-2, F-2, G-2, C-10, D-10, E-5, -10, F-5, -10		327 - 3		A-2, B-2, F-2, G-2, E-5, F-5

☐ Recommendation 3

- SHELTER all sectors
- CONSIDER issuance of Potassium Iodide in accordance with the State Plan.

9. Please repeat the information you have received to ensure accuracy.

**Action: When completed, fax this appendix as prescribed by procedure.**

## APPENDIX B

Page 1 of 3

## UNIT OPERATOR NOTIFICATIONS

**NOTE**

- The Emergency Paging System (EPS) consists of a dedicated touch screen CRT. Activation of any screen feature requires the user place their fingertip within the boundary of the select button and leave it there for at least 1 second. The CRT Screen will normally display a large rectangle that indicates that the paging system is available but currently inactive.
- If the EPS fails to operate, contact the SM/SED immediately. Request that the ODS be contacted to initiate the system from his location. If the system fails to operate from the ODS area, then utilize the Weekly Duty List and Call-Out List to manually staff each emergency responder position, implementing this attachment at step E.

1. **Activate** of the Emergency Paging System (EPS)A. **PRESS** the EPS CRT screen once to activate the paging options.☐B. **PRESS** the appropriate option as instructed by the SED.☐

- PAGER TEST
- DRILL
- EMERGENCY
- STAGING AREA
- ABORT

C. **PRESS** the **START** button to initiate the option or **ABORT** to deny the option request.☐

## APPENDIX B

Page 2 of 3

## UNIT OPERATOR NOTIFICATIONS

- D. **MONITOR** the Paging System Terminal Display

☐**NOTE**

Monitor ERO positions through OSC Document Control. Positions below OSC Document Control are courtesy pages and are not subject to call-out.

1. **IF...** A "NO" response is observed,

**OR**

The position being paged has not responded within approximately 20 minutes,

**THEN...** Utilize the Weekly Duty List and attempt to contact the position representative with available information. (No Fitness for Duty question is required.)

2. **IF...** The individual cannot be reached utilizing the Weekly Duty List,

**THEN...** Utilize the Call-Out List and attempt to contact an alternate position representative. (Fitness for Duty question is required when utilizing the Call-Out List.)

- E. **Manual Call-Out**

☐

1. Utilize the current Weekly Duty List and contact positions as listed. (No Fitness for Duty question is required.)
2. If a position can not be reached from the current Weekly Duty list, then refer to the Call-out List as applicable to fill all vacant positions. (Fitness for Duty question is required when utilizing the Call-Out List.)

- F. **CONTINUE** until all positions have been filled.

☐

2. **Notify** Unit Supervisors on shift of the emergency.

☐

BROWNS FERRY	GENERAL EMERGENCY	EPIP-5
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APPENDIX B  
Page 3 of 3

UNIT OPERATOR NOTIFICATIONS

**CAUTION**

Ongoing or anticipated security events may present a danger to site personnel. If the GENERAL EMERGENCY has been declared due to security related events, DELAY making the following notifications in steps 3-6 until verification has been received from the Shift Manager that there is no danger to site personnel.

3. **Notify** Nuclear Security Shift Supervisor and state "A GENERAL EMERGENCY HAS BEEN DECLARED" and direct to activate EPIP-11, "Security and Access Control". ☐
  - Plant Extension 3238 or 2219
4. **Notify** the Chemistry Lab and state "A GENERAL EMERGENCY HAS BEEN DECLARED" and direct to implement the applicable TI-331, "Post Accident Sampling Procedure" and CI-900 series, "Analysis Procedures". ☐
  - Plant Extension 2367 or 2368
5. **Notify** the RP Lab and state "A GENERAL EMERGENCY HAS BEEN DECLARED" and direct to activate EPIP-14, "Radiological Control Procedure". ☐
  - Plant Extension 7865 or 3104
6. **Notify** the "On-Call" NRC Resident and state "A GENERAL EMERGENCY HAS BEEN DECLARED". ☐
  - Plant Extension 2572 (Secretary) or from Weekly Duty List

## APPENDIX C

Page 1 of 2

## MONITOR / RE-EVALUATE THE EVENT

- 1.0 IF... significant changes in plant conditions such as other EAL conditions supporting the General Emergency or significant changes in radiological conditions,

THEN... **COMPLETE** Appendix D

\_\_\_\_\_/\_\_\_\_\_  
Initials Time

**AND**

**COMMUNICATE** the "Follow-Up" information to:

On-Site Emergency Centers

☐

Plant Personnel through PA announcements (if applicable)

☐

CECC (5-751-1614)

☐

ODS (5-751-1700 or 5-751-2495)

☐

State of Alabama

☐

24 Hours

Primary: 9-1-205-280-2310

Backup: 9-1-800-843-0699

Backup: 9-1-334-324-0076

Nuclear Regulatory Commission (refer to Note in Step 3.7 in body of procedure)

☐

BROWNS FERRY	GENERAL EMERGENCY	EPIP-5
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APPENDIX C  
Page 2 of 2

MONITOR / RE-EVALUATE THE EVENT

**CAUTION**

Do not initiate Assembly / Accountability when:

1. A severe weather condition exists or is projected on-site, such as a Tornado.
2. An on-site security risk condition exists that may present a danger to site personnel during the Assembly / Accountability process as determined by SED/Nuclear Security.
3. Rapid Evacuation of the Protected Area (REPA) has been conducted.

2.0 IF... conditions warrant the activation of Assembly / Accountability or Evacuation, \_\_\_\_/\_\_\_\_  
Initials Time

THEN...**ENTER**, EPIP-8, and implement accordingly. Otherwise N/A this step.

3.0 IF...conditions warrant termination of the emergency classification, \_\_\_\_/\_\_\_\_  
Initials Time

THEN...**ENTER**, EPIP-16, "Termination and Recovery Procedure" and exit this procedure. Otherwise N/A this step.



## APPENDIX D

Page 1 of 1

GENERAL EMERGENCY FOLLOW-UP INFORMATION FORM

1. ☐ THIS IS A DRILL ☐ THIS IS AN ACTUAL EVENT
2. There has been a General Emergency declared at Browns Ferry affecting:  
☐ Unit 1 ☐ Unit 2 ☐ Unit 3 ☐ Common
3. Reactor Status: Unit 1 ☐ Shutdown ☐ At Power ☐ At Power ☐ N/A  
Unit 2 ☐ Shutdown ☐ At Power ☐ At Power ☐ N/A  
Unit 3 ☐ Shutdown ☐ At Power ☐ At Power ☐ N/A
4. Additional EAL Designator(s): \_\_\_\_\_
5. Significant Changes in Plant Conditions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
6. Significant Changes in Radiological Conditions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. Off-site Protective Action Recommendations:  
☐ Recommendation 1 ☐ Recommendation 2 ☐ Recommendation 3  
(CECC to provide detailed PAR Sector Recommendations)
8. On-site Protective Actions: Assembly / Accountability ☐ No ☐ Initiated ☐ Completed  
Site Evacuation ☐ No ☐ Initiated ☐ Completed
9. Meteorological conditions are: Wind Speed \_\_\_\_\_ mph  
(Use 91 Meter Data on the Met Tower) Wind Direction from \_\_\_\_\_ degrees
10. Please repeat the information you have received to ensure accuracy.
11. Fax to applicable contact after reporting follow-up information: CECC(5-751-1682), ODS (5-751-8620, or State of Alabama (9-1-205-280-2495).

Completed by: \_\_\_\_\_ Date/Time \_\_\_\_\_ / \_\_\_\_\_

## APPENDIX E

Page 1 of 6

TECHNICAL SUPPORT CENTER  
GENERAL EMERGENCY CLASSIFICATION INSTRUCTION1.0 Notification of the CECC and/or State of Alabama of General  
Emergency Classification1.1 CECC Notification ☐

## 1.1.1 COMPLETE in the following information:

- GE Classification EAL Designator: \_\_\_\_\_
- GE Classification declared at time: \_\_\_\_\_
- Site Emergency Director: (name) \_\_\_\_\_

AND

**CONTACT** the CECC Director and communicate the  
information recorded in step 1.1, utilizing the  
CECC "Direct Ring-Down" telephone or at  
extension 5-751-1614.

\_\_\_\_\_/\_\_\_\_\_  
Initials Time

## 1.1.2 IF... the CECC Director was contacted

Then... the State of Alabama notification action is  
complete.

AND

**RE-ENTER** this appendix at Step 2.0. Otherwise continue  
in this appendix.

## APPENDIX E

Page 2 of 6

TECHNICAL SUPPORT CENTER  
GENERAL EMERGENCY CLASSIFICATION INSTRUCTION

## 1.2 ODS Notification

**NOTE**

- The ODS should be contacted within 5 minutes of the emergency classification.
- Completion of Appendix A for the General Emergency Classification includes the development of a Protective Action Recommendation (PAR) when the CECC is not operational. Utilize Appendix G, PAR flowchart when determining PAR, when required. PAR must be made by SM/SED.

1.2.1 IF... the CECC Director was not contacted,

THEN ... **COMPLETE** Appendix A (Initial Notification Form). Utilize Appendix G, "Protective Action Recommendation", flowchart as appropriate. ☐**AND****NOTIFY**...the ODS, at extension 5-751-1700 or 5-751-2495 ☐**AND****REPORT**...to the ODS the information recorded on Appendix A. ☐\_\_\_\_ / \_\_\_\_  
Initials Time**AND****FAX**...a copy of Appendix A to the ODS for confirmation of information at 5-751-8620. ☐1.2.2 IF... the ODS was contacted, ☐

Then... the State of Alabama notification action is complete.

**AND****RE-ENTER** this appendix at Step 2.0. Otherwise continue in this appendix.

BROWNS FERRY	GENERAL EMERGENCY	EPIP-5
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# APPENDIX E

Page 3 of 6

## TECHNICAL SUPPORT CENTER GENERAL EMERGENCY CLASSIFICATION INSTRUCTION

### 1.3 State of Alabama Notification

#### NOTE

- The State of Alabama shall be contacted within 15 minutes of the emergency classification.
- Completion of Appendix A for the General Emergency Classification includes the development of a Protective Action Recommendation (PAR) when the CECC is not operational. Utilize Appendix G, PAR flowchart when determining PAR, when required. PAR must be made by SM/SED.

1.3.1 IF...the ODS cannot be contacted within 10 minutes

THEN... **NOTIFY** and **REPORT** the information  
recorded on Appendix A to the following:

- |                                      |   |                            |
|--------------------------------------|---|----------------------------|
| • Limestone County<br>(after hours)  | 9-232-2631<br>9-232-0111                      | ____/____<br>Initials Time |
| • Morgan County<br>(after hours)     | 9-1-256-351-4620<br>9-1-256-353-2515 Option 0 | ____/____<br>Initials Time |
| • Lawrence County<br>(after hours)   | 9-1-256-974-7641<br>9-1-256-974-7911          | ____/____<br>Initials Time |
| • Lauderdale County<br>(after hours) | 9-1-256-760-6363<br>9-1-256-760-9117          | ____/____<br>Initials Time |
| • State of Alabama at:               |   | ____/____<br>Initials Time |

#### 24 Hours

Primary: 9-1-205-280-2310

Backup: 9-1-800-843-0699

Backup: 9-1-334-324-0076

#### **AND**

**FAX...** a copy of Appendix A to the State of Alabama,  
Office of Radiation Control for confirmation of  
information at 9-1-205-280-2495.



## APPENDIX E

Page 4 of 6

TECHNICAL SUPPORT CENTER  
GENERAL EMERGENCY CLASSIFICATION INSTRUCTION

## 2.0 CECC or ODS State of Alabama Notification Confirmation

Receive a confirmation call from the CECC or the ODS verifying that the notification of the State of Alabama was completed. Do this concurrently with the implementation of this procedure.

\_\_\_\_\_/\_\_\_\_\_  
Initials Time  
(N/A this step if  
State was  
contacted directly)

## 3.0 Notification of Site Personnel

**CAUTION**

Ongoing or anticipated security events may present a danger to site personnel. Do not conduct the notification of site personnel PA message during an ongoing or anticipated security event. All pertinent site personnel PA messages will be conducted per AOI-100-8 for security events.

**CONDUCT** a Plant PA announcement similar to the following:  
(Dial 687 to obtain the Plant PA)



Let me have your attention please.

This is (name) \_\_\_\_\_.

An General Emergency Classification has been declared.

We are currently implementing EPIP-5.

If you have not already done so, please report to your assigned emergency center at this time.

## APPENDIX E

Page 5 of 6

TECHNICAL SUPPORT CENTER  
GENERAL EMERGENCY CLASSIFICATION INSTRUCTION

## 4.0 Assembly / Accountability

**CAUTION**Do not initiate Assembly / Accountability when:

1. A severe weather condition exists or is projected on-site, such as a tornado.
2. An on-site security risk condition exists that may present a danger to site personnel during the Assembly / Accountability process as determined by SED/Nuclear Security.
3. Rapid Evacuation of the Protected Area (REPA) has been conducted.

4.1 IF... Assembly / Accountability has not been conducted, ☐THEN... **IMPLEMENT** EPIP-8, Appendix C concurrently with this procedure. This action may be delegated.4.2 IF... an order to evacuate non-emergency responders has not been issued, ☐THEN... upon completion of Assembly / Accountability, **INITIATE** the order to "Evacuate Non-Emergency Responders," through implementation of EPIP-8, Appendix F, concurrently with this procedure.4.3 IF... conditions exist that do not allow for an Assembly / Accountability or Evacuation at this time, ☐THEN... **CONTINUE** to assess the situation, implementing EPIP-8 as applicable.

## 5.0 Dose Assessment

**EVALUATE**...the need for dose assessment. ☐

IF...dose assessment is needed,

THEN...**CONTACT**, if operational the Central Emergency Control Center (CECC) at 5-751-1614.**OR**

IF...the CECC is not operational

THEN...**REQUEST**, the Radiological Protection Manager conduct a dose assessment utilizing EPIP-13.

BROWNS FERRY	GENERAL EMERGENCY	EPIP-5
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# APPENDIX E

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## TECHNICAL SUPPORT CENTER GENERAL EMERGENCY CLASSIFICATION INSTRUCTION

### 6.0 Notification of the Nuclear Regulatory Commission (NRC)

#### CAUTION

Ensure that previous declared emergency classifications have been communicated to NRC, specifically in fast breaking events, where emergency classifications are rapidly changing.

#### NOTE

- If possible, when making notifications to the NRC utilize the Emergency Notification System (ENS). Dial the first number listed on the sticker affixed to the ENS telephone, by dialing 9-1- "The Ten Digit Number Listed on the ENS Telephones". If the number is busy, then select in order, the alternate numbers until a connection is achieved. No access codes should be required.
- This action may be delegated to the TSC NRC Coordinator.

**NOTIFY**...the NRC immediately but no later than one hour after the emergency has been declared.



IF...**REQUESTED** by the NRC to maintain an open and continuous line of communications,

THEN... **MAINTAIN** an open and continuous line of communications as directed by NRC.

### 7.0 Review of Procedure



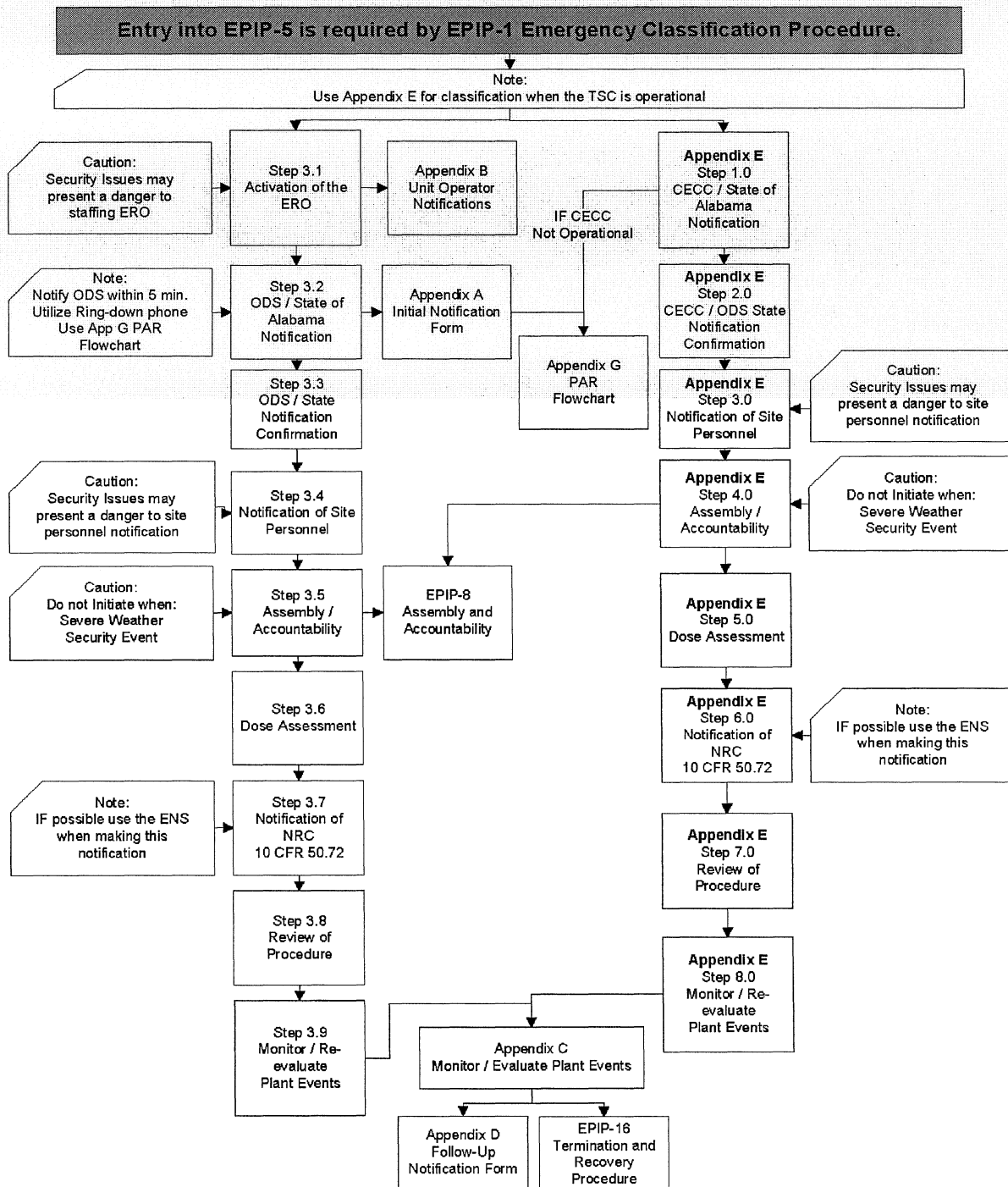
Review this procedure to ensure that all steps and actions have been completed and all place keeping blocks have been checked or denoted as instructed.

### 8.0 Monitor / Re-evaluate the Event

Monitoring and reevaluation of plant events along with communicating significant changes should be performed continuously as a function of the emergency response. Methods used to communicate significant changes are not formalized and may vary depending upon staffing levels as well as availability of personnel or equipment. Appendix C provides a systematic approach to monitor/re-evaluate and communicate significant changes in plant conditions.

Utilize Appendix C to monitor/re-evaluate and communicate plant conditions and significant changes. Significant changes in plant conditions are at a minimum when other EAL conditions exist indicating the current emergency classification.

APPENDIX F  
EPIP-5 Flow Illustration



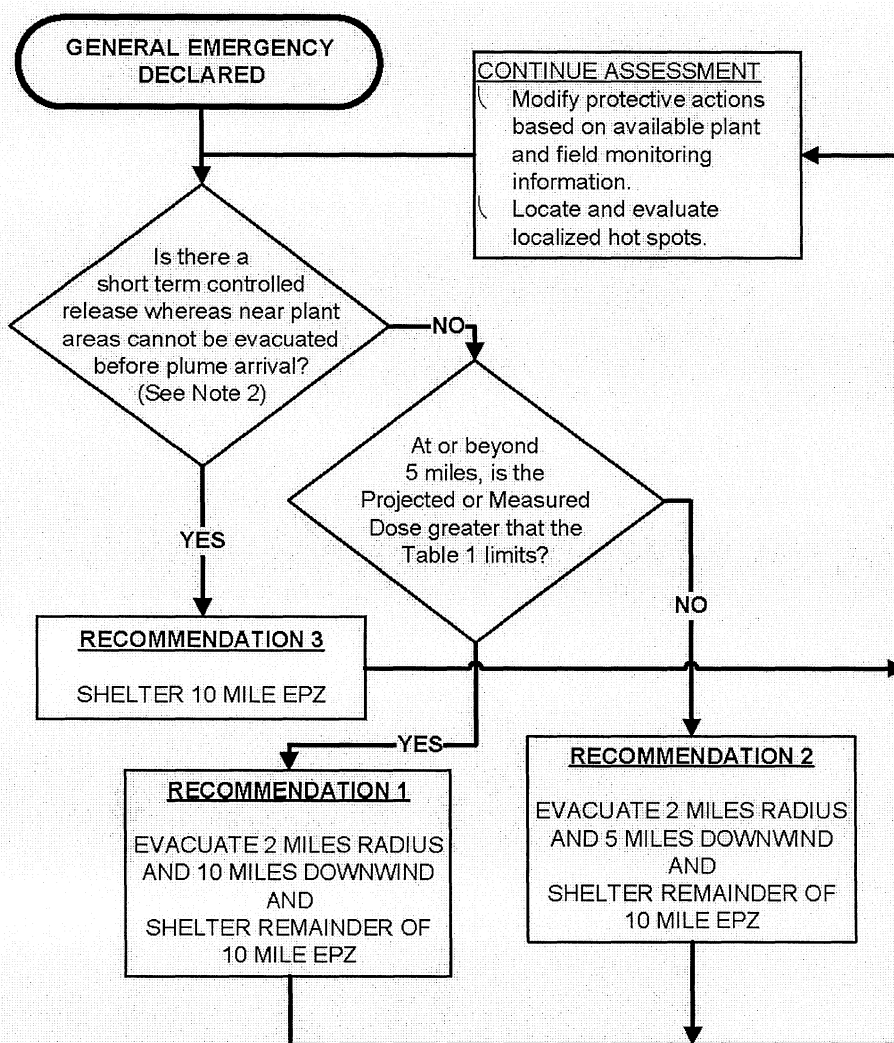


## APPENDIX G

**Protective Action Recommendation Flowchart**  
**PROTECTIVE ACTION RECOMMENDATIONS**

Note 1: If conditions are unknown utilizing the flowchart, then answer NO.

Note 2: A short term release is defined as "a release that does not exceed a 15 minute duration".



**TABLE 1**  
**Protective Action Guides**

TYPE	LIMIT
Measured	3.9E-6 micro Ci/cc of Iodine 131 or 1 REM/hr External Dose
Projected	1 REM TEDE or 5 REM Thyroid CDE