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CODE	TYPE	DOCUMENT NUMBER	REV	REV	MED	COPY	MED	COPY
AFFECTED DOCUMENT								
R	PROC	EIP-ZZ-C0010	027	026	C	1		
R	PROC	EIP-ZZ-00101	030	029	C	1		
D	PROC	02-0009		029	C	1		EIP-ZZ-00101
R	PROC	EIP-ZZ-00102	030	029	C	1		
R	PROC	EIP-ZZ-00220	016	015	C	1		
D	PROC	02-0245		015	C	1		EIP-ZZ-00220
R	PROC	EIP-ZZ-00220 APP1	082	022	C	1		
R	PROC	EIP-ZZ-00240	031	030	C	1		
D	PROC	02-0463		030	C	1		EIP-ZZ-00240
R	PROC	EIP-ZZ-00260	012	011	C	1		
R	PROC	EIP-ZZ-01211	024	023	C	1		

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DATE:

A045

CALLAWAY PLANT
EMERGENCY PLAN IMPLEMENTING PROCEDURE
EIP-ZZ-C0010
EMERGENCY OPERATIONS FACILITY OPERATIONS

RESPONSIBLE DEPARTMENT EMERGENCY PREPAREDNESS

PROCEDURE OWNER D. E. Trokey

WRITTEN BY D. E. Trokey

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APPROVED BY SS Sallabach

DATE ISSUED 8-26-02



This procedure contains the following:

Pages	<u>1</u>	through	<u>6</u>
Attachments	<u>1</u>	through	<u>7</u>
Tables	<u> </u>	through	<u> </u>
Figures	<u> </u>	through	<u> </u>
Appendices	<u> </u>	through	<u> </u>
Checkoff Lists	<u> </u>	through	<u> </u>

This procedure has checkoff list(s) maintained in the mainframe computer.

Conversion of commitments to TRS reference/hidden text completed by Revision Number:

Non-T/S Commitments 018

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EMERGENCY OPERATIONS FACILITY OPERATIONS

1 PURPOSE AND SCOPE

- 1.1 The purpose of this procedure is to provide guidance to Emergency Response Personnel who report to the Emergency Operations Facility (EOF) and Backup EOF (BEOF).

2 RESPONSIBILITIES

2.1 RECOVERY MANAGER (RM)

- 2.1.1 The Recovery Manager is responsible for ensuring that the EOF/BEOF becomes operational after notification of an ALERT, SITE or GENERAL EMERGENCY classification and has overall command and control of the entire Ameren-UE Emergency Response Organization. Duties include the following: (COMN 3361, 3415)

<p><u>NOTE:</u> The responsibilities that the RM may delegate are indicated with an asterisk (*).</p>

- 2.1.1.1 * Establishing and maintaining communications with the Emergency Coordinator.
- 2.1.1.2 * Requesting off-site support (i.e., NSSS, A/E, INPO, Federal, State and Local).
- 2.1.1.3 * Ensuring responsibility for notifications and communications with off-site agencies is transferred from the Control Room to the EOF Emergency Response Organization (excluding NRC ENS communications).
- 2.1.1.4 Authorizing notifications to off-site agencies.
- 2.1.1.5 Assuming responsibility from the Control Room for dose assessment.
- 2.1.1.6 Assuming responsibility from the Control Room for making Protective Action Recommendations.
- 2.1.1.7 * Maintaining command and control over personnel in the EOF and providing considerations necessary for their safety.
- 2.1.1.8 * Ensuring coordinated emergency response among Ameren UE and off-site agencies

- 2.1.1.9 Authorizing personnel exposure in excess of 10CFR20 limits (the Emergency Coordinator also has this authority).
- 2.2 PROTECTIVE MEASURES COORDINATOR (PMC)
 - 2.2.1 The PMC reports to the RM and is responsible for formulating Protective Action Recommendations and assisting the RM, State and Federal Officials in the interpretation of any plant related data.
- 2.3 PLANT ASSESSMENT COORDINATOR (PAC)
 - 2.3.1 The PAC reports to the PMC and reviews plant conditions and EALs to verify the adequacy of the existing Protective Action Recommendations (PARs) and assists in formulating new PARs when necessary.
- 2.4 PLANT ASSESSMENT STAFF
 - 2.4.1 The Plant Assessment Staff reports to the PAC and is knowledgeable in plant equipment, systems, and operations. They may provide additional technical expertise while maintaining status boards displaying plant conditions.
- 2.5 DOSE ASSESSMENT COORDINATOR (DAC)
 - 2.5.1 The Dose Assessment Coordinator reports to the PMC (or the RM if the PMC has not arrived) and is responsible for providing dose projection calculations based on radiological effluent monitors and field data. The DAC directs Field Monitoring Teams (FMTs), reviews effluent based EALs and assists the PMC in formulating Protective Action Recommendations. (COMN 3375)
- 2.6 DOSE ASSESSMENT STAFF
 - 2.6.1 The Dose Assessment Staff reports to the DAC and is responsible for FMT communications and updating radiological status boards. (COMN 3355)
- 2.7 FIELD MONITORING TEAMS (FMTs)
 - 2.7.1 Field Monitoring Teams are dispatched by the DAC and are responsible for taking direct radiation measurements and collecting air, soil, water and vegetation samples.
- 2.8 LOGISTICAL SUPPORT COORDINATOR (LSC)
 - 2.8.1 The LSC reports to the RM and is responsible for contracting with vendors for engineering services, materials, and services needed for emergency mitigation and restoration. The LSC also provides administrative and logistical support to the Emergency Response Organization (ERO).

2.9 LOGISTICAL SUPPORT STAFF

- 2.9.1 The Logistical Support Staff reports to the LSC and is responsible for the development of specifications for repair parts, equipment, and services, locating materials and services needed, and expediting their delivery to the site. They may initiate purchase orders, contracts for services, or use whatever procurement means approved by the RM to obtain goods and services to assist in mitigation and recovery of this situation. The Logistical Support Staff also provides administrative support to the EOF Emergency Response Organization.

2.10 OFF-SITE LIAISON COORDINATOR (OSL)

- 2.10.1 The OSL reports to the RM and assumes off-site notification responsibilities from the Communicator in the Control Room. The OSL is also responsible for keeping off-site authorities up-to-date regarding on-site emergency response activities, receiving responding representatives from off-site agencies, assisting in meeting their communications and logistic needs, and other duties as assigned by the RM. (COMN 3329)

2.11 EOF COMMUNICATOR

- 2.11.1 The EOF Communicator reports to the Off-site Liaison Coordinator. The EOF Communicator transmits PARs and emergency notification updates to State and Local agencies and other off-site authorities as directed by the Off-Site Liaison Coordinator.

3 INITIATING CONDITIONS

This procedure is initiated to startup the Emergency Operations Facility upon declaration of an ALERT or higher emergency classification. The EOF ERO may also be activated at the discretion of the EC for any classification.

4 PROCEDURE

4.1 STARTUP

- 4.1.1 Staff members arriving at the EOF are responsible for signing in with name and badge number on the facility sign-in board.
- 4.1.2 Coordinators should obtain their emergency packet and commence activation of their respective areas utilizing checklists 1 through 6.
- 4.1.3 The Control Room Staff should be expeditiously relieved of peripheral duties and communications not directly related to Control Room manipulations.

4.2 OPERATIONS

- 4.2.1 EOF personnel ensure the assumption of the following responsibilities:

- Notifications.
- Protective Action Recommendations.
- Dose Assessment.
- Requests for outside assistance.
- Interface with Federal, State and Local authorities.

4.2.2 Declaration of Recovery

- 4.2.2.1 The Recovery Manager should coordinate the establishment of a Recovery Organization with the Emergency Coordinator per **EIP-ZZ-00260**, Event Closeout/Plant Recovery.

- 4.2.2.2 EOF personnel continue activities until the Recovery Organization is established.

4.2.3 Event Closeout

- 4.2.3.1 The Recovery Manager should coordinate Closeout with the Emergency Coordinator per **EIP-ZZ-00260**, Event Closeout/Plant Recovery.

4.3 BACKUP EOF (BEOF)

- 4.3.1 If the EOF is uninhabitable, the Recovery Manager directs the Off-site Liaison Coordinator to ensure EOF responsibilities are transferred to the TSC and/or Control Room, EOF personnel are relocated, and the BEOF is activated in accordance with Attachment 7, Backup EOF Checklist (**COMN 5730, 42514**)

- 4.3.1.1 If time permits, operations should continue at the EOF until the designated individuals reach the BEOF and assume responsibilities. Then the remaining personnel should report to their designated facilities.
- 4.3.2 The Recovery Manager transfers responsibilities to the Emergency Coordinator until the Backup EOF is activated.

5 REFERENCES

- 5.1 **EIP-ZZ-00201**, Notifications
- 5.2 **EIP-ZZ-00211**, Field Monitoring
- 5.3 **EIP-ZZ-00212**, Protective Action Recommendations
- 5.4 **EIP-ZZ-00260**, Event Closeout/Plant Recovery
- 5.5 **EIP-ZZ-01211**, Management Action Guides for Nuclear Emergencies (MAGNEM)
- 5.6 **OOA-UB-EPG50**, EOF Diesel Emergency Start
- 5.7 **OOA-UB-00004**, Emergency Operations Center Ventilation
- 5.8 **HPCI 96-0007**, Emergency Response Facility Habitability Guidelines
- 5.9 **OOA-HD-00001**, EOF Chemical & RW Drain Tank (THD01) Level Indication Panel (HD001) Operation.
- 5.10 **HTP-ZZ-04101**, Operation of the Ludlum Model 177 Series Alarm Ratemeter.
- 5.11 **HTP-ZZ-04135**, Operation of the NNC Gamma-10 Portal Monitor.
- 5.12 **HTP-ZZ-04137**, Operation of the Eberline AMS-3

6 RECORDS

NOTE: All Facility Logs, SENTRY or MAGNEM screen prints, office memos, notes, etc. should be attached to the Coordinator Checklist and turned in to the Logistics Support Coordinator and/or the EP Department.

6.1 QA RECORDS

- 6.1.1 Attachment 1, Recovery Manager Checklist (File #K171.0010)
- 6.1.2 Attachment 2, Off-Site Liaison Coordinator Checklist (File #K171.0010)
- 6.1.3 Attachment 3, Protective Measures Coordinator (PMC) Checklist (File #K171.0010)
- 6.1.4 Attachment 4, Plant Assessment Coordinator (PAC) Checklist (File #K171.0010)
- 6.1.5 Attachment 5, Logistics Support Coordinator (LSC) Checklist (File #K171.0010)
- 6.1.6 Attachment 6, Dose Assessment Coordinator (DAC) Checklist (File #K171.0010)
- 6.1.7 Attachment 7, Backup EOF Checklist (File #K171.0010)

RECOVERY MANAGER CHECKLIST

DATE: _____ TIME: _____

<u>INITIATION</u>	
<input type="checkbox"/> 1.	Sign in on Facility Sign-in board. Obtain the RM package and clip on Recovery Manager badge. (If the EOF is uninhabitable, direct the OSL to initiate Attachment 7 and relocate to the BEOF.)
<input type="checkbox"/> 2.	Review KOA-ZZ-A0002 , Command and Control Guidelines.
<input type="checkbox"/> 3.	Initiate Facility Log Sheet.
<input type="checkbox"/> 4.	Receive briefing by: <ul style="list-style-type: none"> <input type="checkbox"/> Off-Site Liaison Coordinator (facility conditions). <input type="checkbox"/> Emergency Coordinator (plant conditions).
<input type="checkbox"/> 5.	Direct the OSL and DAC to begin turnover from the control room, and the Protective Measures Coordinator to begin turnover of Protective Action Recommendations (PARs). <i>NOTE: DO NOT assume responsibility for communications, Dose Assessment, and PARs until both the OSL & DAC have completed turnover.</i>
<input type="checkbox"/> 6.	Notify the Control Room and the EC prior to assuming responsibilities for Communications, Dose Assessment and PARs using the EML phone, if available.
<input type="checkbox"/> 7.	Make a site wide announcement that, "The EOF has accepted emergency responsibilities for Offsite Notifications, Dose Assessment and PARs from the Control Room."
<input type="checkbox"/> 8.	Make Facility Announcement that "All personnel leaving the EOF should check out with the Security Officer prior to leaving the facility." If a release above normal operating limits is in progress or anticipated, announce "an HP brief from the DAC will also be required." <i>NOTE: If a release above normal operating limits is in progress or anticipated, ensure all personnel dispatched from the EOF have dosimetry. The Security Officer will verify HP briefs prior to exit.</i>
<input type="checkbox"/> 9.	Upon arrival of the PMC and PAC, direct the PMC to coordinate Notifications with the PAC and DAC for your review and approval.
<input type="checkbox"/> 10.	Ensure the following positions have been filled in the EOF <ul style="list-style-type: none"> <input type="checkbox"/> Communicator <input type="checkbox"/> PMC <input type="checkbox"/> PAC <input type="checkbox"/> LSC
<input type="checkbox"/> 11.	Make a facility announcement; "EOF Coordinators should assess manpower requirements in your respective areas. Request for additional support staff should be addressed to the Logistics Coordinator for callout. All excess personnel should assemble in the Media Area and await further instructions."
<input type="checkbox"/> 12.	Discuss any additional manpower support or supplies required with the Logistical Support Coordinator. Instruct the Logistical Support Coordinator to inform excess personnel to return home and remain near their phones for further instructions concerning shift relief schedules and report times.
<input type="checkbox"/> 13.	Instruct Logistical Support Coordinator to assign Clerical Support to the Priorities white board.

RECOVERY MANAGER CHECKLIST

<u>OPERATIONS</u> <i>(*) Steps are items that MUST be frequently reviewed</i>	
<input type="checkbox"/> *1.	Periodically update EOF personnel including priorities, habitability status, Site radiological conditions and events, and ensure Priorities board is updated.
<input type="checkbox"/> *2	Provide status reports to: <div style="margin-left: 20px;"> <input type="checkbox"/> SEMA <input type="checkbox"/> NRC <input type="checkbox"/> Counties <input type="checkbox"/> Corporate Spokesperson </div>
<input type="checkbox"/> *3	If the EOF becomes uninhabitable, direct the OSL to initiate Attachment 7 and relocate to Backup Emergency Operations Facility.
<input type="checkbox"/> *4.	Authorize exposure in excess of 10CFR20 limits if required and requested from the HPC.

<u>TURNOVER</u>	
<input type="checkbox"/> 1.	Incoming Recovery Manager briefed on EOF status and log reviewed.
<input type="checkbox"/> 2.	Emergency Coordinator and Shift Supervisor informed.
<input type="checkbox"/> 3.	Turnover announced to EOF staff.
<input type="checkbox"/> 4.	Turnover complete _____ Time.
<input type="checkbox"/> 5.	Turnover logged.
<input type="checkbox"/> 6.	Initiate a new checklist CA#732.

<u>RECOVERY</u>	
<input type="checkbox"/> 1.	EOF personnel continue activities per procedures until Recovery Organization established.
<input type="checkbox"/> 2.	Discuss the expected response of State and Federal agencies.
<input type="checkbox"/> 3.	Discuss availability of and provisions for State and Federal agencies with the Off-Site Liaison Coordinator and the Logistics Support Coordinator.
<input type="checkbox"/> 4.	Declare Recovery per EIP-ZZ-00260 , Event Closeout/Recovery. <div style="margin-left: 20px;"> <input type="checkbox"/> Emergency Coordinator contacted. <input type="checkbox"/> Shift Supervisor contacted. <input type="checkbox"/> NRC contacted. </div>
<input type="checkbox"/> 5.	Recovery organization established.
<input type="checkbox"/> 6.	Make a site wide announcement of Recovery Declaration.

RECOVERY MANAGER CHECKLIST

<u>TERMINATION and SHUTDOWN</u>	
<input type="checkbox"/> 1.	Operations shutdown or transferred to the TSC, as applicable. <ul style="list-style-type: none"><input type="checkbox"/> Notifications<input type="checkbox"/> Protective Action Recommendations<input type="checkbox"/> Requests for Outside Assistance<input type="checkbox"/> Authorizing exposure in excess of 10CFR20 limits
<input type="checkbox"/> 2.	Coordinators directed to shutdown EOF _____ Time.
<input type="checkbox"/> 3.	Make site wide announcement.

Recovery Manager Signature

OFF-SITE LIAISON COORDINATOR CHECKLIST

DATE: _____ TIME: _____

INITIATION	
<input type="checkbox"/> 1.	Sign in on Facility Sign-in board. Obtain the OSL and Communicators packages and clip on the Off-Site Liaison badge.
<input type="checkbox"/> 2.	Inform Recovery Manager of your presence.
<input type="checkbox"/> 3.	Adjust Gai-tronics to an acceptable level.
<input type="checkbox"/> 4.	Ensure the EOF has power. <ul style="list-style-type: none"> <input type="checkbox"/> Normal power, (i.e. lights on, power available to computers, etc.). <input type="checkbox"/> No Power-Start the EOF diesel and contact Radwaste personnel in EOF Dose Assessment Staff or call for an Equipment Operator to perform manual switching of the 480V supply for the EOF per OOA-UB-EPG50. Inform the person performing the manual switch over that appropriate PPE is available at the EOF to perform this task to expedite their arrival.
<input type="checkbox"/> 5.	Shift/verify the PC power supplies to the UPS position. <ul style="list-style-type: none"> <input type="checkbox"/> Communicator (2). <input type="checkbox"/> Phone room (134) bridge. <input type="checkbox"/> Telecommunications room (130) bridge located inside the ERFIS cabinet (not locked).
<input type="checkbox"/> 6.	Check fax machine for any communications.
<input type="checkbox"/> 7.	Initiate Facility Log sheet.
<input type="checkbox"/> 8.	Ensure the SENTRY PC is powered on, and the OUTLOOK application is running.
<input type="checkbox"/> 9.	Check OSL and Communicator phone lines for dial tone.
<input type="checkbox"/> 10.	Turn on projected statusboard.
<input type="checkbox"/> 11.	Upon direction of the RM, using EIP-ZZ-00201 Attachment 3 (CA#234), contact the Control Room Communicator to get a brief on the status of Communications (prepare to transfer communications to EOF). (If the EOF is uninhabitable, communications should remain in the Control Room until the BEOF is staffed.)
<input type="checkbox"/> 12.	Notify the RM when you are ready to assume your duties. TIME: _____
<input type="checkbox"/> 13.	Obtain RM approval to transfer communications to the EOF, then relieve the control room communicator of communications and notifications. (Communications and Dose Assessment should be transferred to the EOF at the same time.)
<input type="checkbox"/> 14.	Communicator: (as assigned) <input type="checkbox"/> _____ Name
<input type="checkbox"/> 15.	Contact County EMDs and assess the need for County Technical Representatives and dispatch Technical Representatives as needed. (Use list of JPIC Technical Representatives.)

OPERATIONS	
<i>(*) Steps are items that MUST be frequently reviewed.</i>	
<input type="checkbox"/> *1.	Using the flowchart from Attachment 3, EIP-ZZ-00201 , Notifications, notify the required authorities and agencies. <i>NOTE: Notifications of a new classification or Protective Action Recommendations must be made in 15 minutes. Follow up notifications are made approximately every 30 minutes.</i>
<input type="checkbox"/> *2.	Provide support to Federal, State, and Local personnel in the EOF, as appropriate, including provisions for office space and communications.
<input type="checkbox"/> *3.	Ensure the Emergency Classification status board is properly updated.

OFF-SITE LIAISON COORDINATOR CHECKLIST

<u>TURNOVER</u>	
<input type="checkbox"/> 1.	Brief the oncoming Off-Site Liaison Coordinator on the status of the facility and on-site and off-site emergency response activities. Review log.
<input type="checkbox"/> 2.	Brief the oncoming Communicator on the status, information transmitted and the frequency of updates.
<input type="checkbox"/> 3.	Inform the Recovery Manager.
<input type="checkbox"/> 4.	Turnover complete _____ Time.
<input type="checkbox"/> 5.	Turnover logged.
<input type="checkbox"/> 6.	Initiate a new checklist CA#733.

<u>RECOVERY</u>	
<input type="checkbox"/> 1.	Continue providing requested information.
<input type="checkbox"/> 2.	Continue activities per procedures and checklist until Recovery Organization is established or until directed otherwise by the Recovery Manager.

<u>EOF SHUTDOWN</u>	
<input type="checkbox"/> 1.	Ensure area is put into order and logs collected and give to the Logistics Support Coordinator.
<input type="checkbox"/> 2.	Ensure EOF operations, if any, as specified by the Recovery Manager are transferred to the plant operating staff or the TSC, if operational.
<input type="checkbox"/> 3.	Ensure that emergency equipment and supplies are returned and/or stored to their normal condition. <ul style="list-style-type: none"> <input type="checkbox"/> Radio <input type="checkbox"/> Emergency Equipment Kits <input type="checkbox"/> Emergency Diesel Generator <input type="checkbox"/> Ventilation System <input type="checkbox"/> Portable Monitoring Equipment <input type="checkbox"/> Microfiche Reader <input type="checkbox"/> Return ALL UPS's to LINE position.
<input type="checkbox"/> 4.	After completion of the above steps, inform the Emergency Coordinator that the EOF has been shutdown.
<input type="checkbox"/> 5.	Ensure that all EOF emergency records are collected and given to the Logistics Support Coordinator/Emergency Preparedness Department.
<input type="checkbox"/> 6.	Ensure that State and Local officials are informed of the EOF shutdown.

Off-Site Liaison Coordinator Signature

PROTECTIVE MEASURES COORDINATOR CHECKLIST

DATE: _____ TIME: _____

INITIATION	
<input type="checkbox"/> 1.	Sign in on Facility Sign-in board. Obtain the PMC package and clip on the Protective Measures Coordinator badge.
<input type="checkbox"/> 2.	Ensure the EOF has power. <ul style="list-style-type: none"> <input type="checkbox"/> Normal power, (i.e. lights on, power available to computers, etc.). <input type="checkbox"/> No Power-Start the EOF diesel and contact Radwaste personnel in EOF Dose Assessment Staff or call for an Equipment Operator to perform manual switching of the 480 V supply the EOF diesel per OOA-UB-EPG50. Inform the person performing the manual switchover that appropriate PPE is available at the EOF to perform this task to expedite their arrival. <p>NOTE: These steps are performed if the Off-Site Liaison has not reported for duty.</p>
<input type="checkbox"/> 3	Ensure the EOF HVAC system is in recirculation/filter mode per OOA-UB-00004 . Keys to the HVAC room are in the OSL packet. .
<input type="checkbox"/> 4	Check computer and printer power supplies have been shifted to the UPS position: <ul style="list-style-type: none"> <input type="checkbox"/> Computer <input type="checkbox"/> Color Printer
<input type="checkbox"/> 5.	Recovery Manager informed of your presence.
<input type="checkbox"/> 6.	Initiate Facility Log sheet.
<input type="checkbox"/> 7.	<ul style="list-style-type: none"> <input type="checkbox"/> Plant Assessment Coordinator (PAC) _____ Name <input type="checkbox"/> Dose Assessment Coordinator (DAC) _____ Name
<input type="checkbox"/> 8.	Check PMC phone lines for dial tone.
<input type="checkbox"/> 9	Assist in the transfer of PARs to Plant Assessment Coordinator and dose assessment to the Dose Assessment Coordinator.
<input type="checkbox"/> 10.	Inform the Recovery Manager when ready to assume PARs, Dose Assessment, and Notifications.
<input type="checkbox"/> 11.	Assume responsibilities when Recovery Manager gives permission.

NOTE: If the Plant Assessment Coordinator is not staffed, it is your responsibility to provide the Recovery Manager with Protective Action Recommendations (PARs) based on Plant Conditions per **EIP-ZZ-00212**, PROTECTIVE ACTION RECOMMENDATIONS. Ensure the Technical Assessment Coordinator in the TSC is aware of your presence in the EOF. Inquire of any PARs already in place.

OPERATION	
(* Steps are recurring items that need to be reviewed on a continual bases)	
<input type="checkbox"/> *1.	Evaluate input from plant conditions (PAC), dose assessment (DAC), and EIP-ZZ-00212 , Protective Action Recommendations. Default to the most conservative recommendation, time is essential.
<input type="checkbox"/> *2.	Request release duration estimate from the PAC or Tech Assessment Coordinator (TAC) and provide updates to the DAC
<input type="checkbox"/> *3.	Review all notifications and obtain Recovery Manager approval for all notifications prepared by the EOF Communicator. Notifications to the State and Counties are made within 15 minutes of a classification declaration or a change in Protective Action Recommendations and at approximately 30-minute intervals thereafter.

PROTECTIVE MEASURES COORDINATOR CHECKLIST

<u>TURNOVER</u>	
<input type="checkbox"/> 1.	Brief the oncoming PMC on the status of the facility and on-site and off-site emergency response activities.
<input type="checkbox"/> 2.	Review log.
<input type="checkbox"/> 3.	Inform the Recovery Manager.
<input type="checkbox"/> 4.	Turnover complete _____ Time.
<input type="checkbox"/> 5.	Turnover logged.
<input type="checkbox"/> 6.	Initiate a new checklist CA# 737.

<u>RECOVERY</u>	
<input type="checkbox"/> 1.	Continue providing requested information.
<input type="checkbox"/> 2.	Continue activities per procedures and checklist until Recovery Organization established or until directed otherwise by the Recovery Manager.

<u>TERMINATION and SHUTDOWN</u>	
<input type="checkbox"/> 1.	When directed, assist with the EOF deactivation.
<input type="checkbox"/> 2.	Ensure area is put into order and logs collected and give to the Logistics Support Coordinator.

Protective Measures Coordinator

PROTECTIVE MEASURES COORDINATOR CHECKLIST**PLANT COMPUTER GUIDE**Color and Description of Computer Point Quality Codes

The Plant Computer System (PCS) assigns a "Data Quality Code" to each field input and calculated variable at the time the point is processed. These quality codes are determined by a series of checks/tests performed during both input-data validation and point processing. A list of the quality codes follows which is ordered by severity:

1. **UNK** (Blue) – Unknown; point not yet processed. If a point is deleted from processing when SAIPMS is first activated, "UNK" quality code will be assigned. This quality code will also be displayed for calculated or derived points which have not yet cycled through their first processing period.
2. **DEL** (Blue) – Point has been deleted from processing. If a point was active when the SAIPMS software was activated, and was subsequently disabled from processing, the quality code "DEL" is assigned and no further engineering unit conversion is attempted.
3. **NCAL** (Blue) – Derived point not calculable. This quality code is assigned when it has been determined that insufficient inputs exist to accurately perform the associated equation or calculation.
4. **INVL** (Blue) – Invalid code is generated when a point's defined hardware channel address has not been selected, does not exist, or cannot be accessed. This usually indicates either an invalid hardware channel address, or a failed hardware component. For example, if a defined card slot address does not contain a card, all points assigned to that card will be tagged as INVL. Also, if a multiplexer has either failed or been taken offline, all points assigned to that multiplexer will be tagged as INVL.
5. **RDER** (Blue) – Sensor Read Error code is generated when no test return/input is received for a point in response to a scan command/output to a valid hardware channel address. This usually indicates a faulty sensor or a multiplexer communication problem. Whenever a quality code of RDER is observed, a hardware error condition exists.
6. **OTC** (Blue) – Open thermocouple.
7. **BAD** (Blue) – The BAD (Bad Scanned Value) code is generated when the "corrected" scanned value (i.e. adjusted for A/D gain and zero-drift error) exceeds the sensor range as defined by a point's "SENSOR LIMIT LOW" and "SENSOR LIMIT HIGH" values in the database.
8. **HRL** (Blue) – Point exceeds high reasonable limits. This condition is tested after engineering unit conversion and if the value exceeds the defined High Reasonable limit, a quality code of "HRL" is assigned.
9. **LRL** (Blue) – Point exceeds low reasonable limits. This condition is tested after engineering unit conversion and if the value exceeds the defined Low Reasonable limit, a quality code of "LRL" is assigned.
10. **REDU** (Cyan) – Point fails redundant point check. If a point has a defined Redundant Point and its current value does not match the defined point within the specified tolerance, it is assigned a quality code of "REDU".

PROTECTIVE MEASURES COORDINATOR CHECKLIST**PLANT COMPUTER GUIDE**

11. **HIHI** (Red) – Point above high alarm limit. This condition is met when a point's current value has exceeded the defined High Alarm limit, and is assigned a quality code of "HIHI".
12. **LOLO** (Red) – Point below low alarm limit. This condition is met when a point's current value is less than the defined LOW Alarm limit, and is assigned a quality code of "LOLO".
13. **HALM** (Yellow) – Point above high warning limit. This condition is met when a point's current value has exceeded the defined High Operating limit, and is assigned a quality code of "HALM".
14. **LALM** (Yellow) – Point below low warning limit. This condition is met when a point's current value is below the defined Low Operating limit, and is assigned a quality code of "LALM".
15. **ALM** (Red) – State/Change-of-State alarm. Any logical-value point may be alarm monitored against either a defined logical state (i.e., "TRUE", or "FALSE"), or a defined change-of-state condition (i.e., "TRUE" to "FALSE", "FALSE" to "TRUE", or either state change). A quality code of "ALM" is assigned if the point meets any of the above conditions.
16. **SUB** (Cyan) – Substitute value inserted for point. If a substitute value has been entered for a point, the point is assigned a quality code of "SUB", and no further alarm checks or engineering unit conversions are made.
17. **DALM** (Cyan) – Point is deleted from alarm checks. If a point is currently disabled from alarm processing, it is assigned a quality code of "DALM", and no further alarm checks are made.
18. **INHB** (Green) – Point is inhibited from alarm by cut-out point. If a point has an assigned cut-out point, and the current state of the cut-out point matches the specified alarm inhibit state, the point is assigned a quality code of "INHB", and no alarm transaction is generated. While inhibited, the point value WILL continue to update, only the alarm condition is inhibited.
19. **GOOD** (Green) – Point passed all the above checks. The quality code "GOOD" indicates that all defined alarm conditions, states, or values have not been exceeded or met.

PLANT ASSESSMENT COORDINATOR CHECKLIST

DATE: _____ TIME: _____

<u>INITIATION</u>	
<input type="checkbox"/> 1.	Sign in on Facility Sign-in board. Obtain the PAC package and clip on the Plant Assessment Coordinator badge
<input type="checkbox"/> 2.	Ensure the EOF has power. <ul style="list-style-type: none"> <input type="checkbox"/> Normal power, (i.e. lights on, power available to computers, etc.). <input type="checkbox"/> No Power-Start the EOF diesel and contact Radwaste personnel in the EOF Dose Assessment Staff or call for an Equipment Operator to perform manual switching of the 480V supply for the EOF per OOA-UB-EPG50. Inform the person performing the manual switch over that appropriate PPE is available at the EOF to perform this task to expedite their arrival. <p>NOTE: These steps are performed if not previously performed by the OSL or PMC.</p>
<input type="checkbox"/> 3.	Ensure the EOF HVAC system is in recirculation/filter mode per OOA-UB-00004 . Keys to the HVAC room are in the OSL packet. <p>NOTE: These steps are performed if not previously performed by the PMC.</p>
<input type="checkbox"/> 4.	Check computer and printer power supplies have been shifted to the UPS position. <ul style="list-style-type: none"> <input type="checkbox"/> Computer <input type="checkbox"/> Color Printer <p>NOTE: These steps are performed if not previously performed by the PMC.</p>
<input type="checkbox"/> 5.	Protective Measures Coordinator informed of your presence.
<input type="checkbox"/> 6.	Initiate Facility Log sheet.
<input type="checkbox"/> 7.	<input type="checkbox"/> Plant Assessment Staff _____ Name _____ Name
<input type="checkbox"/> 8.	Turn on projected statusboards.
<input type="checkbox"/> 9.	Check PAC phone lines for dial tones.
<input type="checkbox"/> 10.	Contact the TAC in the TSC and request information on any EALs and PARs already in place, and request that preparations be made to transfer PARs to the EOF.
<input type="checkbox"/> 11.	Notify the PMC when you are ready to assume your duties, including PARs.
<input type="checkbox"/> 12.	Evaluate PSB1, PSB2, and PSB3 on the Plant Computer.
<input type="checkbox"/> 13.	Initiate Free Format Logs as needed.
<input type="checkbox"/> 14.	Formally accept PARs from the TSC, when permission is granted from the PMC or RM.

<u>OPERATIONS</u>	
<i>(*) Steps are items that MUST be frequently reviewed</i>	
<input type="checkbox"/> *1.	Evaluate input from plant conditions and EIP-ZZ-00101 and EIP-ZZ-00212 , Protective Action Recommendations.
<input type="checkbox"/> *2.	Provide the Protective Measures Coordinator with plant based Protective Action Recommendations.
<input type="checkbox"/> *3.	Request release duration from TAC.

PLANT ASSESSMENT COORDINATOR CHECKLIST**TURNOVER**

<input type="checkbox"/> 1.	Brief the oncoming PAC on the status of the facility and on-site and off-site emergency response activities.
<input type="checkbox"/> 2.	Review log.
<input type="checkbox"/> 3.	Inform the Protective Measures Coordinator.
<input type="checkbox"/> 4.	Turnover complete _____ Time.
<input type="checkbox"/> 5.	Turnover logged.
<input type="checkbox"/> 6.	Initiate a new checklist CA#735.

RECOVERY

<input type="checkbox"/> 1.	Continue providing requested information.
<input type="checkbox"/> 2.	Continue activities per procedures and checklist until Recovery Organization established or until directed otherwise by the Protective Measures Coordinator/Recovery Manager.

TERMINATION and SHUTDOWN

<input type="checkbox"/> 1.	When directed, assist the OSL with the EOF deactivation.
<input type="checkbox"/> 2.	Ensure area is put into order and logs collected and give to the Logistics Support Coordinator.

Plant Assessment Coordinator

PLANT ASSESSMENT COORDINATOR CHECKLIST**PLANT COMPUTER GUIDE****Color and Description of Computer Point Quality Codes**

The Plant Computer System (PCS) assigns a "Data Quality Code" to each field input and calculated variable at the time the point is processed. These quality codes are determined by a series of checks/tests performed during both input-data validation and point processing. A list of the quality codes follows which is ordered by severity:

1. **UNK** (Blue) – Unknown; point not yet processed. If a point is deleted from processing when SAIPMS is first activated, "UNK" quality code will be assigned. This quality code will also be displayed for calculated or derived points which have not yet cycled through their first processing period.
2. **DEL** (Blue) – Point has been deleted from processing. If a point was active when the SAIPMS software was activated, and was subsequently disabled from processing, the quality code "DEL" is assigned and no further engineering unit conversion is attempted.
3. **NCAL** (Blue) – Derived point not calculable. This quality code is assigned when it has been determined that insufficient inputs exist to accurately perform the associated equation or calculation.
4. **INVL** (Blue) – Invalid code is generated when a point's defined hardware channel address has not been selected, does not exist, or cannot be accessed. This usually indicates either an invalid hardware channel address, or a failed hardware component. For example, if a defined card slot address does not contain a card, all points assigned to that card will be tagged as INVL. Also, if a multiplexer has either failed or been taken offline, all points assigned to that multiplexer will be tagged as INVL.
5. **RDER** (Blue) – Sensor Read Error code is generated when no test return/input is received for a point in response to a scan command/output to a valid hardware channel address. This usually indicates a faulty sensor or a multiplexer communication problem. Whenever a quality code of RDER is observed, a hardware error condition exists.
6. **OTC** (Blue) – Open thermocouple.
7. **BAD** (Blue) – The BAD (Bad Scanned Value) code is generated when the "corrected" scanned value (i.e. adjusted for A/D gain and zero-drift error) exceeds the sensor range as defined by a point's "SENSOR LIMIT LOW" and "SENSOR LIMIT HIGH" values in the database.
8. **HRL** (Blue) – Point exceeds high reasonable limits. This condition is tested after engineering unit conversion and if the value exceeds the defined High Reasonable limit, a quality code of "HRL" is assigned.
9. **LRL** (Blue) – Point exceeds low reasonable limits. This condition is tested after engineering unit conversion and if the value exceeds the defined Low Reasonable limit, a quality code of "LRL" is assigned.

PLANT ASSESSMENT COORDINATOR CHECKLIST**PLANT COMPUTER GUIDE**

10. **REDU** (Cyan) – Point fails redundant point check. If a point has a defined Redundant Point and its current value does not match the defined point within the specified tolerance, it is assigned a quality code of "REDU".
11. **HIHI** (Red) – Point above high alarm limit. This condition is met when a point's current value has exceeded the defined High Alarm limit, and is assigned a quality code of "HIHI".
12. **LOLO** (Red) – Point below low alarm limit. This condition is met when a point's current value is less than the defined LOW Alarm limit, and is assigned a quality code of "LOLO".
13. **HALM** (Yellow) – Point above high warning limit. This condition is met when a point's current value has exceeded the defined High Operating limit, and is assigned a quality code of "HALM".
14. **LALM** (Yellow) – Point below low warning limit. This condition is met when a point's current value is below the defined Low Operating limit, and is assigned a quality code of "LALM".
15. **ALM** (Red) – State/Change-of-State alarm. Any logical-value point may be alarm monitored against either a defined logical state (i.e., "TRUE", or "FALSE"), or a defined change-of-state condition (i.e., "TRUE" to "FALSE", "FALSE" to "TRUE", or either state change). A quality code of "ALM" is assigned if the point meets any of the above conditions.
16. **SUB** (Cyan) – Substitute value inserted for point. If a substitute value has been entered for a point, the point is assigned a quality code of "SUB", and no further alarm checks or engineering unit conversions are made.
17. **DALM** (Cyan) – Point is deleted from alarm checks. If a point is currently disabled from alarm processing, it is assigned a quality code of "DALM", and no further alarm checks are made.
18. **INHB** (Green) – Point is inhibited from alarm by cut-out point. If a point has an assigned cut-out point, and the current state of the cut-out point matches the specified alarm inhibit state, the point is assigned a quality code of "INHB", and no alarm transaction is generated. While inhibited, the point value WILL continue to update, only the alarm condition is inhibited.
19. **GOOD** (Green) – Point passed all the above checks. The quality code "GOOD" indicates that all defined alarm conditions, states, or values have not been exceeded or met.

DATE: _____ TIME: _____

<u>INITIATION</u>	
<input type="checkbox"/> 1.	Sign in on Facility Sign-in board. Obtain the Logistics Support Coordinator (LSC) package and clip on the Logistics Support Coordinator badge
<input type="checkbox"/> 2.	Recovery Manager informed of your presence.
<input type="checkbox"/> 3.	Initiate Facility Log sheet.
<input type="checkbox"/> 4.	Equipment energized / made ready. <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> Check and Synchronize clock <input type="checkbox"/> LSC Computers <input type="checkbox"/> LSC Telephones </div> <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> Copier <input type="checkbox"/> Microfiche Reader <input type="checkbox"/> FAX (In) </div> <div style="display: flex; justify-content: space-around;"> <input type="checkbox"/> FAX (Out) <input type="checkbox"/> LAN Printer </div>
<input type="checkbox"/> 5.	Admin Coordinator contacted and administrative operations and responsibilities discussed. Obtain the names of the clerical support staff reporting. Assume the responsibility of requesting outside assistance.
<input type="checkbox"/> 6.	Personnel Assessment Logistics Support Staff _____ (name) _____ (Name) Clerical Support Staff _____ (name) (assign to Recovery Manager) _____ (Name) (assign to Priorities board) _____ (Name)
<input type="checkbox"/> 7.	When directed by the RM, evaluate extra personnel. <input type="checkbox"/> Assemble all extra responders in the Media Area to await further instructions. (Obtain key from the Off Site Liaison Coordinator.) <input type="checkbox"/> Establish needs of coordinators. <input type="checkbox"/> Inform extra responders of established routes to take when leaving. <input type="checkbox"/> Send personnel home, or to a designated Reception and Care Center, with instructions to stand by until they can be contacted with a designated time to return.
<input type="checkbox"/> 8.	If adverse radiological conditions exist or occur, post signs and posters regarding "No Eating, Drinking, Smoking, or Chewing".
<input type="checkbox"/> 9.	If additional support is needed, contact the Administrative Coordinator for callout.

(*) Steps are items that **MUST** be frequently reviewed

<input type="checkbox"/> *1.	Contact Administrative Coordinator and request additional clerical support as needed.
<input type="checkbox"/> *2.	<p>Check status of EOF/JPIC emergency responders per EIP-ZZ-00200, Attachment 3. Do NOT delete messages until all positions are filled. Distribute copies of Attachment 3 to Coordinators periodically until all positions are filled. Paging or calling using the Emergency Telephone Directory may be required.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Call 64777 Audix. <input type="checkbox"/> Enter 68202 and the # sign. <input type="checkbox"/> Enter the password which is the # sign. <input type="checkbox"/> Follow instructions to listen to new messages and complete Attachment 3. <input type="checkbox"/> Contact SAS (68785) for any positions that were logged due to Audix message transfer.

LOGISTICS SUPPORT COORDINATOR CHECKLIST

<input type="checkbox"/> *3.	If asked to track the weather, use the internet or call 1-800-992-7433, St. Louis Flight Briefing Service.
<input type="checkbox"/> *4.	Serve as liaison with American Nuclear Insurers and INPO as required. (NOTE: The communicators contact both groups with notifications.)
<input type="checkbox"/> *5.	Contact Regional Regulatory Affairs Group and have them review notifications required per APA-ZZ-00520, Reporting Requirements And Responsibilities.
<input type="checkbox"/> *6.	Contact area Motels to begin prearranging lodging: <ul style="list-style-type: none"> <input type="checkbox"/> Ensure motels being contacted are outside the Plume Exposure Pathway. <input type="checkbox"/> Establish a list of motels with number of rooms available for each (the list should be generated for the next several days at a minimum). <input type="checkbox"/> Request if some (your best estimate dividing between available motels) rooms may be held for 6:00PM cancellation daily for the next several days.
<input type="checkbox"/> *7.	Meal Arrangements <ul style="list-style-type: none"> <input type="checkbox"/> Contact area restaurants/caterers to determine availability of meals. (This should be coordinated with the Admin Coordinator in the TSC who shares this responsibility.)
<input type="checkbox"/> *8.	Temporary facilities needed.
<input type="checkbox"/> *9.	Contact the Emergency Procurement personnel at the Ameren GOB to establish a working relationship.
<input type="checkbox"/> *10.	Review letters of agreement and the INPO Resources book for resources available from other plants.
<input type="checkbox"/> *11.	If requests for additional support personnel and services are made: <ul style="list-style-type: none"> <input type="checkbox"/> Keep Recovery Manager informed of request being made for additional support. <input type="checkbox"/> Contact vendors and obtain the following information: <ol style="list-style-type: none"> 1) Name(s) of personnel. 2) Social Security Number(s). 3) Point of Departure. 4) Transportation requirements (airline tickets, land transportation, etc.). 5) Lodging requirements. 6) Anticipated Work Location. 7) Estimated time of arrival. <input type="checkbox"/> Contact Admin Coordinator to ensure access requirements are obtained and required training is scheduled.
<input type="checkbox"/> *11.	Request additional equipment as needed: <ul style="list-style-type: none"> <input type="checkbox"/> Keep Recovery Manager informed of request being made for additional support services/equipment. <input type="checkbox"/> Requesting organization should provide: <ol style="list-style-type: none"> 1) Explicit equipment requirements in writing. 2) Amount needed. 3) Delivery location. 4) Person on site to contact. 5) Justifiable reason for request. <input type="checkbox"/> Contact vendor and obtain the following information: <ol style="list-style-type: none"> 1) Availability. 2) Shipping Mode. 3) Special handling requirements. 4) Estimated arrival time. <input type="checkbox"/> Contact the following to coordinate the delivery/arrival: <ol style="list-style-type: none"> 1) Security Coordinator. 2) OSL for traffic control. 3) Requesting group.

LOGISTICS SUPPORT COORDINATOR CHECKLIST

<u>TURNOVER</u>	
<input type="checkbox"/> 1.	Brief the oncoming LSC on the status of the facility and on-site and off-site emergency response activities.
<input type="checkbox"/> 2.	Review log.
<input type="checkbox"/> 3.	Inform the Recovery Manager, Logistics and Clerical Staff of the turnover.
<input type="checkbox"/> 4.	Turnover complete _____ Time.
<input type="checkbox"/> 5.	Turnover logged.
<input type="checkbox"/> 6.	Initiate a new checklist CA# 736.

<u>RECOVERY</u>	
<input type="checkbox"/> 1.	Continue providing requested information.
<input type="checkbox"/> 2.	Continue activities per procedures and checklist until Recovery Organization established or until directed otherwise by the Recovery Manager.

<u>TERMINATION and SHUTDOWN</u>	
<input type="checkbox"/> 1.	When directed, assist the OSL with the EOF deactivation.
<input type="checkbox"/> 2.	Ensure area is put into order and all EOF logs collected and forward to the Emergency Preparedness Department.

Logistics Support Coordinator

DOSE ASSESSMENT COORDINATOR CHECKLIST

DATE: _____ TIME: _____

<u>INITIATION</u>	
<input type="checkbox"/> 1.	Sign in on Facility Sign-in board. Obtain the DAC package and clip on the Dose Assessment Coordinator badge.
<input type="checkbox"/> 2.	Inform Recovery Manager/Protective Measures Coordinator of your presence.
<input type="checkbox"/> 3.	Adjust Gai-tronics in Recovery Center to an acceptable level.
<input type="checkbox"/> 4.	Switch the DAC's computers (2) power supplies to the UPS position.
<input type="checkbox"/> 5.	Initiate Facility Log sheet.
<input type="checkbox"/> 6.	Check DAC phone lines for dial tone and Dose Assessment Equipment available and operable. Report any deficiencies to the Logistics Support Coordinator.
<input type="checkbox"/> 7.	Turn on overhead projector.
<input type="checkbox"/> 8.	Upon direction of the RM, Contact the Rad/Chem Technician in the Control Room who is performing dose assessment and request a turnover of dose assessment activities including elevated Radiation Monitor readings and trends (prepare to accept transfer of Dose Assessment to EOF). (If the EOF is uninhabitable, Dose Assessment is maintained in the TSC until the BEOF is staffed.)
<input type="checkbox"/> 9.	If vital busses NB01 and NB02 are degraded, refer to KOA-ZZ-00125 to determine effect of degraded condition of Plant computer points.
<input type="checkbox"/> 10.	Notify the RM or PMC when you are ready to assume your duties. TIME: _____
<input type="checkbox"/> 11.	Obtain RM approval to transfer Dose Assessment to the EOF, and then relieve the Rad/Chem Technician in the Control Room of his Dose Assessment responsibility. (Communications and Dose Assessment should be transferred to the EOF at the same time.)
<input type="checkbox"/> 12.	Contact the HP Coordinator (HPC) and discuss the need to Assign R/C Support Personnel to the Rapid Plume Assessment Tech. position, if not already dispatched.
<input type="checkbox"/> 13.	Contact the HP Coordinator (HPC) in the TSC and request: <ul style="list-style-type: none"> • Two (2) Field Monitoring Teams (FMT) be dispatched, and • Two (2) Dose Assessment Staff personnel to be sent to the EOF. NOTE: If release above normal operating limits is in progress or imminent, brief the FMTs on the radio.

<u>OPERATIONS</u>	
(*) Steps are items that MUST be frequently reviewed. (**) Frequently reviewed steps that can be completed by Dose Assessment staff.	
<input type="checkbox"/> *1.	When the Missouri Department of Health arrives at the EOF, provide them the following information: <ul style="list-style-type: none"> <input type="checkbox"/> Plant Status Operating / Reducing Power / Shutdown <input type="checkbox"/> Emergency Declaration ALERT / SITE / GENERAL <input type="checkbox"/> Meteorological Conditions Wind Direction / Speed / Stability Class <input type="checkbox"/> Release Start Time _____ <input type="checkbox"/> Estimated Release Duration _____ <input type="checkbox"/> Affected Map Sectors <input type="checkbox"/> Protective Action Recommendations <input type="checkbox"/> Ameren Field Monitoring Team Locations <input type="checkbox"/> Comments / Questions

DOSE ASSESSMENT COORDINATOR CHECKLIST

<input type="checkbox"/> *2.	<p>Upon determination that the emergency involves an actual or potential release of radioactive material, perform dose projections in accordance with EIP-ZZ-01211, Management Action Guides For Nuclear Emergencies (MAGNEM). (COMN 42538) PRINT and SAVE all dose calculations.</p> <p><i>NOTE: Request Rapid Plume Assessment Tech. (if dispatched) to obtain closed window RO-2 reading at or near Exclusion Area Boundary (EAB). This is to initially quantify the release.</i></p> <p>Rad Chem Helper Cell Phone 573-220-4233 Hazmat Cell Phone 573-220-4232</p> <p><i>NOTE: If the release is determined to be above normal operating limits, contact</i></p> <p>Health Physics Coordinator 68711 Security Coordinator 68701</p> <p><i>to inform them that the release is above normal operating limits.</i></p>
<input type="checkbox"/> *3.	The DAC will be responsible for briefing individuals leaving the EOF once a radiological brief is required.
<input type="checkbox"/> *4.	Notify the Health Physics Coordinator (HPC) and Field Monitoring Teams (FMT) when projected thyroid dose reaches 25 Rem or greater. Recommend KI for Ameren UE Personnel and brief on KI Precautions per HDP-ZZ-01300 section 7, items 7.1 through 7.1.4.
<input type="checkbox"/> *5.	Wind shifts and changes in meteorological conditions should be announced to the RM, FMTs, and/or PMC and noted on maps. Notification of Offsite Agencies MUST be initiated within approximately 15 minutes of changes to Protective Action Recommendations. When available, coordinate recommendations with the Missouri Department of Health (DOH).
<input type="checkbox"/> **6.	<p>Obtain weather forecast initially and approximately every 4 hours. Brief the PMC and/or the RM of any anticipated changes in the weather conditions and their effects on PARs.</p> <p>(St. Louis Flight Briefing Service 1-800-992-7433 or use the Internet)</p>
<input type="checkbox"/> *7.	<p>Monitor Radiation Monitor Trends for Group 1 and 2 EALs in accordance with EIP-ZZ-00101. Notify the RM and/or PMC of any setpoints that have been exceeded or are being approached.</p> <p><i>NOTE: Refer to KOA-ZZ-00125 during degraded NB01/NB02 conditions to determine validity of plant computer points.</i></p>
<input type="checkbox"/> *8.	<p>When the field monitoring teams are available, brief and dispatch as per EIP-ZZ-00211, Field Monitoring Direction and Assessment.</p> <p><i>NOTE: If release above normal operating limits is in progress or imminent, brief the FMTs on the radio.</i></p>
<input type="checkbox"/> *9.	Evaluate input from the FMT's and monitor Protective Action Recommendations based on radiological conditions per EIP-ZZ-00212 , Protective Action Recommendations. When available, coordinate recommendations with the Missouri Department of Health (DOH).
<input type="checkbox"/> *10.	Request update of release duration from the PMC/PAC or the TAC if the PMC/PAC is not available.
<input type="checkbox"/> *11.	<p>Provide the Protective Measures Coordinator with the radiological based Protective Action Recommendations.</p> <p><i>NOTE: If the Protective Measures Coordinator is not staffed, provide the Recovery Manager with the above information.</i></p>
<input type="checkbox"/> *12.	Initiate Free Format Logs as needed.
<input type="checkbox"/> **13.	<p>Establish Radiological Habitability Controls in the EOF.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Close both vestibule doors, ensure stanchions are pulled across hallway. <input type="checkbox"/> Response Response check the Portal Monitor (page 5 of 8, this attachment or HTP-ZZ-04135) <input type="checkbox"/> AMS 3 energized and source checked (page 6 of 8, this attachment or HTP-ZZ-04137) <input type="checkbox"/> Control dosimetry set <input type="checkbox"/> Have Logistics Support post signs on doors to facility.
<input type="checkbox"/> **14.	Set up a frisking station using a model 177 ratemeter, (per page 4 of 8, this attachment or HTP-ZZ-04101).
<input type="checkbox"/> **15.	Issue TLDs to those plant personnel in the EOF that do not have TLDs (Use Page 8 of 8, this attachment for issue).

DOSE ASSESSMENT COORDINATOR CHECKLIST

<input type="checkbox"/> **16.	<p>Ensure that facility habitability is maintained using portable instrumentation and secondary monitoring devices.</p> <p><u>Habitability Action Levels:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> 600 mrem/hr direct dose rate, inform the RM, and commence monitoring cumulative dose. <input type="checkbox"/> 4400 mrem cumulative dose, recommend facility evacuation. <input type="checkbox"/> 5000 mrem/hr or greater direct dose rates recommend facility evacuation. <input type="checkbox"/> Iodine concentrations of $2.4 \text{ E } -6 \text{ uCi/ml}$ or greater, inform the Recovery Manager and commence air sampling to ensure total intake does not exceed 25 rem CDE. <input type="checkbox"/> Iodine concentrations of $1.9 \text{ E } -5 \text{ uCi/ml}$ or greater, recommend evacuation. <input type="checkbox"/> Appropriate protective actions, as per Health Physics procedures, should be recommended when experiencing the above radiological conditions and considering how and when to evacuate.
<input type="checkbox"/> **17.	<p>Ensure the four (4) decon sinks are directed to the Radioactive Holding Tank when handling radioactive waste. The Waste Holding Tank is to be monitored for level and disposed of properly when full. See OOA-HD-00001.</p>
<input type="checkbox"/> **18.	<p>Set up frisker at entry to Decon Area for use by returning FMTs.</p>

TURNOVER

<input type="checkbox"/> 1.	Brief the oncoming DAC and FMTs on radiological release and dose information, field monitoring activities, and in-plant Radiation Monitor trends.
<input type="checkbox"/> *2.	Arrange for Field Monitoring Team (FMT) turnover by briefing and dispatching relief FMTs. Ensure returning FMTs access the EOF via the Decon Area in back of the Lab.
<input type="checkbox"/> 3.	Review log.
<input type="checkbox"/> 4.	Inform the Recovery Manager, Dose Assessment Staff and Field Monitoring Teams of the turnover.
<input type="checkbox"/> 5.	Notify DOH personnel of turnover.
<input type="checkbox"/> 6.	Turnover complete _____ Time.
<input type="checkbox"/> 7.	Turnover logged.
<input type="checkbox"/> 8.	Initiate a new checklist CA# 734.

RECOVERY

<input type="checkbox"/> 1.	Continue providing requested information.
<input type="checkbox"/> 2.	Ensure that Field Monitoring Teams are informed of the Recovery declaration.
<input type="checkbox"/> 3.	Continue activities per procedures and checklist until Recovery Organization established or until directed otherwise by the Recovery Manager.

DOSE ASSESSMENT COORDINATOR CHECKLIST

<u>TERMINATION and SHUTDOWN</u>	
<input type="checkbox"/> 1.	When directed, assist with the EOF deactivation.
<input type="checkbox"/> 2.	Ensure area is put into order and logs collected and given to the Logistics Support Coordinator.
<input type="checkbox"/> 3.	Ensure dose assessment equipment is turned off and/or stored and UPS units selected to LINE.
<input type="checkbox"/> 4.	If sinks and showers are no longer needed for decon purposed, survey sinks and showers. If free of contamination, return drains to the sanitary tank.
<input type="checkbox"/> 5.	Secure friskers and store in locker.
<input type="checkbox"/> 6.	Secure AMS-3.
<input type="checkbox"/> 7.	Collect and make preparations to read TLDs issued from the EOF.

Dose Assessment Coordinator

DOSE ASSESSMENT COORDINATOR CHECKLIST***SET-UP AND OPERATION OF THE MODEL 177 RATEMETER***

This Startup Sequence augments HTP-ZZ-04101, Operation of the Ludlum Model 177 Series Alarm Ratemeter. It is designed to be used in an Emergency Response Facility when a HP Operations Technician is not immediately available.

1. Remove Model 177 ratemeter, frisker probe, detector cable, power cord, and check source from the E-Kit cabinet.
2. Connect detector and power cords, if not already connected, to the Model 177 ratemeter and verify the following switch settings:
 - Front Panel:
 1. On/Off switch in "ON" position.
 2. Volume adjusted to hear audible counts.
 3. Response switch in "slow" position.
 4. Range switch to "X1" scale.
 - Rear Panel:
 1. Alarm set at '5'.
 2. Subtract switch in "Off" position if meter has Subtract Switch.
3. Perform response check as follows:
 - ☐ Ensure instrument has a current calibration sticker.
 - ☐ Set the range switch to the appropriate position and place the detector on the check source bracket.
 - ☐ Verify the response is within the acceptable range as specified on the response value determination form/sticker for that check source.
 - ☐ Check the instrument alarm by adjusting the ALARM SET switch so that it is slightly less than the count rate of the source.
 - ☐ Remove the source from the detector.
 - ☐ Depress the RESET button. The alarm condition should clear.
 - ☐ If the pre-operational checks are satisfactory, complete the attached pre-operational check sticker. If either the alarm or the response check failed, notify the Health Physics Coordinator and obtain an operational ratemeter.
4. Return the check source to the E-Kit cabinet.

DOSE ASSESSMENT COORDINATOR CHECKLIST***GAMMA-10 PORTAL MONITOR RESPONSE CHECK***

This Startup Sequence augments **HTP-ZZ-04135**, Operation of the NNC Gamma-10 Portal Monitor. It is designed to be used in an Emergency Response Facility when a HP Operations Technician is not immediately available.

<u>NOTE:</u>	The key for the electronics cabinet is attached to the response source.
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1. Verify 110 VAC power to the unit. If it is ON, proceed to Step 2. If the monitor is OFF, perform the following:
 - Supply 110 VAC to the unit through the UPS unit.
 - Set the NIMBIN power supply On-Off switch to ON and ensure the power light is illuminated.
 - Set the HV-2 NIM On-Off switch to on and ensure the Positive LED is illuminated.
2. Verify that a current calibration label is affixed to the Electronics Box and the pot settings, on the box, are the same as identified on the label.
3. Inspect the monitor for physical damage.
4. Verify no alarms are activated. (If an alarm is activated, clear the alarm and depress the RESET on the portal before continuing.)
5. Pass the Gamma-10 Response Source through the central region of the monitor. The Contamination alarm should activate on the box, a light and buzzer, and a red light on the portal should illuminate.
6. Depress the RESET button on the portal. The alarms should clear and the green operational light should remain lit.
7. If the monitor passes this check, initial and date the Pre-Operational Check Sticker affixed to the Electronics Box.

If the monitor fails the Pre-Operational Checks, tag the unit Out Of Service and notify the Health Physics Coordinator. Set up Frisking Station and have personnel entering the building and those already in the building frisk for contamination, if it is expected.

DOSE ASSESSMENT COORDINATOR CHECKLIST**AMS-3 STARTUP AND OPERATION**

This Startup Sequence augments HTP-ZZ-04137, Operation of the Eberline AMS-3. It is designed to be used in an Emergency Response Facility when a HP Operations Technician is not immediately available.

- 1) Connect AMS-3 (monitor) and air sampler to 110 VAC power.
- 2) Ensure monitor and air sampler have current calibration label.
- 3) Inspect the chart paper. Ensure an adequate supply of paper remains. If a RED line appears on the chart paper, notify Health Physics and continue the startup procedure.
- 4) Set monitor ON-OFF switch (located on back of monitor) to the ON position. Allow monitor to warm-up for 5 minutes.
- 5) Set BACKGROUND SUBTRACT switch to the ON position.
- 6) Push in "PUSH TO SET" on bottom left side of monitor and note the alarm setpoint value of 20,000 cpm (this is the first scale mark to the right of the 10^4 scale value).
- 7) Set alarm setpoint to 10^3 cpm by adjusting the SET knob while holding in "PUSH TO SET" button.
- 8) Remove sample holder located on the right front side of monitor by loosening the clamp and pulling out on handle.
- 9) Obtain check source from HP E-Kit Locker. Center source over sample holder opening with the recessed side of the source bracket facing the opening.
- 10) The audible alarm and the alarm light should energize (activate). If not notify Health Physics. (The startup procedure should not continue until the problem is resolved).
- 11) Press ACKNOWLEDGE button to silence alarm.
- 12) Verify count rate on chart recorder is as indicated on the response value listed on back of source bracket or a sticker on the instrument.
- 13) Remove check source. Ensure alarm light resets and count rate decreases on chart recorder.
- 14) Remove the filter in the filter holder. (Remove the filter retaining ring on the filter holder, this snaps on the end of the filter holder assembly, and may fit somewhat tight.)
- 15) Obtain a new filter from the HP Emergency Kit Locker and place it on the sample holder with the "ROUGH SIDE" of filter facing upwards.
- 16) Replace retaining ring on the sample holder and insert the sample holder into the sample chamber. Lock the filter holder into place.
- 17) Set the alarm setpoint to 2×10^4 cpm by adjusting the SET knob while holding in the "PUSH TO SET" button.
- 18) Place the toggle switch on the power cord to the "ON" position. The air sampler pump should start.
- 19) Ensure airflow as indicated on flowmeter is within the tolerance listed on the calibration label (read the flow at the center of the rotometer float ball.) If it is not, notify Health Physics.
- 20) Initial and date the Preoperational Check sticker.

DOSE ASSESSMENT COORDINATOR CHECKLIST

[illegible]

BACK-UP EOF CHECKLIST

DATE: _____ TIME: _____

<u>TRANSFER TO BACK-UP EOF</u>	
<input type="checkbox"/> 1.	OSL-Contact SEMA and County EOCs and notify them of the decision to activate the Backup EOF due to the EOF being uninhabitable. Inform SEMA of the estimated time of arrival to the Backup EOF. <i>NOTE: This step can be satisfied by adding this information to a SENTRY Notification Form or by using backup communication lines.</i>
<input type="checkbox"/> 2.	OSL or RM-Contact the NRC Operations Center and notify them of the decision to startup the Backup EOF or contact the TSC ENS Communicator and ask them to inform the NRC OPS Center of the decision.
<input type="checkbox"/> 3.	OSL-Inform the appropriate EOF emergency personnel to relocate as indicated below. If personnel have not arrived at the facility, inform the Security Officer in the EOF to direct arrivals to the appropriate facility (Backup EOF or TSC). See attached map and layout for the Backup EOF: <i>NOTE: The BEOF has Emergency Packets for the staff. Personnel reporting to the TSC need to take their packet with them.</i> <ul style="list-style-type: none"> <input type="checkbox"/> Recovery Manager to the Backup EOF. <input type="checkbox"/> Protective Measures Coordinator to the Backup EOF. <input type="checkbox"/> Off-Site Liaison Coordinator to the Backup EOF. <input type="checkbox"/> Communicator, to the TSC to report to EC. <input type="checkbox"/> DACs, one to the Backup EOF and one to the TSC to report to EC. <input type="checkbox"/> Dose Assessment Staff, one to the Backup EOF and one to the TSC <input type="checkbox"/> Plant Assessment Coordinator to the TSC to report to TAC. <input type="checkbox"/> Logistics Support Coordinator to the TSC to work with the Admin. Coord. <input type="checkbox"/> JPIC Tech Rep (EOF) to the TSC and communicate with JPIC. <input type="checkbox"/> All Others – Contact the Admin Coordinator in the TSC to determine if EC needs additional personnel in the TSC. If not needed, personnel should be instructed to return home and standby their phones.
<input type="checkbox"/> 4.	RM-Direct the EC and TSC to take charge of all ERO operations including the responsibility for the following until the BEOF is activated. Maintain contact, to the extent possible, using Cellular phones while in route to Backup EOF <ul style="list-style-type: none"> <input type="checkbox"/> Protective Action Recommendations in accordance with EIP-ZZ-00212. <input type="checkbox"/> Dose Assessment/ FMT Coordination in accordance with EIP-ZZ-01211 and EIP-ZZ-00211 <input type="checkbox"/> Notifications in accordance with EIP-ZZ-00201. <i>NOTE: Notifications may be sent from the Control Room using SENTRY or be initiated from the TSC using backup communication lines.</i>

<u>INTERIM OPERATION WHILE AWAITING BACKUP EOF ACTIVATION</u>	
<input type="checkbox"/> 1.	Communicator - (Reporting to TSC) Announce your presence to the EC and coordinate notification completion with the DAC and TAC. <ul style="list-style-type: none"> <input type="checkbox"/> Make Notifications using SENTRY, BURS, or commercial phone lines in the TSC. <i>NOTE: Ensure copies of all notifications are Faxed to the Backup EOF. (See attached drawing for phone #.)</i>
<input type="checkbox"/> 2.	DAC - (Reporting to TSC) Work with the HPC and perform all applicable portions of the DAC Checklist Attachment 6. <i>NOTE: Field Monitoring Teams (FMTs) should remain under the control of the TSC DAC until the DAC in the Backup EOF is ready to assume control. Primary communications with the FMTs to the Backup EOF will be via cellular phones. Secondary radio communications can be established if necessary.</i>

BACK-UP EOF CHECKLIST

<input type="checkbox"/> 3.	Dose Assessment Staff - (Reporting to TSC) Assist the DAC with FMT direction.
<input type="checkbox"/> 4.	PAC - (Reporting to TSC) Report to the TAC and perform applicable portions of Attachment 4.
<input type="checkbox"/> 5.	LSC - (Reporting to TSC) Work with the Admin Coordinator performing the applicable portions of Attachment 5.

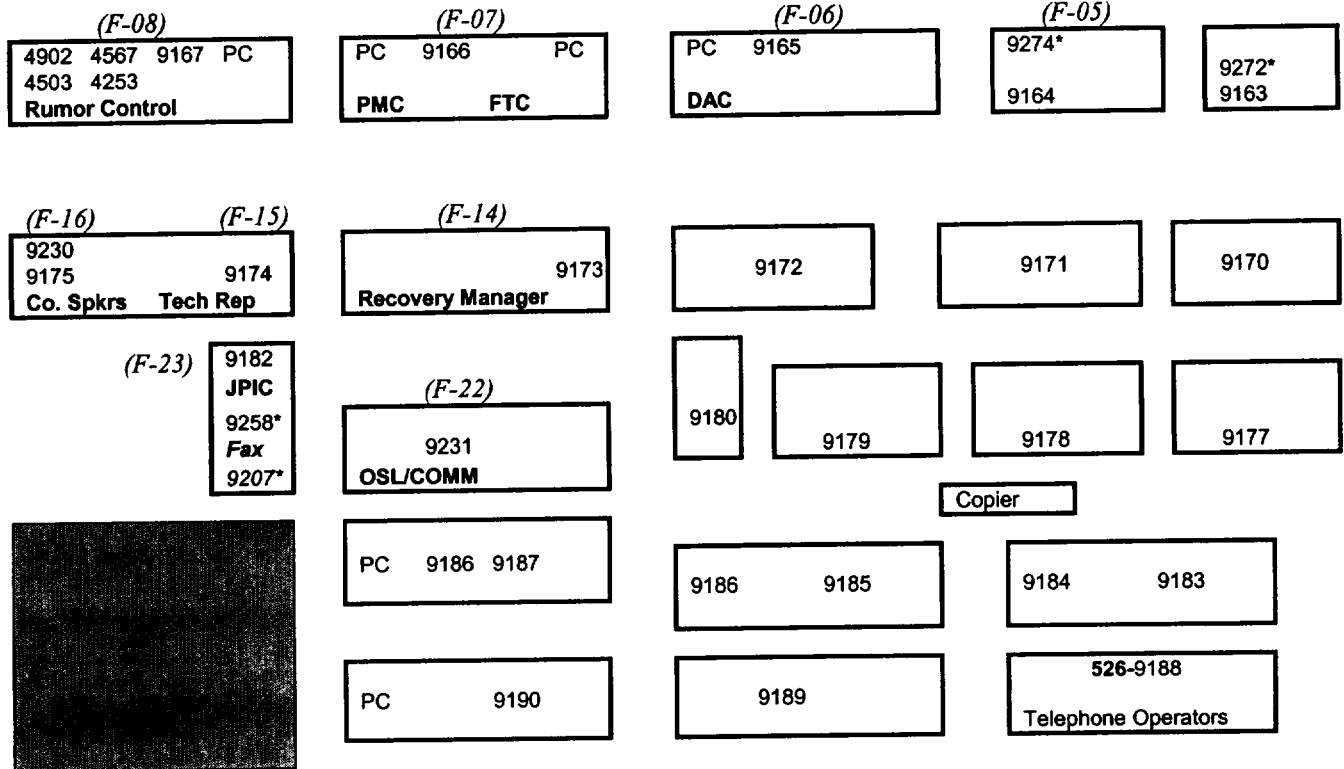
BACKUP EOF ACTIVATION

<input type="checkbox"/> 1.	OSL -Upon arrival at the Backup EOF. <ul style="list-style-type: none"> <input type="checkbox"/> Ensure equipment/materials are setup (Refer to Page 3 of this Attachment). <input type="checkbox"/> Ensure the MAGNEM PC is set up and operating including testing the printer. <input type="checkbox"/> Phones are removed from the cabinet, plugged in, and operable. <input type="checkbox"/> Introduce yourself and the RM to the appropriate State officials.
<input type="checkbox"/> 2.	RM -Recovery Manager contact the Emergency Coordinator, receive update, and request transfer of the following to the Backup EOF: <ul style="list-style-type: none"> <input type="checkbox"/> Protective Action Recommendations in accordance with EIP-ZZ-00212 . <input type="checkbox"/> Dose Assessment/ FMT Coordination in accordance with EIP-ZZ-01211 and EIP-ZZ-00211. <p style="margin-left: 20px;"><i>Note: Field Monitoring Teams remain under the control of the TSC DAC.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Notifications in accordance with EIP-ZZ-00201.
<input type="checkbox"/> 3.	PMC - Perform applicable portions of PMC Checklist Attachment 3 using input from the TAC, PAC (in TSC) and DAC (Backup EOF).
<input type="checkbox"/> 4.	DAC - Coordinate with the Missouri Department of Health (DOH) and assume Field Monitoring Team coordination from the TSC, using cellular phones as the primary communication with the Teams. Perform applicable portions of Attachment 6.
<input type="checkbox"/> 5.	OSL - Perform applicable portions of the OSL Checklist Attachment 2 and ensure a comprehensive turnover of offsite notifications with the concurrence of the RM. <i>NOTE: DO NOT assume responsibility of notifications until PMC and DAC have assumed responsibility.</i>
<input type="checkbox"/> 6.	OSL - Report the assumption of responsibilities to the Recovery Manager.
<input type="checkbox"/> 7.	OSL - Log the Backup EOF activation time
<input type="checkbox"/> 8.	OSL - Inform the Emergency Coordinator, SEMA, County EOCs and the NRC of the assumption of responsibilities in the Backup EOF.

Off-Site Liaison Coordinator Signature

BACK-UP EOF CHECKLIST

BEOF LAYOUT



All 9XXX phone numbers are 526-9XXX

All 4XXX phone numbers are 634-4XXX

* Indicates analog phone line

Field Monitoring Team Cellular Phones

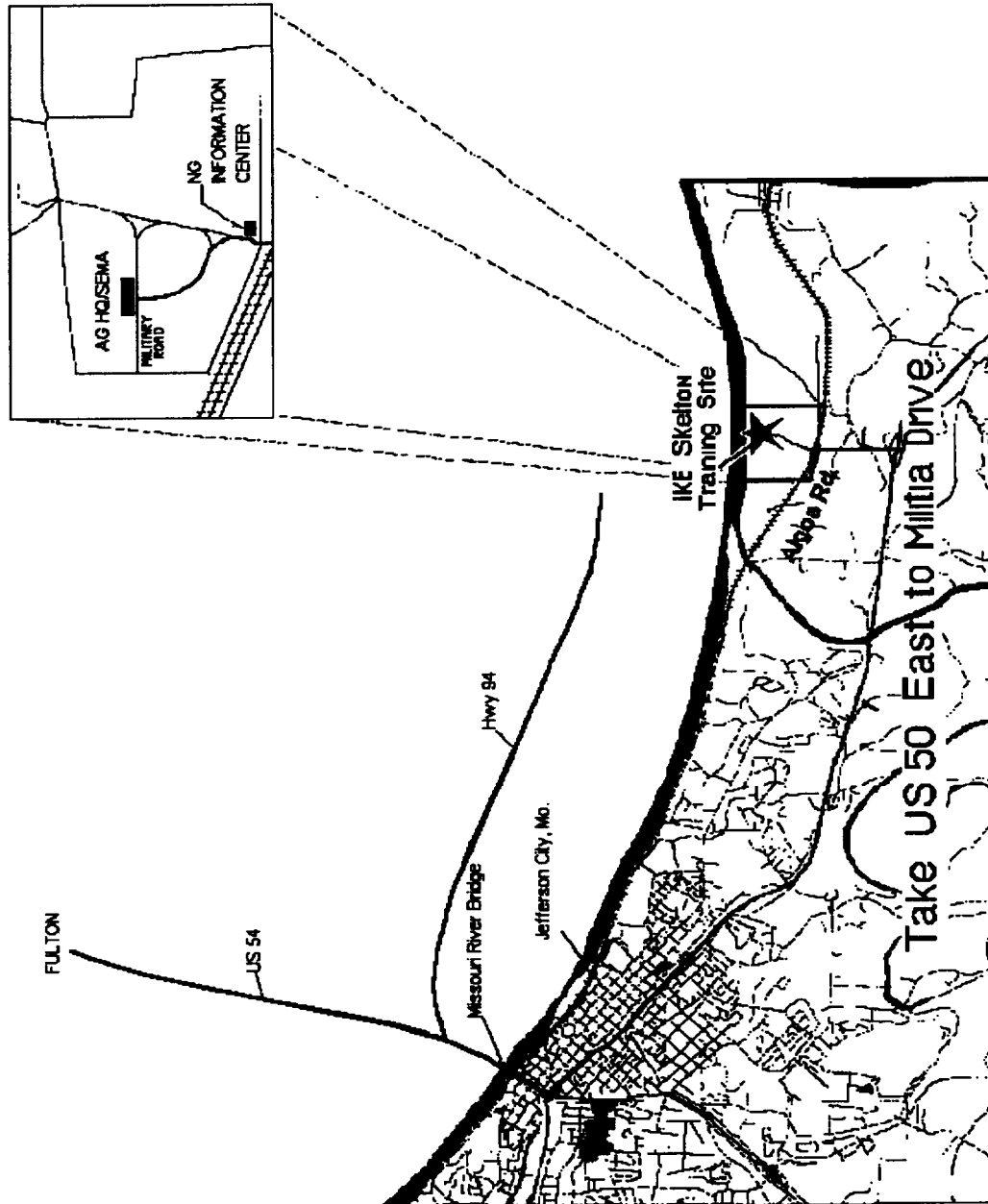
Chem Vehicle (573) 220-0173

HPTS Vehicle (573) 220-0628

I&C Vehicle (573) 220-2507

Radio for FMT communications is located in the SEMA Radio Room

When dialing out, use 8 (area code) XXX-XXXX.



CALLAWAY PLANT
EMERGENCY PLAN IMPLEMENTING PROCEDURE

EIP-ZZ-00101

CLASSIFICATION OF EMERGENCIES

RESPONSIBLE DEPARTMENT EMERGENCY PREPAREDNESS

PROCEDURE OWNER W. R. Bevard

WRITTEN BY W. R. Bevard

PREPARED BY W. R. Bevard

APPROVED BY

SS Subbath EDO

DATE ISSUED 8-26-02



This procedure contains the following:

Pages	<u>1</u>	through	<u>8</u>
Attachments	<u>1</u>	through	<u>3</u>
Tables	<u> </u>	through	<u> </u>
Figures	<u> </u>	through	<u> </u>
Appendices	<u> </u>	through	<u> </u>
Checkoff Lists	<u> </u>	through	<u> </u>

This procedure has checkoff list(s) maintained in the mainframe computer.

Conversion of commitments to TRS reference/hidden text completed by Revision Number:

Non-T/S Commitments 024

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Attachment 1	Emergency Action Levels	10 Pages
Attachment 2	Emergency Action Levels Indicators Bases	50 Pages
Attachment 3	ARM Dose Rates	4 Pages

CLASSIFICATION OF EMERGENCIES

1 PURPOSE AND SCOPE

1.1 PURPOSE

This procedure provides guidelines for classification of emergencies.

1.2 SCOPE

Establishes indications for determining conditions at which specific emergency classifications are to be declared.

2 DEFINITIONS

2.1 Emergency Classifications -

- Unusual Event - This classification is characterized by events in progress or which have occurred indicating a potential degradation of the level of safety of the Plant. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.
- Alert - This classification is characterized by events in progress or that have occurred which involve an actual or potential substantial degradation of the level of safety of the Plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.
- Site Emergency - The SITE EMERGENCY class includes accidents in which major failures of Plant functions needed for protection of the public have occurred or are likely to occur. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except near the site boundary.

- General Emergency - The GENERAL EMERGENCY class includes accidents which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity, and other accidents that have large radioactive release potential. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels off-site for more than the immediate site area.

2.2 Safe Shutdown Area - Section 5.4A.2 of the FSAR lists the systems required to achieve and maintain a safe shutdown. The following areas contain these required systems:

- Area 5
- Containment
- Aux Feed Pump Rooms
- Aux Building
- Diesel Generator Building
- UHS Cooling Tower
- ESW Pumphouse
- Control Building
- RWST
- Fuel Building

2.3 Transient - A transient is defined as a reactor power change of $\pm 10\%$ or safety injection initiated.

2.4 Invalid - Invalid alarms and readings may be the result of electronic noise, radio frequency interference, electromagnetic frequency interference, or spurious spikes of unknown nature. A buildup of radioactivity within the monitor or an increase in the ambient background for the monitor would also cause invalid alarms and readings.

- 2.5 Valid - Valid alarms and readings are those verified by the operators to be the results of actual events or, in the case of effluent alarms and readings, verified to be the results of effluent concentrations.

3 RESPONSIBILITIES

3.1 SHIFT SUPERVISOR

- 3.1.1 Upon classification of an emergency, the Shift Supervisor assumes the position of Emergency Coordinator and initiates emergency actions including making Protective Action Recommendations to authorities responsible for implementing off-site emergency measures. The Shift Supervisor assigns on-shift personnel to emergency duties as deemed necessary, and notifies the EDO of the emergency. The Shift Supervisor continues as acting Emergency Coordinator until relieved by the EDO. When relieved, the Shift Supervisor will resume normal duties in directing Plant Operations activities from the Control room. (COMN 3314)

3.2 EMERGENCY COORDINATOR

- 3.2.1 The Emergency Coordinator is responsible for directing overall emergency response on-site. Initially, the Shift Supervisor assumes the responsibilities of Emergency Coordinator. At the ALERT (or higher) emergency classification levels, the EDO will relieve the Shift Supervisor and assume the Emergency Coordinator duties. The Emergency Coordinator directs the Emergency Response Organization from the TSC after relieving the Shift Supervisor. (COMN 3327)

3.3 PLANT PERSONNEL

- 3.3.1 Responsible for immediately reporting any abnormal condition or event to the Shift Supervisor.

4 INITIATING CONDITIONS

This procedure is initiated when:

- 4.1 Alarms, abnormal instrument readings, or reports of conditions that indicate an emergency situation (either real or potential) have occurred.

- 4.2 A subsequent action step in a plant operating off-normal, or Emergency Procedure which refers to this procedure for classification of the indicated plant conditions.

5 PROCEDURE

When abnormal or emergency conditions (real or potential) occur, the Shift Supervisor SHALL: (COMN 3384)

<p><u>NOTE:</u> Initial classification should take place as soon as possible but not > 15 minutes after recognition of initiating conditions.</p>
--

- 5.1 Ensure that immediate actions (e.g., use of Emergency Procedures, dispatch the Fire Brigade, personnel, etc.) are taken for the safe and proper operation of the plant.
- 5.2 Using the indications available (alarms, readings, reports, etc.) and Attachment 1, Emergency Action Levels, determine the appropriate emergency classification as follows: (COMN 42546)

<p><u>NOTE:</u> Instrumentation listed in Attachment 1 is the primary means of determining conditions; if these are inoperative, others may be substituted.</p>

- 5.2.1 Refer to the "Group" (in Attachment 1) that relates to the indications being received. The groups are:
- Group One - Abnormal Radiation Events
 - Group Two - Fission Product Barriers (COMN 41525)
 - Group Three - Hazards Affecting Plant Safety
 - Group Four - System Malfunctions
- 5.2.2 Find the corresponding indication(s) and condition(s) appropriate to the actual indication(s).
- 5.2.2.1 Emergency Classification can also be based upon projected conditions/indications to ensure adequate measures are taken to mitigate any consequences of the emergency. (COMN 20606)

- 5.2.2.2 If extra personnel are desired when no conditions exist that in his opinion warrant the declaration emergency he may have the SAS operator activate the Emergency Paging System per **KOA-ZZ-00200**, Activation of the Callaway Plant Emergency Paging System, for duty rapid responders using **MESSAGE #2** or for all available rapid responders, ERO Coordinators, and engineers using **MESSAGE #10**.
- 5.2.2.3 The Emergency Coordinator has the option to declare an UNUSUAL EVENT, ALERT, SITE EMERGENCY or GENERAL EMERGENCY when conditions exist that in his opinion warrant the declaration. This can be independent of any specific EAL.
- 5.2.2.4 Specific examples of other conditions which in the judgment of the Emergency Coordinator warrant declaration of an event: (COMN 43073)
- a) Each Group 2 barrier could be considered for other factors that could determine whether a barrier is Potentially Lost or Lost. In addition, the inability to monitor the barrier could be a factor in considering the barrier Potentially Lost or Lost.
 - b) Specific examples of events that may require Emergency Coordinator judgment for the Unusual Event:
 - 1) Aircraft crash on-site.
 - 2) Near site explosion which may adversely affect normal site activities.
 - 3) Near site release of toxic or flammable gas which may adversely affect normal site activities.
 - 4) Uncontrolled RCS cool down due to Secondary Depressurization.
 - 5) Unplanned loss of > 75% of plant annunciators due to event(s) not covered elsewhere.
 - 6) Safeguards security events not covered elsewhere.

- c) Specific examples of events that may require Emergency Coordinator judgment for the Alert:
 - 1) Conditions exist that indicate that plant systems may be degraded, and that increased monitoring of plant functions is warranted.
 - 2) Safeguards security events not covered elsewhere.
- d) Specific examples of events that may require Emergency Coordinator judgment for the Site Emergency:
 - 1) Conditions exist that indicate actual or likely major failures of plant functions needed for protection of the public.
- e) Specific examples of events that may require Emergency Coordinator judgment for the General Emergency:
 - 1) Conditions exist that indicate actual or imminent substantial core degradation with potential for loss of containment.
 - 2) Conditions exist that indicate potential for uncontrolled radionuclide releases expected to exceed EPA PAG plume exposure levels outside the EAB.
 - 3) Safeguards security events not covered elsewhere.

5.2.2.5 The possibility exists that situations may have characteristics in two or more classes. In such an event, the emergency **SHALL** be categorized in the more severe class to ensure a conservative approach is taken. (COMN 3383)

5.2.3 Declare the emergency classification that is listed corresponding to the condition derived from Step 5.2.2 to facility personnel.

NOTE:

Initial notifications to State and Local Agencies shall be initiated within 15 minutes after declaration of the emergency classification.

- 5.3 Perform the necessary emergency implementing actions as outlined in **EIP-ZZ-00102**, Emergency Implementing Actions, to ensure the proper response is taken to implement the Callaway Plant Radiological Emergency Response Plan.

<p><u>NOTE:</u> If necessary, the EDO should be contacted to discuss emergency actions.</p>

- 5.4 Reclassify the emergency as conditions dictate in accordance with this procedure.

6 FINAL CONDITIONS

- 6.1 Event Closeout or Plant Recovery has been declared per **EIP-ZZ-00260**, Event Closeout/Plant Recovery.

7 REFERENCES

- 7.1 Callaway Plant Radiological Emergency Response Plan
- 7.2 NUREG-0818, Emergency Action Levels for Light Water Reactors
- 7.3 **EIP-ZZ-00102**, Emergency Implementing Actions
- 7.4 **EIP-ZZ-00260**, Event Closeout/Plant Recovery
- 7.5 Callaway Plant Final Safety Analysis Report
- 7.6 Callaway Plant Technical Specifications
- 7.7 **APA-ZZ-00703**, Fire Protection Operability Criteria and Surveillance Requirements
- 7.8 **APA-ZZ-01003**, Off-Site Dose Calculation Manual
- 7.9 NESP-0007, Methodology for Development of Emergency Action Levels
- 7.10 Reg. Guide 1.101, Emergency Planning and Preparedness for Nuclear Power Reactors
- 7.11 **OTO-SG-00001**, Seismic Event
- 7.12 **OTO-ZZ-00001**, Control Room Inaccessibility

- 7.13 **CTP-ZZ-01300**, Atmospheric Hazard Control
- 7.14 **OTO-RK-00001**, Loss of Control Room Alarms
- 7.15 **EIP-ZZ-01211**, Management Action Guides For Nuclear
Emergencies (MAGNEM)
- 7.16 **KOA-ZZ-00200**, Activation of the Callaway Plant Emergency
Paging System
- 7.17 Emergency Action Level (EAL) Descriptions
- 7.18 EPCI-98-01, EAL Bases Calculation
- 7.19 FSAR CN 00-065, GTRE59/60 Alert and High Alarm Computer
Setpoints
- 7.20 **CTP-ZZ-08100**, Post Accident Sampling Guidelines

8 RECORDS

None

EMERGENCY ACTION LEVELS**Group 1 ABNORMAL RADIATION EVENTS****Offsite Events**

UNUSUAL EVENT	ALERT	SITE EMERGENCY	GENERAL EMERGENCY
<p>A. Any Unplanned Release of Radioactivity to the Environment That Exceeds 2 Times the Radiological Effluent Control Limits in the ODCM, (APA-ZZ-01003) for ≥60 minutes. MODES: At All Times</p> <p><u>Indicators</u> 1. <u>All</u> of the following: a. A valid alarm and reading on <u>any</u> of the following effluent monitors: HB-RE-18 GT-RE-21B GH-RE-10B b. The valid reading is 2 times the Hi Hi alarm setpoint value. c. The release cannot be terminated within 60 minutes of the alarm actuation.</p> <p><u>OR</u> 2. <u>Both</u> of the following: a. Confirmed sample analysis indicates that a release exceeding 2 times the applicable values of the ODCM (APA-ZZ-01003), has occurred. b. The release cannot be terminated within 60 minutes.</p>	<p>B. Any Unplanned Release of Radioactivity to the Environment That Exceeds 200 Times the Radiological Effluent Control Limits in the ODCM, (APA-ZZ-01003) for ≥15 minutes. MODES: At All Times</p> <p><u>Indicators</u> 1. <u>All</u> of the following: a. A valid alarm and reading on <u>any</u> of the following effluent monitors: HB-RE-18 GT-RE-21B GH-RE-10B b. The valid reading is 200 times the Hi Hi alarm setpoint value. c. The release cannot be terminated within 15 minutes of the alarm actuation.</p> <p><u>OR</u> @2. <u>Both</u> of the following: a. A Valid reading on <u>any</u> of the following monitors: AB-RE-0111 >27 mrem/hr AB-RE-0112 >27 mrem/hr AB-RE-0113 >27 mrem/hr AB-RE-0114 >27 mrem/hr FC-RE-0385 >150 mrem/hr b. The release cannot be terminated within 15 minutes.</p> <p><u>OR</u> 3. <u>Both</u> of the following: a. Confirmed sample analysis indicates that a release exceeding 200 times the applicable values of the ODCM (APA-ZZ-01003), has occurred. b. The release cannot be terminated within 15 minutes.</p> <p>@ Release values based on average meteorological data and a 1 hour release duration.</p>	<p>C. EAB Dose Resulting From an Actual or Imminent Release of Gaseous Radioactivity Exceeds 100 mrem TEDE or 500 mrem CDE Thyroid for the Actual or Projected Duration of the Release. MODES: At All Times</p> <p><u>Indicators</u> <u>Any</u> of the following: *1. A valid reading on the Unit Vent monitor, GT-RE-21B, > 2.42E+8 µCi/sec for 15 minutes or longer. *@2. <u>Both</u> of the following: a. A Valid reading on any of the following monitors: AB-RE-0111 >146 mrem/hr AB-RE-0112 >146 mrem/hr AB-RE-0113 >146 mrem/hr AB-RE-0114 >146 mrem/hr FC-RE-0385 >850 mrem/hr b. The reading has been, or is expected to be, exceeded for 15 minutes or longer. 3. A valid dose projection indicates >100 mrem TEDE or >500 mrem CDE thyroid dose at, or beyond, the EXCLUSION AREA BOUNDARY using in plant rad data or field monitoring team survey results. 4. Field survey results at, or beyond, the EAB corresponding to >100 mrem/hr TEDE for 1 hour (or expected to continue for 1 hour) or >500 mrem/hr CDE thyroid for 1 hour of inhalation. *Declare the event using this indicator <u>only</u> if actual dose projections per Indicator 3 cannot be performed within 15 minutes of the monitors exceeding the reading.</p> <p>@ Release values based on average meteorological data and a 1 hour release duration.</p>	<p>D. EAB Dose Resulting From an Actual or Imminent Release of Gaseous Radioactivity Exceeds 1000 mrem TEDE or 5000 mrem CDE Thyroid for the Actual or Projected Duration of the Release. MODES: At All Times</p> <p><u>Indicators</u> <u>Any</u> of the following: *1. A valid reading on the Unit Vent monitor, GT-RE-21B, > 2.42 E+9 µCi/sec for 15 minutes or longer. *@2. <u>Both</u> of the following: a. A Valid reading on any of the following monitors: AB-RE-0111 >1460 mrem/hr AB-RE-0112 >1460 mrem/hr AB-RE-0113 >1460 mrem/hr AB-RE-0114 >1460 mrem/hr FC-RE-0385 >8500 mrem/hr b. The reading has been, or is expected to be, exceeded for 15 minutes or longer. 3. A valid dose projection indicates >1000 mrem TEDE or >5000 mrem CDE thyroid dose at, or beyond, the EXCLUSION AREA BOUNDARY using in plant rad data or field monitoring team survey results. 4. Field survey results at, or beyond, the EAB corresponding to >1,000 mrem/hr TEDE for 1 hour (or expected to continue for 1 hour) or >5,000 mrem/hr CDE thyroid for 1 hour of inhalation. *Declare the event using this indicator <u>only</u> if actual dose projections per Indicator 3 cannot be performed within 15 minutes of the monitors exceeding the reading.</p> <p>@ Release values based on average meteorological data and a 1 hour release duration.</p>

EMERGENCY ACTION LEVELS

Group 1 ABNORMAL RADIATION EVENTS Onsite Events

UNUSUAL EVENT	ALERT	ALERT
<p>E.* An Unexpected Increase in Plant Radiation.</p> <p>MODES: At All Times</p> <p>Indicators Any of the following:</p> <ol style="list-style-type: none"> Spent Fuel Pool level is decreasing on EC-LI-0039A with Normal makeup being added, and all irradiated fuel assemblies remain covered. Refueling Pool level is decreasing on BB-LI-0053A or B with Normal makeup being added, and all irradiated fuel assemblies remain covered. Any valid (Confirmed by HP survey) ARM (other than a Group 1, G. Safe Shutdown ARM) >1000 times normal. (Normal levels can be considered as the monitor reading prior to the noticed increase.) <p>* This Initiating Condition is not meant to apply to anticipated temporary increases due to planned events (e.g., incore detector movement, radwaste container movement, depleted resin transfers, upper internal movements, etc.)</p>	<p>F.* Major Damage to Irradiated Fuel or Loss of Water Level That Has or Will Result in the Uncovering of Irradiated Fuel Outside the Reactor Vessel.</p> <p>MODES: At All Times Unless Noted</p> <p>Indicators Any of the following:</p> <ol style="list-style-type: none"> A VALID Hi-Hi Alarm on Fuel Building exhaust monitors GG-RE-27 or 28 (Channel 273 or 283). Containment refueling bridge area radiation monitor (SD-41) > 100 mR/hr. (Mode 6 only.) Fuel building area radiation monitor (SD-37 or 38) > 30 mR/hr. Report of visual observation of loss of water level resulting in irradiated fuel being uncovered. <p>* This Initiating Condition is not meant to apply to anticipated temporary increases due to planned events (e.g., incore detector movement, radwaste container movement, depleted resin transfers, upper internal movements, etc.)</p>	<p>G.* Release of Rad Material, or an Increase in Rad Level that Either Impedes Safe Operations or the Ability to Establish or Maintain Cold Shutdown.</p> <p>MODES: At All Times</p> <p>Indicators Any of the following:</p> <ol style="list-style-type: none"> Valid (confirmed by HP) reading on SD-33 (Control Room) >15 mR/hr. Valid (confirmed by HP) reading on the following Safe Shutdown ARMs: SDRE-26 AB 2026 RHR Hx Area Wall SDRE-23 AB 2000 RHR Hx Area Corridor SDRE-15 AB 1974 West Corridor-Central SDRE-16 AB 1974 West Corridor-South > 1000 times normal (normal levels can be considered as the monitor reading prior to the noticed increase). <p>* This Initiating Condition is not meant to apply to anticipated temporary increases due to planned events (e.g., incore detector movement, radwaste container movement, depleted resin transfers, upper internal movements, etc.)</p>

EMERGENCY ACTION LEVELS**Group 2 FISSION PRODUCT BARRIERS**

Group 2 FISSION PRODUCT BARRIERS														
A. <u>UNUSUAL EVENT</u>	B. <u>ALERT</u>	C. <u>SITE EMERGENCY</u>	D. <u>SITE EMERGENCY</u>	E. <u>GENERAL EMERGENCY</u>										
<u>Any</u> CONTAINMENT BARRIER Indicator	<u>Any</u> RCS BARRIER Indicator <u>or</u> <u>Any</u> FUEL CLAD BARRIER Indicator	<u>Any</u> RCS BARRIER Indicator <u>and</u> <u>Any</u> FUEL CLAD BARRIER Indicator	A CTMT BARRIER <u>Loss</u> Indicator <u>and</u> <u>Any</u> RCS <u>or</u> FUEL CLAD BARRIER Indicator	A <u>Loss</u> Indicator from any two barriers <u>and</u> <u>Any</u> Indicator from the third										
CONTAINMENT BARRIER MODES: 1-4		RCS BARRIER MODES: 1-4		FUEL CLAD BARRIER MODES: 1-4										
<u>Loss indicators:</u> 1. <u>Containment Pressure</u> a) A rapid unexplained loss of CTMT pressure following an initial increase in pressure. <u>or</u> b) CTMT pressure <u>or</u> sump level not increasing with a LOCA. 2. <u>Containment Isolation Valve Status</u> Incomplete CTMT isolation allowing a release to the environment, following a valid CTMT isolation signal (CISA, CISB, CPIS). 3. <u>SG Release with Primary-Secondary Leakage</u> a) Pri-to-sec leakage verified greater than 150 gpd per SG, or 600 gpd total through all SGs. T. S. 3.4.13 <u>and</u> b) Any of the following: 1) The leaking SG pressure is decreasing in an uncontrolled manner or completely depressurized. 2) Use of the ruptured SG PORV for cool down or temperature control. 3) The leaking SG is supplying the TDAFW turbine. <u>Potential Loss indicators:</u> 4. <u>Critical Safety Function Status</u> Meet the entry requirements for FRZ.1, Red Path Summary for CTMT. 5. <u>Containment Pressure</u> a) H2 concentration in containment >4%. <u>or</u> b) Less than 1 full train of Cmtt spray <u>and</u> Cmtt cooling fans, with Cmtt pressure greater than 27 psig. 6. <u>Significant Radioactive Inventory in Cmtt</u> GT-RE-59 <u>or</u> 60 (Channels 591 <u>or</u> 601) reading >1.5 E+4 R/hr 7. <u>Core Exit Thermocouples</u> a) Core exit TCs >1200°F <u>and</u> restoration procedures not effective in 15 minutes. <u>or</u> b) Core exit TCs >700°F <u>and</u> RVLIS (pumps off) <40% <u>and</u> restoration procedures not effective in 15 minutes. 8. <u>Radiation Increase Outside Containment</u> Unexplained increase in radiation levels in areas adjacent to the containment.		<u>Loss indicators:</u> 1. <u>RCS Leak Rate</u> Safety Injection initiated with a loss of subcooling (less than instrument error) using Attachment 2 or 3 of Emerg. Procedure E-0. 2. <u>SG Tube Rupture</u> a) <u>Any</u> of the following: 1) GE-RE-92 (Channel 925) >2.0E-5 µCi/cc 2) BM-RE-25 (Channel 256) >1.0E-4 µCi/cc 3) SJ-RE-02 (Channel 026) >1.0E-4 µCi/cc 4) Level in any SG continues to increase in an uncontrolled manner <u>and</u> b) <u>Any</u> of the following: 1) The ruptured SG pressure is decreasing in an uncontrolled manner or completely depressurized. 2) Use of the ruptured SG PORV for cool down or temperature control. 3) The leaking SG is supplying the TDAFW turbine. 3. <u>Containment Radiation Monitoring</u> GT-RE-59 <u>or</u> 60 (Channels 591 <u>or</u> 601) reading > 6.4 E+0 R/hr. <u>Potential Loss indicators:</u> 4. <u>Critical Safety Function Status</u> Meet the entry requirement for FRH.1, Red Path Heat Sink <u>or</u> FRP.1, Red Path for Integrity. 5. <u>RCS Leak Rate</u> RCS leakage >50 gpm. 6. <u>SG Tube Rupture</u> a) <u>Any</u> of the following: 1) GE-RE-92 (Channel 925) >2.0 E-5 µCi/cc 2) BM-RE-25 (Channel 256) >1.0 E-4 µCi/cc 3) SJ-RE-02 (Channel 026) >1.0 E-4 µCi/cc 4) Level in any SG continues to increase in an uncontrolled manner. <u>and</u> b) the primary-to-secondary leak rate exceeds 50 gpm.		<u>Loss indicators:</u> 1. <u>Critical Safety Function Status</u> Meet the entry requirements for FRC.1, Red Path for Core cooling. *2. <u>Primary Coolant Activity Level</u> RCS coolant activity >300µCi/cc dose equivalent I-131. 3. <u>Containment Radiation Monitoring</u> GT-RE-59 <u>or</u> 60 (Channels 591 <u>or</u> 601) reading >2.8E+3 R/hr. <u>Potential Loss indicator:</u> 4. <u>Critical Safety Function Status</u> Meet the entry requirements for FRC.2, Orange Path for Core Cooling <u>or</u> FRH.1, Red Path for Heat Sink. 5. <u>Core Exit Thermocouples</u> Core exit TCs >700°F. 6. <u>Reactor Vessel Water Level</u> a) RVLIS (Pumps Off) less than 40% <u>or</u> b) RVLIS (Pumps On) less than minimum <table><tr><th>RCP's on</th><th>Minimum</th></tr><tr><td>4</td><td>44</td></tr><tr><td>3</td><td>30</td></tr><tr><td>2</td><td>20</td></tr><tr><td>1</td><td>13</td></tr></table> * Refer to CTP-ZZ-08100.	RCP's on	Minimum	4	44	3	30	2	20	1	13
RCP's on	Minimum													
4	44													
3	30													
2	20													
1	13													

EMERGENCY ACTION LEVELS

Group 3 HAZARDS AFFECTING PLANT SAFETY Security Events

<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
<p>A. Confirmed Security Event Which Indicates a Potential Degradation in the Level of Safety of the Plant.</p> <p>MODES: At All Times</p> <p><u>Indicators</u> <u>Any</u> of the following:</p> <ol style="list-style-type: none"> Bomb device discovered within the plant Protected Area and outside the following Safe Shutdown Areas: <ul style="list-style-type: none"> Area 5 Containment Aux Feed Pump Rooms Aux Building Diesel Generator Building UHS Cooling Tower ESW Pumphouse Control Building RWST Fuel Building Confirmed report of an attempted entry or sabotage. A site specific credible security threat. 	<p>B. Security Event in the Plant Protected Area.</p> <p>MODES: At All Times</p> <p><u>Indicators</u> Confirmed report of an intrusion by a hostile force into the plant Protected Area.</p>	<p>C. Security Event in a Safe Shutdown Area.</p> <p>MODES: At All Times</p> <p><u>Indicators</u> <u>Any</u> of the following</p> <ol style="list-style-type: none"> Bomb device discovered within <u>any</u> of the following areas: <ul style="list-style-type: none"> Area 5 Containment Aux Feed Pump Rooms Aux Building Diesel Generator Building UHS Cooling Tower ESW Pumphouse Control Building RWST Fuel Building Confirmed report of an intrusion by a hostile force into <u>any</u> of the following areas: <ul style="list-style-type: none"> Area 5 Containment Aux Feed Pump Rooms Aux Building Diesel Generator Building UHS Cooling Tower ESW Pumphouse Control Building RWST Fuel Building 	<p>D. Security Event Resulting in a Loss of the Ability to Reach and Maintain Cold Shutdown.</p> <p>MODES: At All Times</p> <p><u>Indicators</u> <u>Any</u> of the following:</p> <ol style="list-style-type: none"> Occupation of the Control Room by a hostile force. Occupation of the Aux Shutdown Panel by a hostile force.

EMERGENCY ACTION LEVELS

Group 3 HAZARDS AFFECTING PLANT SAFETY

Fires

<u>UNUSUAL EVENT</u>	<u>ALERT</u>
<p>E. Fire Within Protected Area Boundary Not Extinguished Within 15 Minutes of Verification. MODES: At All Times</p> <p><u>Indicators</u> 1. Fire in or <u>adjacent</u> to <u>any</u> of the following: <ul style="list-style-type: none"> • Area 5 • Containment • Aux Feed Pump Rooms • Aux Building • Diesel Generator Building • UHS Cooling Tower • ESW Pumphouse • Control Building • RWST • Fuel Building <u>and</u> 2. Not extinguished within 15 minutes of control room verification of a fire.</p>	<p>F. Fire Affecting the Operability of Plant Safety Systems Required to Establish or Maintain Safe Shutdown. MODES: At All Times</p> <p><u>Indicators</u> 1. Fire in <u>any</u> of the following areas: <ul style="list-style-type: none"> • Area 5 • Containment • Aux Feed Pump Rooms • Aux Building • Diesel Generator Building • UHS Cooling Tower • ESW Pumphouse • Control Building • RWST • Fuel Building <u>and</u> 2. There is visible damage to permanent structures or equipment, affecting the operability of safety related equipment.</p>

Natural and Destructive Events

<u>UNUSUAL EVENT</u>	<u>ALERT</u>
<p>G. Natural and Destructive Phenomena Affecting the Protected Area. MODES: At All Times</p> <p><u>Indicators</u> <u>Any</u> of the following: 1. a. Response spectrum recorder operating annunciator 98E alarms in the Control Room <u>and</u> b. Verified to be a real event per OTO-SG-00001. 2. Report of a main turbine rotating component failure resulting in casing penetration or major damage to seals causing a rapid loss of lubricating oil or hydrogen. 3. Explosion, vehicle crash or tornado in or <u>adjacent</u> to <u>any</u> of the following: <ul style="list-style-type: none"> • Area 5 • Containment • Aux Feed Pump Rooms • Aux Building • Diesel Generator Building • UHS Cooling Tower • ESW Pumphouse • Control Building • RWST • Fuel Building </p>	<p>H. Natural and Destructive Phenomena Affecting a Safe Shutdown Area. MODES: At All Times</p> <p><u>Indicators</u> <u>Any</u> of the following: 1. a. Operating basis earthquake annunciator 98D alarms in the Control Room <u>and</u> b. Earthquake greater than OBE levels (0.12g) in the horizontal and vertical directions as indicated by LIGHT "OSG-AE-1" or LIGHT "OSG-AE-2" 2. a. Report of a tornado, high wind, vehicle crash, explosion, or other natural or destructive phenomena to <u>any</u> of the following Safe Shutdown areas: <ul style="list-style-type: none"> • Area 5 • Containment • Aux Feed Pump Rooms • Aux Building • Diesel Generator Building • UHS Cooling Tower • ESW Pumphouse • Control Building • RWST • Fuel Building <u>and</u> b. There is visible damage to permanent structures or equipment, affecting plant operations.</p>

EMERGENCY ACTION LEVELS

Group 3 HAZARDS AFFECTING PLANT SAFETY

Toxic Gas

<u>UNUSUAL EVENT</u>	<u>ALERT</u>
<p>I. Release of Toxic or Flammable Gases Deemed Detrimental to Safe Operation of the Plant.</p> <p>MODES: At All Times</p> <p><u>Indicators</u> <u>Any</u> of the following:</p> <ol style="list-style-type: none"> 1. Report or detection of toxic or flammable gases that enter within the Exclusion Area Boundary, that have created a HAZARDOUS ATMOSPHERE per CTP-ZZ-01300, deemed detrimental to safe operation. 2. Confirmed report by local, County or State Officials of potential evacuation of site personnel as determined from the DOT evacuation tables for selected hazardous materials in the DOT Emergency Response Guide for Hazardous Materials. 	<p>J. Release of Toxic or Flammable Gases Within a Facility Structure Which Jeopardizes Operation of Systems Required to Establish or Maintain Cold Shutdown.</p> <p>MODES: At All Times</p> <p><u>Indicators</u> <u>Any</u> of the following:</p> <ol style="list-style-type: none"> 1. Report or detection of toxic or flammable gases, not properly contained, within or <u>adjacent</u> to any of the following Safe Shutdown Areas, that have created a HAZARDOUS ATMOSPHERE per CTP-ZZ-01300, jeopardizing operation of systems required to establish or maintain Cold Shutdown <ul style="list-style-type: none"> • Area 5 • Containment • Aux Feed Pump Rooms • Aux Building • Diesel Generator Building • UHS Cooling Tower • ESW Pumphouse • Control Building • RWST • Fuel Building

Control Room Evacuation Events

<u>ALERT</u>	<u>SITE EMERGENCY</u>
<p>K. Control Room Evacuation Has Been Initiated.</p> <p>MODES: At All Times</p> <p><u>Indicators</u> Entry into OTO-ZZ-00001, Control Room Inaccessibility, is required.</p>	<p>L. Control Room Evacuation Has Been Initiated and Plant Control Cannot Be Established.</p> <p>MODES: At All Times</p> <p><u>Indicators</u></p> <ol style="list-style-type: none"> 1. Entry into OTO-ZZ-00001, Control Room Inaccessibility, is required. <p><u>and</u></p> <ol style="list-style-type: none"> 2. Control of the Aux Feed System and a SG PORV for cooldown cannot be established within 15 minutes.

EMERGENCY ACTION LEVELS

Group 4 SYSTEM MALFUNCTIONS Annunciator Events

UNUSUAL EVENT	ALERT	SITE EMERGENCY
<p>A. Unplanned Loss of Most or All Alarms (Annunciators) for Greater Than 15 Minutes.</p> <p>MODES: 1-4</p> <p>Indicators</p> <p>1. <u>Any</u> of the following:</p> <ul style="list-style-type: none"> a. 3 of 4 field power supplies indicate < 105 volts for greater than 15 minutes (loss of all annunciators) and not a result of planned action. b. Field Power Supply Bus voltage is less than 105 volts for greater than 15 minutes (loss of all annunciators) and not a result of planned action. c. Ten or more logic power supplies have failed for greater than 15 minutes (loss of all annunciators) and not a result of planned action. d. Five or more Multiplexer Adapter Rack Fuses have failed for greater than 15 minutes and not a result of planned action. <p><u>or</u></p> <p>2. <u>All</u> of the following:</p> <ul style="list-style-type: none"> a. Any combination of power supplies (including Optical Isolators) or Multiplexer Adapter Rack Fuses have failed for greater than 15 minutes. b. Any <u>minimum compensatory actions</u>, per OTO-RK-00001, cannot be maintained. c. The loss does not result from planned action. 	<p>B. Unplanned Loss of Most or All Annunciators With Either a Transient In Progress, or the Plant Computer is Unavailable.</p> <p>MODES: 1-4</p> <p>Indicators</p> <p>1. <u>Any</u> of the following:</p> <ul style="list-style-type: none"> a. 3 of 4 field power supplies indicate < 105 volts for greater than 15 minutes (loss of all annunciators) and not a result of planned action. b. Field Power Supply Bus voltage is less than 105 volts for greater than 15 minutes (loss of all annunciators) and not a result of planned action. c. Ten or more logic power supplies have failed for greater than 15 minutes (loss of all annunciators) and not a result of planned action. d. Five or more Multiplexer Adapter Rack Fuses have failed for greater than 15 minutes and not a result of planned action. <p><u>or</u></p> <p>2. <u>All</u> of the following:</p> <ul style="list-style-type: none"> a. Any combination of power supplies (including Optical Isolators) or Multiplexer Adapter Rack Fuses have failed for greater than 15 minutes. b. Any <u>minimum compensatory actions</u>, per OTO-RK-00001, cannot be maintained. c. The loss does not result from planned action. <p><u>and</u></p> <p>3. <u>Any</u> of the following:</p> <ul style="list-style-type: none"> a. A change in reactor power greater than $\pm 10\%$. b. Safety injection initiation. c. Compensatory plant parameters monitored via the plant computer, per OTO-RK-00001, are not valid or cannot be obtained. 	<p>C. Inability to Monitor a Significant Transient in Progress.</p> <p>MODES: 1-4</p> <p>Indicators</p> <p>1. <u>Any</u> of the following:</p> <ul style="list-style-type: none"> a. 3 of 4 field power supplies indicate < 105 volts (loss of all annunciators). b. Field Power Supply Bus voltage is less than 105 volts (loss of all annunciators). c. Ten or more logic power supplies have failed (loss of all annunciators). d. Five or more Multiplexer Adapter Rack Fuses have failed (loss of all annunciators). <p><u>or</u></p> <p>2. <u>All</u> of the following:</p> <ul style="list-style-type: none"> a. Any combination of power supplies (including Optical Isolators) or Multiplexer Adapter Rack Fuses have failed. b. Any <u>minimum compensatory actions</u>, per OTO-RK-00001, cannot be maintained. <p><u>and</u></p> <p>3. <u>Any</u> of the following:</p> <ul style="list-style-type: none"> a. A change in reactor power greater than $\pm 10\%$. b. Safety injection initiation. <p><u>and</u></p> <p>4. Compensatory plant parameters monitored via the plant computer, per OTO-RK-00001, are not valid or cannot be obtained.</p>

EMERGENCY ACTION LEVELS

Group 4 SYSTEM MALFUNCTIONS

Electrical Events (Operating)					Electrical Events (Shutdown)		
<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE EMERGENCY</u>	<u>SITE EMERGENCY</u>	<u>GENERAL EMERGENCY</u>	<u>UNUSUAL EVENT</u>	<u>UNUSUAL EVENT</u>	<u>ALERT</u>
D. Loss of All Offsite Power to Essential Busses for Greater Than 15 Minutes. MODES: 1-4	E. Only One AC Source to Essential Busses for >15 Minutes Such That Any Additional Single Failure Would Result in Station Blackout. MODES: 1-4	F. Loss of All Offsite Power and Loss of All Onsite AC Power to Essential Busses. MODES: 1-4	G. Loss of All Vital DC Power MODES: 1-4	H. Prolonged Loss of All Offsite Power and Prolonged Loss of All Onsite AC Power. MODES: 1-4	I. Loss of Required DC Power During Cold Shutdown or Refueling Mode for Greater Than 15 Minutes. MODES: 5, 6	J. Loss of All Offsite Power to Essential Busses for Greater Than 15 Minutes. MODES: 5,6	K. Loss of All Offsite Power and Loss of All Onsite AC Power to Essential Busses During Cold Shutdown or Refueling. MODES: 5, 6, Defueled
<u>Indicators</u> All of the following: 1. Loss of offsite power to NB01 <u>and</u> NB02. * 2. The loss of offsite power has occurred for >15 minutes.	<u>Indicators</u> 1. Loss of <u>any</u> 3 of the following power sources: a. Offsite power to NB01 * b. Offsite power to NB02 * c. Emergency Diesel NE01 d. Emergency Diesel NE02 <u>and</u> 2. The loss of <u>all</u> 3 has occurred for >15 minutes.	<u>Indicators</u> 1. Loss of <u>all</u> 4 of the following power sources: a. Offsite power to NB01 * b. Offsite power to NB02 * c. Emergency Diesel NE01 d. Emergency Diesel NE02 <u>and</u> 2. The loss of <u>all</u> 4 has occurred for >15 minutes.	<u>Indicators</u> 1. Loss (Bus Voltage < 106.9 VDC) of <u>all</u> 4 of the following busses: a. NK01 b. NK02 c. NK03 d. NK04 <u>and</u> 2. Failure to restore power to at least one DC bus within 15 minutes.	<u>Indicators</u> All of the following: 1. Loss of offsite power to NB01 <u>and</u> NB02. * 2. Loss of both Emergency Diesel Generators NE01 <u>and</u> NE02. 3. a. Restoration of at least one emergency bus within 4 hours is <u>not</u> likely. <u>or</u> b. Meet the entry requirements for FRC.1, Red Path for Core Cooling.	<u>Indicators</u> 1. Loss of Division 1 Vital DC power as indicated by <106.9 VDC on NK01 <u>or</u> NK03. <u>and</u> Loss of Division 2 Vital DC power as indicated by <106.9 VDC NK02 <u>or</u> NK04. <u>and</u> 2. The loss of <u>both</u> Divisions has occurred for >15 minutes.	<u>Indicators</u> 1. Loss of offsite power to NB01 <u>and</u> NB02. * <u>and</u> 2. The loss of offsite power has occurred for >15 minutes.	<u>Indicators</u> 1. Loss of <u>all</u> 4 of the following power sources: a. Offsite power to NB01 * b. Offsite power to NB02 * c. Emergency Diesel NE01 d. Emergency Diesel NE02 <u>and</u> 2. The loss of <u>all</u> 4 has occurred for >15 minutes.

* Note: Supply Breakers opening due to degraded switchyard voltage is considered a Loss of Offsite Power.

EMERGENCY ACTION LEVELS

Group 4 SYSTEM MALFUNCTIONS

Shutdown Capability

UNUSUAL EVENT	ALERT	SITE EMERGENCY	SITE EMERGENCY
<p>L.* Inability to Perform a Required Shutdown Within Technical Specification Limits.</p> <p>MODES: 1-4</p> <p>Indicators</p> <p>1. The plant is not brought to a required operating mode within a Technical Specification LCO action completion time.</p>	<p>M. Inability to Maintain Plant in Cold Shutdown.</p> <p>MODES: 5, 6</p> <p>Indicators</p> <p>1. <u>Any</u> of the following:</p> <ol style="list-style-type: none"> Complete loss of both trains of RHR. Complete loss of both trains of CCW. Complete loss of both trains of ESW. <p><u>and</u></p> <p>2. <u>Either</u> of the following:</p> <ol style="list-style-type: none"> Greater than 200°F on <u>any</u> valid incore thermocouple.* Uncontrolled temperature rise, with no actions available that will likely prevent approaching 200°F on <u>any</u> valid incore thermocouple.* 	<p>N. Loss of Water Level That Has or Will Uncover Fuel in the Reactor Vessel.</p> <p>MODES: 5, 6</p> <p>Indicators</p> <p>1. <u>Any</u> of the following:</p> <ol style="list-style-type: none"> Complete loss of both trains of RHR. Complete loss of both trains of CCW. Complete loss of both trains of ESW. <p><u>and</u></p> <p>2. <u>Either</u> of the following:</p> <ol style="list-style-type: none"> Greater than 200°F on <u>any</u> valid incore thermocouple.* Uncontrolled temperature rise, with no actions available that will likely prevent approaching 200°F on <u>any</u> valid incore thermocouple.* <p><u>and</u></p> <p>3. <ol style="list-style-type: none"> Water level in the reactor vessel is less than 2.0 inches on BB-LI-0053A or B. </p> <p><u>or</u></p> <p>b. RVLIS (pumps off) <55%</p>	<p>O. Complete Loss of Function Needed to Achieve or Maintain Hot Shutdown.</p> <p>MODES: 1-4</p> <p>Indicators</p> <p>1. <u>All</u> of the following:</p> <ol style="list-style-type: none"> Failure to bring the reactor subcritical with the control rods fully inserted. Complete loss of all Boron Injection Flowpaths. <p><u>or</u></p> <p>2. <u>All</u> of the following:</p> <ol style="list-style-type: none"> All steam generator levels <10% wide range. All steam dump valves to condenser (AB UV-34, 35 and 36) are NOT responding to steam header pressure controller (AB PK-507 or AB UK-33). All steam generator steam dump valves to atmosphere are NOT operating properly (AB-PIC-1A, 2A, 3A and 4A). Complete loss of both RHR trains. (A complete loss of ESW or CCW constitutes a complete loss of RHR.) <p><u>or</u></p> <p>3. All of the following:</p> <ol style="list-style-type: none"> The Ultimate Heat Sink (UHS) is inoperable as a result of level or temperature. Complete loss of both UHS Cooling Tower trains.
<p>* It is not intended to declare an Unusual Event due to an unknown condition or failure resulting in exceeding the allowable action statement time. The allowable action statement time is always available from the time of the discovery.</p>	<p>* If a thermocouple is not available, use Wide Range Hot Leg temperature indications:</p> <ul style="list-style-type: none"> BBTI413A - Loop 1 BBTI423A - Loop 2 RECORDERS BBTR413 - Loop 1 BBTR423 - Loop 2 BBTR433 - Loop 3 BBTR443 - Loop 4 	<p>* If a thermocouple is not available, use Wide Range Hot Leg temperature indications:</p> <ul style="list-style-type: none"> BBTI413A - Loop 1 BBTI423A - Loop 2 RECORDERS BBTR413 - Loop 1 BBTR423 - Loop 2 BBTR433 - Loop 3 BBTR443 - Loop 4 	

EMERGENCY ACTION LEVELS**Group 4 SYSTEM MALFUNCTIONS**

Communication Events		RCS/Fuel Events		Reactor Protection System		
<u>UNUSUAL EVENT</u>		<u>UNUSUAL EVENT</u>	<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
P. Unplanned Loss of All Onsite or Offsite Communication Capabilities		Q. Fuel Clad Degradation	R. RCS Leakage	S. Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Trip Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Trip Was Successful.	T. Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Trip Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Trip Was NOT Successful.	U. Failure of the Reactor Protection System to Complete an Automatic Trip and Manual Trip Was NOT Successful and There Is Indication of an Extreme Challenge to the Ability to Cool the Core.
MODES: 1-6		MODES: 1-6	MODES: 1-4	MODES: 1, 2	MODES: 1, 2	MODES: 1, 2
<u>Indicators</u> 1. <u>All</u> of the following on-site systems: a. Complete failure of Plant telephone systems b. Complete failure of Gai-tronics systems c. Complete failure of Plant radios d. Complete failure of Plant Emergency Dedicated Phones. or 2. <u>All</u> of the following offsite systems: a. Complete failure of ENS (Red Phone) line. b. Complete failure of Back Up Radio System (BURS). c. Complete failure of Plant telephone system. d. Complete failure of the Sheriff's radio system. e. Complete failure of the SENTRY notification system.		<u>Indicators</u> 1. <u>Any</u> of the following: a. >1.0 μ Ci/gram Dose Equivalent I-131 for greater than a 48 hour continuous period. b. Dose Equivalent I-131 activity exceeding the limits of Tech Spec Fig. 3.4-1. (ITS Fig. 3.4.16-1) c. >100/E bar μ Ci/gram of gross radioactivity.	<u>Indicators</u> 1. <u>Any</u> of the following: a. Unidentified leakage greater than 10 gpm. b. Pressure boundary leakage greater than 10 gpm. c. Identified leakage greater than 25 gpm.	<u>Indicators</u> 1. <u>All</u> of the following: a. An automatic (not manual) reactor trip setpoint has been exceeded as listed in Attachment 1 of E-0. b. An automatic reactor trip is NOT successful. c. A manual reactor trip <u>IS</u> successful using manual trip switches SB-HS-1 on RL003 <u>OR</u> SB-HS-42 on RL006.	<u>Indicators</u> 1. <u>All</u> of the following: a. An automatic (not manual) reactor trip setpoint has been exceeded as listed in Attachment 1 of E-0. b. An automatic reactor trip is NOT successful. c. A manual reactor trip is NOT successful using manual trip switches SB-HS-1 on RL003 <u>AND</u> SB-HS-42 on RL006. d. Meet the entry requirements for FRC.1 <u>OR</u> FRH.1, red path summaries for core cooling and heat sink.	<u>Indicators</u> 1. <u>All</u> of the following: a. An automatic (not manual) reactor trip setpoint has been exceeded as listed in Attachment 1 of E-0. b. An automatic reactor trip is NOT successful. c. A manual reactor trip is NOT successful using manual trip switches SB-HS-1 on RL003 <u>AND</u> SB-HS-42 on RL006. d. Meet the entry requirements for FRC.1 <u>OR</u> FRH.1, red path summaries for core cooling and heat sink.

EMERGENCY ACTION LEVELS

INDICATORS BASES

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 1 Abnormal Radiation Events**Initiating ConditionEmergency Classification

- A. Any Unplanned Release of Radioactivity to the Environment That Exceeds **2 Times** the Radiological Effluent Control Limits in the ODCM (APA-ZZ-01003) for ≥ 60 minutes.

Unusual Event

MODES: At All Times

Indicators

1. All of the following:
 - a. A valid alarm and reading on any effluent monitor:
 - HB-RE-18 (Channel 186)
 - GT-RE-21B (Channel 213)
 - GT-RE-10B (Channel 103)
 - b. The valid reading is 2 times the Hi Hi alarm setpoint (trip setpoint) value.
 - c. The release cannot be terminated within 60 minutes of the alarm actuation.

OR

2. Both of the following:
 - a. Confirmed sample analysis indicates that a release exceeding 2 times the applicable values of the ODCM (APA-ZZ-01003), has occurred.
 - b. The release cannot be terminated within 60 minutes.

Bases

The Radiological Effluent Control Limits (REC's) used are in the FSAR Chapter 16.

Any Unplanned Release would be any inadvertent or accidental release of radioactive material. An Unplanned Release is also a release via normal pathways without a release permit or proper authorization, or without proper sampling and analysis, or resulting in significant deviation from the requirements of the release permit.

Valid alarms and readings are those verified by the operators to be the results of effluent concentrations. Invalid alarms and readings may be the result of electronic noise, radio frequency interference, electromagnetic frequency interference, or spurious spikes of unknown nature. A buildup of radioactivity within the monitor or an increase in the ambient background for the monitor would also cause an invalid alarm.

The time frame of 60 minutes is used to indicate a definite loss of control. This is also the time used in 10CFR50.72 for a continuing release that would require notification. This loss of control for ≥ 60 minutes is of more significance than the level of release in this EAL.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 1 Abnormal Radiation Events**Initiating ConditionEmergency Classification

B. Any Unplanned Release of Radioactivity to the Environment That Exceeds **200 Times** the Radiological Effluent Control Limits in the ODCM (APA-ZZ-01003) for ≥ 15 minutes.

Alert

MODES: At All Times

Indicators1. All of the following:

- a. A valid alarm and reading on any effluent monitor:
HB-RE-18
GT-RE-21B
GT-RE-10B
- b. The valid reading is 200 times the Hi Hi alarm setpoint (trip setpoint) value.
- c. The release cannot be terminated within 15 minutes of the alarm actuation.

OR

2. Both of the following:

- a. A **Valid reading** on any of the following monitors:
AB-RE-0111 >27 mrem/hr
AB-RE-0112 >27 mrem/hr
AB-RE-0113 >27 mrem/hr
AB-RE-0114 >27 mrem/hr
FC-RE-0385 >150 mrem/hr
- b. The release **cannot** be terminated within 15 minutes.

OR

3. Both of the following:

- a. Confirmed sample analysis indicates that a release exceeding 200 times the applicable values of the ODCM (APA-ZZ-01003), has occurred.
- b. The release cannot be terminated within 15 minutes.

Bases

The Radiological Effluent Control Limits (REC's) used are in the FSAR Chapter 16. The release values for 2.a. are based on average meteorological data and a 1 hour release duration.

This event escalates from the Unusual Event by escalating the magnitude of the release by a factor of 100. The increased level of release is the significant factor in this EAL. The duration is reduced to 15 minutes in recognition of the increased level.

EMERGENCY ACTION LEVEL INDICATORS BASES

Group 1 Abnormal Radiation Events

Initiating Condition

Emergency Classification

- C. **EAB Dose Resulting**
From an Actual or Imminent Release
of Gaseous Radioactivity Exceeds
100 mrem TEDE or 500 mrem CDE
Thyroid for the Actual or Projected
Duration of the Release.

Site Emergency

MODES: At All Times

Indicators

Any of the following:

- *1. A valid reading on the Unit Vent monitor GT-RE-21B indicates
>2.42E+8 μ Ci/sec for 15 minutes or longer.
- *@2. Both of the following:
 - a. A **Valid reading** on any of the following monitors:
 - AB-RE-0111 >146 mrem/hr
 - AB-RE-0112 >146 mrem/hr
 - AB-RE-0113 >146 mrem/hr
 - AB-RE-0114 >146 mrem/hr
 - FC-RE-0385 >850 mrem/hr
 - b. The reading has been, or is expected to be, exceeded for 15 minutes or longer.
3. A valid dose projection indicates >100 mrem TEDE or >500 mrem CDE thyroid dose at, or beyond, the **EXCLUSION AREA BOUNDARY** using in plant rad data or field monitoring team survey results.
4. Field survey results at, or beyond, the EAB corresponding to
>100 mrem/hr TEDE for 1 hour (or expected to continue for 1 hour) or
>500 mrem/hr CDE thyroid for 1 hour of inhalation.

*Declare the event using this indicator only if an actual dose projections, per Indicator 3 cannot be performed within 15 minutes of the monitors exceeding the reading.

@Release values based on average meteorological data and a 1 hour release duration.

Bases

Valid alarms and readings are those verified by the operators to be the results of effluent concentrations. Invalid alarms and readings may be the result of electronic noise, radio frequency interference, electromagnetic frequency interference, or spurious spikes of unknown nature. A buildup of radioactivity within the monitor or an increase in the ambient background for the monitor would also cause an invalid alarm.

The 100 mrem integrated dose in this initiating condition provides a desirable gradient (one order of magnitude) between the Alert, Site Emergency, and General Emergency classes. It is deemed that exposures less than this limit are not consistent with the Site Emergency class description. The 500 mrem integrated thyroid dose was established in consideration of the 1:5 ratio of the EPA Protective Action Guidelines for whole body and thyroid.

The release value for item 1 above, rad monitor GT-RE-21B, is based on average meteorological data and a 1 hour release duration. Actual meteorology should be used whenever possible since it gives the most accurate dose assessment. (**CARS 200104820**)

The release values for 2.a. are based on average meteorological data and a 1 hour release duration. Actual Meteorology should be used whenever possible since it gives the most accurate dose assessment.

Thyroid doses are based upon EPA 400, manual of protective action guides and protective actions for nuclear incidents.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 1 Abnormal Radiation Events**Initiating ConditionEmergency Classification

D. **EAB** Dose Resulting
From an Actual or Imminent
Release of Gaseous Radioactivity
Exceeds **1000 mrem TEDE** or **5000
mrem CDE** Thyroid for the Actual
or Projected Duration of the Release.

General Emergency

MODES: At All Times

Indicators

Any of the following:

- *1. A valid reading on the Unit Vent monitor GT-RE-21B indicates $>2.42E+9$ $\mu\text{Ci/sec}$ for 15 minutes or longer.
- *@2. Both of the following:
 - a. A **Valid reading** on any of the following monitors:
 - AB-RE-0111 >1460 mrem/hr
 - AB-RE-0112 >1460 mrem/hr
 - AB-RE-0113 >1460 mrem/hr
 - AB-RE-0114 >1460 mrem/hr
 - FC-RE-0385 >8500 mrem/hr
 - b. The reading has been, or is expected to be, exceeded for 15 minutes or longer.
- 3. A valid dose projection indicates >1000 mrem TEDE or >5000 mrem CDE thyroid dose at, or beyond, the **EXCLUSION AREA BOUNDARY** using implant rad data or field monitoring team survey results.
- 4. Field survey results at, or beyond, the EAB corresponding to >1000 mrem/hr TEDE for 1 hour (or expected to continue for 1 hour) or >5000 mrem/hr CDE thyroid for 1 hour of inhalation.

*Declare the event using this indicator only if an actual dose projections per Indicator 3 cannot be performed within 15 minutes of the monitors exceeding the reading.

@Release values based on average meteorological data and a 1 hour release duration.

Bases

Valid alarms and readings are those verified by the operators to be the results of effluent concentrations. Invalid alarms and readings may be the result of electronic noise, radio frequency interference, electromagnetic frequency interference, or spurious spikes of unknown nature. A buildup of radioactivity within the monitor or an increase in the ambient background for the monitor would also cause an invalid alarm.

The setpoints in Indicator 1., are 10 times the values calculated for EAL 1C. The 1000 mrem whole body and the 5000 mrem thyroid integrated dose are based on the EPA protective action guidance which indicates that public protective actions are indicated if the dose exceeds 1 rem whole body or 5 rem thyroid. This is consistent with the emergency class description for a General Emergency. This level constitutes the upper level of the desirable gradient for the Site Emergency.

The release value for item 1 above, rad monitor GT-RE-21B, is based on average meteorological data and a 1 hour release duration. Actual meteorology should be used whenever possible since it gives the most accurate dose assessment.

The release values for 2.a. are based on average meteorological data and a 1 hour release duration. Actual Meteorology should be used whenever possible since it gives the most accurate dose assessment.

Thyroid doses are based upon EPA 400, manual of protective action guides and protective actions for nuclear incidents.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 1 Abnormal Radiation Events**Initiating ConditionEmergency Classification

E.* An Unexpected Increase in
Plant Radiation.

Unusual Event

MODES: At All Times

Indicators

Any of the following:

1. Spent Fuel Pool level is decreasing on EC-LI-0039A with Normal makeup being added, and all irradiated fuel assemblies remain covered.
2. Refueling Pool level is decreasing on BB-LI-0053A or B with Normal makeup being added, and all irradiated fuel assemblies remain covered.
3. Any valid (Confirmed by HP survey) ARM (other than a Group 1, G. Safe Shutdown ARM) >1000 times normal. (Normal levels can be considered as the monitor reading prior to the noticed increase.)

*This Initiating Condition is not meant to apply to anticipated temporary increases due to planned events (e.g., incore detector movement, radwaste container movement, depleted resin transfers, upper internal movements, etc.)

Bases

Valid alarms and readings are those verified by the operators to be the results of effluent concentrations. Invalid alarms and readings may be the result of electronic noise, radio frequency interference, electromagnetic frequency interference, or spurious spikes of unknown nature. A buildup of radioactivity within the monitor or an increase in the ambient background for the monitor would also cause an invalid alarm.

All of the above events tend to have long lead times relative to potential for radiological release outside the site boundary, thus impact to public health and safety is very low.

Indicator 3 addresses unplanned increases in in-plant radiation levels that represent a degradation in the control of radioactive material, and represent a potential degradation in the level of safety of the plant.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 1 Abnormal Radiation Events**Initiating ConditionEmergency Classification

F.* Major Damage to Irradiated
Fuel or Loss of Water Level
That Has or Will Result in
the Uncovering of Irradiated
Fuel Outside the Reactor Vessel.

Alert

MODES: At All Times

IndicatorsAny of the following:

1. A **VALID** Hi-Hi Alarm on Fuel Building exhaust monitors GG-RE-27 or 28
2. Containment refueling bridge area radiation monitor (SD-41) >100 mR/hr.
3. Fuel building area radiation monitor (SD-37 or 38) >30 mR/hr.
4. Report of visual observation of loss of water level resulting in irradiated fuel being uncovered.

*This Initiating Condition is not meant to apply to anticipated temporary increases due to planned events (e.g., incore detector movement, radwaste container movement, depleted resin transfers, upper internal movements).

Bases

This Initiating Condition applies to spent fuel requiring water coverage.

NUREG-0818, "Emergency Action Levels for Light Water Reactors," forms the basis for these EALs.

| For indicator 1, the Hi-Hi alarm setpoint is the Tech. Spec. 3.3.8-3 required trip setpoint value. This setpoint is established such that the actual submersion dose rate would not exceed 4 mR/hr in the fuel building. This would be representative of the conditions required for this EAL.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 1 Abnormal Radiation Events**

For Indicator 2:

Containment Dose Rate

The Dose Rate Conversion Factor for this calculation is an EPA 400 based conversion factor. The source term originates from Calc ZZ-341, Rev. 1. See Attachment 3, Page 1 of 4. The Tech Spec (FSAR 16.11.2.4.1.B) concentration of $5 \text{ E-3 } \mu\text{Ci/cc}$ will result in a dose rate of 100 mR/Hr to personnel inside containment.

$$D/R = (\text{CONC}) (\text{DRCF})$$

This corresponds well to the Tech Spec (FSAR 16.11.2.4.2) basis statement that the equivalent dose rate is "approximately 150 mR/Hr." Therefore, a dose rate on SD-41 of >100 mR/Hr would be an indication for declaration of an Alert (currently set to Alarm at 100 mR/Hr to indicate a High Radiation Area).

$D/R > 100 \text{ mR/Hr (ARM SD-41)}$

For Indicator 3:

Fuel Building Dose Rates

The Dose Rate Conversion Factor for this calculation is an EPA 400 based conversion factor. The source term originates from Calc ZZ-341, Rev. 1. See Attachment 3, Page 2 of 4. A concentration of 1.46 E-3 , the Hi-Hi alarm setpoint on GT-RE-27/28 will result in a dose rate of 30 mR/Hr to personnel inside the Fuel Building.

Therefore, a dose rate of >30 mR/Hr on SD-37 or -38 would be an indication for declaration of an Alert (Alarm setpoint is 15 mR/Hr per Tech Spec Table 3.3-6 (FSAR 16.3.3.6) based on criticality monitoring).

$D/R > 30 \text{ mR/Hr (ARM SD-37 or 38)}$
--

Indicator 4, eliminates the need for Spent Fuel Pool & Refueling Pool level indication, as at Callaway indication is not capable of displaying level as low as the top of a fuel assembly.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 1 Abnormal Radiation Events**Initiating ConditionEmergency Classification

G.* Release of Rad Material,
or an Increase in Rad
Level that Either Impedes
Safe Operations or the Ability
to Establish or Maintain
Cold Shutdown.

Alert

MODES: At All Times

Indicators

Any of the following:

1. Valid (confirmed by HP) reading on SD-33 (Control Room) >15 mR/hr.
2. Valid (confirmed by HP) reading on the following Safe Shutdown Area ARMs:

SDRE-26	AB 2026	RHR Hx Area Wall
SDRE-23	AB 2000	RHR Hx Area Corridor
SDRE-15	AB 1974	West Corridor-Central
SDRE-16	AB 1974	West Corridor-South

>1000 times normal (normal levels can be considered as the monitor reading prior to the noticed increase).

*This Initiating Condition is not meant to apply to anticipated temporary increases due to planned events (e.g., incore detector movement, radwaste container movement, depleted resin transfers, upper internal movements, etc.)

Bases

Valid means that a radiation monitor reading has been confirmed by the operators to be correct.

This Initiating Condition addresses increased radiation levels that impede necessary access to operating stations, or other areas containing equipment that must be operated manually, in order to maintain safe operation or perform a safe shutdown. It is this impaired ability to operate the plant that results in the actual or potential substantial degradation of the level of safety of the plant. The cause and/or magnitude of the increase in radiation levels are not a concern of this Initiating Condition. The Emergency Coordinator must consider the source or cause of the increased radiation levels and determine if any other Initiating Condition may be involved. For example, a dose rate of 15 mR/hr in the control room may be a problem in itself. However, the increase may also be indicative of high dose rates in the containment due to a LOCA. In this latter case, a Site Emergency or General Emergency may be indicated by the fission product barrier matrix ICs.

Areas requiring continuous occupancy include the control room. The value of 15 mR/hr is derived from the GDC 19 value of 5 rem in 30 days with adjustment for expected occupancy times. Although Section III.D.3 of NUREG-0737, "Clarification of TMI Action Plan Requirements", provides that the 15 mR/hr value can be averaged over the 30 days, the value is used here without averaging, as a 30 day duration implies an event potentially more significant than an Alert.

For Indicator 2, 1000 times normal represents the factor used in the Unusual Event, however these particular monitors are located in areas of required infrequent access to maintain plant safety functions.

This Initiating Condition is not intended to apply to anticipated temporary increases due to planned events (e.g., incore detector movement, radwaste container movement, depleted resin transfers, etc.)

EMERGENCY ACTION LEVEL INDICATORS BASES

Group 2 Fission Product Barriers

CONTAINMENT BARRIER EALs:

The Containment Barrier includes the containment building, its connections up to and including the outermost containment isolation valves. This barrier also includes the main steam, feedwater, and blowdown line extensions outside the containment building up to and including the outermost secondary side isolation valve.

Loss Indicators

1. Containment Pressure

Rapid unexplained loss of pressure (i.e., not attributable to containment spray or condensation effects) following an initial pressure increase indicates a loss of containment integrity. Containment pressure and sump levels should increase as a result of the mass and energy release into containment from a LOCA. Thus, sump level or pressure not increasing indicates containment bypass and a loss of containment integrity.

2. Containment Isolation Valve Status

This EAL is intended to address incomplete containment isolation that allows a breach of the containment barrier as described above. It represents a loss of the containment barrier. It is not intended to address failures during testing. The existence of an in-line charcoal filter does not stop a release path since the filter is not effective at removing fission noble gases.

3. SG Release With Primary To Secondary Leakage

This EAL addresses SG tube ruptures with secondary side releases to atmosphere including those from the atmospheric steam dump valves (manual or automatic), main steam safety valves and steam supplied to the TDAFW Turbine unless successfully isolated via appropriate isolation valves. For larger breaks **RCS BARRIER** SG Tube Rupture "Loss" or "Potential Loss" EALs would result in an Alert. For SG tube ruptures which may involve multiple steam generators or unisolable secondary line breaks, this EAL would exist in conjunction with **RCS BARRIER** "Loss" EAL 2 and would result in a Site Emergency. Escalation to General Emergency would be based on the addition of a "Loss" or "Potential Loss" of the **FUEL CLAD BARRIER**.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 2 Fission Product Barriers****CONTAINMENT BARRIER EALs (cont):**Potential Loss Indicators4. Critical Safety Function Status

RED path indicates an extreme challenge to the safety function derived from appropriate instrument readings and/or sampling results, and thus represents a potential loss of containment. Conditions leading to a containment RED path result from RCS barrier and/or Fuel Clad Barrier Loss. Thus, this EAL is primarily a discriminator between Site Emergency and General Emergency representing a potential loss of the third barrier.

5. Containment Pressure

The second potential loss EAL represents a potential loss of containment in that the containment heat removal/depressurization system (e.g., containment sprays, but not including containment venting strategies) are either lost or performing in a degraded manner, as indicated by containment pressure greater than the setpoint at which the equipment was suppose to have actuated.

6. Significant Radioactive Inventory in Ctmt

If GT-RE-59 and GT-RE-60 are not available, refer to **HTP-ZZ-07010**, Alternate Method to Obtain CHARMS Reading.

The (>15,000 R/hr) reading is a value, which indicates significant fuel damage well in excess of the EALs associated with both loss of Fuel Clad and loss of RCS Barriers. A major release of radioactivity requiring offsite protective actions from core damage is not possible unless a major failure of fuel cladding allows radioactive material to be released from the core into the reactor coolant. Regardless of whether containment is challenged, this amount of activity in containment, if released, could have such severe consequences that it is prudent to treat this as a potential loss of containment, such that a General Emergency declaration is warranted. NUREG-1228, "Source Estimations During Incident Response to Severe Nuclear Power Plant Accidents," indicates that such conditions do not exist when the amount of clad damage is less than 20%. The radiation monitor reading corresponding to 20% fuel clad damage was calculated using the Westinghouse Owners Group (WOG) "Post Accident Core Damage Assessment Methodology" (CDAM) dated November 1984. This document was approved by the NRC for core damage assessment. Based upon a Containment high Range Area Radiation Monitor (CHARM) reading, a percent clad damage (equivalent to percent noble gas release) can be estimated. Westinghouse makes the assumption that any percent noble gas release requires an equal percent clad damage. Conversely, a Radiation Monitor reading can be produced given the percent clad damage.

7. Core Exit Thermocouples

The condition in this EAL potential loss represents imminent melt sequence which, if not corrected, could lead to vessel failure and an increased potential for containment failure.

8. Radiation Increase Outside Containment

This potential loss indicator represents a loss of the containment barrier by increased radiation levels in areas adjacent to the containment which cannot be explained from leaks outside of the containment barrier.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 2 Fission Product Barriers****CONTAINMENT BARRIER EALs (cont):**

$$R/hr - MWt = \frac{\text{Radiation Monitor Reading (R/hr)} \times \text{CTMT Volume (ft}^3\text{)}}{\text{Plant Power (MWt)} \times 2 \times 10^6 \text{ (ft}^3\text{)}}$$

where:

R/hr - MWt = 5.5 for a 20% noble gas release equivalent to 20% clad failure.

CTMT Volume = $2.5 \times 10^6 \text{ ft}^3$

Plant Power = 3565 MWt

Solving for Radiation Monitor Reading:

$$\begin{aligned} \text{CHARM Reading} &= \frac{5.5(3565 \text{ MWt})(2 \times 10^6 \text{ ft}^3)}{2.5 \times 10^6 \text{ ft}^3} \\ &= 15686 \text{ R/hr} \end{aligned}$$

7. Core Exit Thermocouples

In this EAL, the function restoration procedures are those emergency operating procedures that address the recovery of the core cooling critical safety functions. The procedure is considered effective if the temperature is decreasing or if the vessel water level is increasing.

The conditions in this potential loss EAL represent imminent melt sequence, which, if not corrected, could lead to vessel failure and an increased potential for containment failure. In conjunction with the core exit thermocouple EALs, **RCS BARRIER** indicator 1. and **FUEL CLAD BARRIER** indicator 1., this EAL would result in the declaration of a General Emergency -- loss of two barriers and the potential loss of a third. If the function restoration procedures are ineffective, there is no "success" path.

Several accident analyses (e.g., NUREG--1150) have concluded that function restoration procedures can arrest core degradation within the reactor vessel in a significant fraction of the core damage scenarios, and that the likelihood of containment failure is very small in these events. Given this, it is appropriate to provide a reasonable period to allow function restoration procedures to arrest the core melt sequence. Whether or not the procedures will be effective should be apparent within 15 minutes. The Emergency Coordinator should make the declaration as soon as it is determined that the procedures have been, or will be ineffective.

RCS BARRIER EALs:

The RCS Barrier includes the RCS primary side and its connections up to and including the pressurizer safety and relief valves, and other connections up to and including the primary isolation valves.

EMERGENCY ACTION LEVEL INDICATORS BASES

Group 2 Fission Product Barriers

Loss Indicators

1. RCS Leak Rate

The "Loss" EAL addresses conditions where leakage from the RCS is greater than available inventory control capacity such that a loss of subcooling has occurred. The loss of subcooling is the fundamental indication that the inventory control systems are inadequate in maintaining RCS pressure and inventory against the mass loss through the leak. Safety injection initiated indicates all available inventory control capacity is in service.

2. SG Tube Rupture

This EAL is intended to address the full spectrum of Steam Generator (SG) tube rupture events in conjunction with Containment Barrier "Loss" EAL 3 and Fuel Clad Barrier EALs. The "Loss" EAL addresses ruptured SG(s) with an unisolable Secondary Line Break corresponding to the loss of 2 of 3 fission product barriers (RCS Barrier and Containment Barrier, this EAL will always result in Containment Barrier "Loss" EAL 3). This allows the direct release of radioactive fission and activation products to the environment. Resultant offsite dose rates are a function of many variables. Examples include: Coolant Activity, Actual Leak Rate, SG Carry Over, Iodine Partitioning, and Meteorology. Therefore, dose assessment in accordance with EAL 1D., "Site Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity that Exceeds 1000 mR Whole Body or 5000 mR Thyroid for the Actual or Projected Duration of the Release Using Actual Meteorology", is required when there is indication that the fuel matrix/clad is potentially lost.

Indications are consistent with the diagnostic activities of the Emergency Operating Procedures (EOPs). This includes indication of S/G level increasing uncontrollably, increased secondary radiation levels, and an uncontrolled or complete depressurization of the ruptured SG. Secondary radiation increases are observed via radiation monitoring of Condenser Air Ejector Discharge, SG Blowdown, and SG Sampling System. Determination of the "uncontrolled" depressurization of the ruptured SG should be based on indication that the pressure decrease in the ruptured steam generator is not a function of operator action. This should prevent declaration based on a depressurization that results from an EOP induced cooldown of the RCS that does not involve the prolonged release of contaminated secondary coolant from the affected SG to the environment. This EAL includes unisolable steam breaks, feed breaks, and stuck open safety or relief valves. The manual use of a ruptured SG PORV for cooldown and steam supplied to the TDAPW Turbine also meets this Initiating Condition.

EMERGENCY ACTION LEVEL INDICATORS BASES

Group 2 Fission Product Barriers

RCS BARRIER EALs (cont):

3. Containment Radiation Monitoring

If GT-RE-59 and GT-RE-60 are not available, refer to **HTP-ZZ-07010**, Alternate Method to Obtain CHARMS Reading.

The (6.4 R/hr) reading is a value, which indicates the release of reactor coolant to the containment. The reading was calculated assuming the instantaneous release and dispersal of the reactor coolant noble gas and iodine inventory associated with normal operating concentrations (i.e., within T/S) into the containment atmosphere.

Table 6 of ANSI/ANS-18.1-1984 was used to determine the RCS source term for nominal concentrations of noble gas and iodine radionuclides. A containment radiation level of greater than 6.4 R/Hr on GT-RE-59/60 is used to indicate a loss of RCS barrier fission product barrier. See Attachment 3, Page 3 of 4.

Potential Loss Indicators

4. Critical Safety Function Status

RED path indicates an extreme challenge to the safety function derived from appropriate instrument readings, and these CSFs indicate a potential loss of RCS barrier.

5. RCS Leak Rate

The "Potential Loss" EAL is based on the inability to maintain normal liquid inventory within the Reactor Coolant System (RCS) by normal operation of the Chemical and Volume Control System which is considered as any one of three centrifugal charging pumps discharging to the charging header. In conjunction with the SG Tube Rupture "Potential Loss" EAL this assures that any event that results in significant RCS inventory shrinkage or loss (e.g., events leading to reactor trip and ECCS actuation) will result in no lower than an "Alert" emergency classification. The 50 gpm indicator is based on 1 CCP in service with a 75 gpm letdown orifice in service.

6. SG Tube Rupture

The "Potential Loss" indications are consistent with the diagnostic activities of the Emergency Operating Procedures with indications based on the inability to maintain normal liquid inventory within the Reactor Coolant System (RCS) by normal operation of the Chemical and Volume Control System. This is considered as any one of three centrifugal charging pumps discharging to the charging header. In conjunction with the RCS Leak Rate "Potential Loss" EAL this assures that any event that results in significant RCS inventory shrinkage or loss (e.g., events leading to reactor trip and ECCS actuation) will result in no lower than an "Alert" emergency classification.

EMERGENCY ACTION LEVEL INDICATORS BASES

Group 2 Fission Product Barriers

FUEL CLAD BARRIER EALs:

The Fuel Clad Barrier is the zircalloy tubes that contains the fuel pellets.

Loss Indicators

1. Critical Safety Function Status

RED path indicates an extreme challenge to the safety function. ORANGE path indicates a severe challenge to the safety function.

Core Cooling - RED indicates significant superheating and core uncover and is considered to indicate loss of the Fuel Clad Barrier.

A separate core exit TC value is not used as a loss indicator, as a 1200° TC value is a red path for core cooling and would be a redundant indication.

2. Primary Coolant Activity Level

Assessment by the NUMARC EAL Task Force indicates that this amount of coolant activity is well above that expected for iodine spikes and corresponds to about 2% to 5% fuel clad damage. This amount of clad damage indicates significant clad heating and thus the Fuel Clad Barrier is considered lost.

DEI is determined by Chemistry procedure CTP-ZZ-08100, Post Accident Sampling Guidelines.

3. Containment Radiation Monitoring

If GT-RE-59 and GT-RE-60 are not available, refer to HTP-ZZ-07010, Alternate Method to Obtain CHARMS Reading.

The >2800 R/hr reading is a value which indicates the release of reactor coolant, with elevated activity indicative of fuel damage, into the containment. The reading was calculated assuming the instantaneous release and dispersal of the reactor coolant noble gas and iodine inventory associated with a concentration of 300 µCi/gm dose equivalent I-131 into the containment atmosphere. Reactor coolant concentrations of this magnitude are several times larger than the maximum concentrations (including iodine spiking) allowed within technical specifications and are therefore indicative of fuel damage (approximately 2 - 5% clad failure depending on core inventory and RCS volume). See Attachment 3, Page 4 of 4.

EMERGENCY ACTION LEVEL INDICATORS BASES

Group 2 Fission Product Barriers

FUEL CLAD BARRIER EALs (cont):

Potential Loss Indicators

RED path indicates an extreme challenge to the safety function. ORANGE path indicates a severe challenge to the safety function.

4. Critical Safety Function Status

Core Cooling - ORANGE indicates subcooling has been lost and that some clad damage may occur. Heat Sink - RED indicates the ultimate heat sink function is under extreme challenge and thus these two items indicate potential loss of the Fuel Clad Barrier.

A separate core exit TC value is not used as a potential loss indicator, as a 700° TC value is an orange path for core cooling and would be a redundant indication.

5. Core Exit Thermocouples

The 700° corresponds to a loss of subcooling that will require at least a Core Cooling "ORANGE path".

6. Reactor Vessel Water Level

This level is approximately at the top of the active fuel and corresponds to the Core Cooling "ORANGE path" values.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety**Initiating ConditionEmergency Classification

- A. Confirmed Security Event
Which Indicates a Potential
Degradation in the Level of
Safety of the Plant.

Unusual Event

MODES: At All Times

Indicators

Any of the following:

1. Bomb device discovered within the plant
Protected Area and outside the following
Safe Shutdown Areas:
 - Area 5
 - Containment
 - Aux Feed Pump Rooms
 - Aux Building
 - Diesel Generator Building
 - UHS Cooling Tower
 - ESW Pumphouse
 - Control Building
 - RWST
 - Fuel Building
2. Confirmed report of an attempted entry
or sabotage.
3. A site specific credible security threat.

Bases:

A Security Threat is any event in which there is a reason to believe that a person or persons has threatened to commit or cause, or attempted to commit or cause any of the following.

1. A theft or unlawful diversion of nuclear fuel or spent nuclear fuel from the plant site.
2. Significant physical damage to the plant, its equipment, nuclear fuel, spent nuclear fuel or carrier equipment transporting nuclear fuel or spent nuclear fuel.
3. Interruption of the plant's normal operations through the unauthorized use of, or tampering with, the plant's equipment, machinery, components, controls or security system.
4. Any armed attack of the plant's Protected area.
5. Credible bomb or extortion threat.
6. Confirmed hostage or duress situation at the Callaway Plant.

A confirmed threat is considered credible if notification of the threat has come from the NRC, FBI, or Local Law Enforcement and they consider the threat to be credible or if the threat is deemed credible by the SS/EDO, and the threat is specifically directed at the Callaway Plant.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety**Initiating ConditionEmergency Classification

B. Security Event in the
Plant Protected Area.

Alert

MODES: At All Times

Indicators

Confirmed report of an intrusion by a hostile force into the plant Protected Area.

Bases:

This class of security events represents an escalated threat to plant safety above that contained in the Unusual Event.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety**Initiating ConditionEmergency Classification

C. Security Event in a
Safe Shutdown Area.

Site Emergency

MODES: At All Times

IndicatorAny of the following

1. Bomb device discovered within any of the following areas:
 - Area 5
 - Containment
 - Aux Feed Pump Rooms
 - Aux Building
 - Diesel Generator Building
 - UHS Cooling Tower
 - ESW Pumphouse
 - Control Building
 - RWST
 - Fuel Building
2. Confirmed report of an intrusion by a hostile force into any of the following areas:
 - Area 5
 - Containment
 - Aux Feed Pump Rooms
 - Aux Building
 - Diesel Generator Building
 - UHS Cooling Tower
 - ESW Pumphouse
 - Control Building
 - RWST
 - Fuel Building

Bases:

This class of security events represents an escalated threat to plant safety above that contained in the Alert Initiating Condition in that a hostile force has progressed from the Protected Area to a Safe Shutdown Area. These areas contain Safe Shutdown Systems as defined per the FSAR Appendix 5.4(A).

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety**Initiating ConditionEmergency Classification

- D. Security Event Resulting
in a Loss of the Ability
to Reach and Maintain Cold
Shutdown.

General Emergency

MODES: At All Times

Indicator

Any of the following:

1. Occupation of the Control Room by a hostile force.
2. Occupation of the Aux Shutdown Panel by a hostile force.

Bases:

This Initiating Condition encompasses conditions under which a hostile force has taken physical control of Safe Shutdown areas required to reach and maintain safe shutdown.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety**Initiating ConditionEmergency Classification

E. Fire Within Protected
Area Boundary Not
Extinguished Within
15 Minutes of Verification

Unusual Event

MODES: At All Times

Indicator

1. Fire in or adjacent to any of the following:

- Area 5
- Containment
- Aux Feed Pump Rooms
- Aux Building
- Diesel Generator Building
- UHS Cooling Tower
- ESW Pumphouse
- Control Building
- RWST
- Fuel Building

and

2. Not extinguished within 15 minutes of control room verification of a fire.

Bases:

The purpose of this Initiating Condition is to address the magnitude and extent of fires that may be potentially significant precursors to damage to safety systems. This excludes such times as fires within administration buildings, waste-baskets fires, and other small fires of no safety consequence. This Initiating Condition applies to buildings and areas adjacent to Safe Shutdown areas or other significant buildings or areas. The intent of this Initiating Condition is not to include buildings (i.e., warehouses) or areas that are not immediately adjacent to Safe Shutdown areas. These areas contain Safe Shutdown Systems as defined per the FSAR Appendix 5.4(A). Verification of the alarm in this context means those actions taken in the control room to determine that the control room alarm is not spurious.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety**Initiating ConditionEmergency Classification

F. Fire Affecting the
Operability of Plant
Safety Systems Required
to Establish or Maintain
Safe Shutdown.

Alert

MODES: At All Times

Indicators

1. Fire in any of the following areas:

- Area 5
- Containment
- Aux Feed Pump Rooms
- Aux Building
- Diesel Generator Building
- UHS Cooling Tower
- ESW Pumphouse
- Control Building
- RWST
- Fuel Building

and

2. There is visible damage to permanent structures or equipment,
affecting the operability of safety related equipment.

Bases:

Areas containing functions and systems required for the safe shutdown of the plant are specified per FSAR Appendix 5.4(A).

The inclusion of a "report of visible damage" should not be interpreted as mandating a lengthy damage assessment prior to classification. No attempt is made in this EAL to assess the actual magnitude of the damage. The declaration of an Alert and the activation of the TSC will provide the Emergency Coordinator with the resources needed to perform these damage assessments.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety**Initiating ConditionEmergency Classification

G. Natural and Destructive
Phenomena Affecting the
Protected Area.

Unusual Event

MODES: At All Times

Indicators

Any of the following:

1. a. Response spectrum recorder operating annunciator 98E alarms in the Control Room
and
b. Verified to be a real event per OTO-SG-00001.
2. Report of a turbine rotating component failure resulting in casing penetration or major damage to seals causing a rapid loss of lubricating oil or hydrogen.
3. Explosion, vehicle crash or tornado in or adjacent to any of the following:
 - Area 5
 - Containment
 - Aux Feed Pump Rooms
 - Aux Building
 - Diesel Generator Building
 - UHS Cooling Tower
 - ESW Pumphouse
 - Control Building
 - RWST
 - Fuel Building

Bases:

The Protected Area Boundary is defined in the site security plan.

Indicator 1 was developed on a site-specific basis. Damage may be caused to some portions of the site, but should not affect ability of safety functions to operate. Method of detection is response validated per OTO-SG-00001. As defined in the EPRI-sponsored "Guidelines for Nuclear Plant Response to an Earthquake", dated October 1989, a "felt earthquake" is:

An earthquake of sufficient intensity such that: (a) the vibratory ground motion is felt at the nuclear plant site and recognized as an earthquake based on a consensus of control room operators on duty at the time, and (b) for plants with operable seismic instrumentation, the seismic switches of the plant are activated. For most plants with seismic instrumentation, the seismic switches are set at an acceleration of about 0.01g.

EMERGENCY ACTION LEVEL INDICATORS BASES

Group 3 Hazards Affecting Plant Safety

Indicator 2 is intended to address main turbine rotating component failures of significant magnitude to cause observable damage to the turbine casing or to the seals of the turbine generator. Of major concern is the potential for rapid loss of combustible fluids (lubricating oils) and gases (hydrogen cooling) to the plant environs. This EAL is consistent with the definition of an Unusual Event while maintaining the anticipatory nature desired and recognizing the risk to non-safety related equipment.

In indicator 3 only those events in or adjacent to any area containing Safe Shutdown Systems, should be considered. As used here, an explosion is a rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment, that potentially imparts significant energy to near-by structures and materials. No attempt is made in this EAL to assess the actual magnitude of the damage. The occurrence of the explosion with reports of evidence of damage (e.g., deformation, scorching) is sufficient for declaration.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety**Initiating ConditionEmergency Classification

H. Natural and Destructive
Phenomena Affecting a
Safe Shutdown Area.

Alert

MODES: At All Times

Indicators

Any of the following:

1. a. Operating basis earthquake annunciator 98D alarms in the Control Room
and
b. Earthquake greater than OBE levels (0.12g) in the horizontal and vertical directions as indicated by LIGHT "OSG-AE-1" or LIGHT "OSG-AE-2"
2. a. Report of a tornado, high wind, vehicle crash, explosion, or other natural or destructive phenomena to any of the following Safe Shutdown areas:
 - Area 5
 - Containment
 - Aux Feed Pump Rooms
 - Aux Building
 - Diesel Generator Building
 - UHS Cooling Tower
 - ESW Pumphouse
 - Control Building
 - RWST
 - Fuel Buildingand
b. There is visible damage to permanent structures or equipment, affecting plant operations.

Bases:

Indicator 1 is based on FSAR design basis. Seismic events of this magnitude can cause damage to safety functions.

Indicator 2 specifies areas containing systems and functions required for safe shutdown of the plant per FSAR Appendix 5.4(A). This indicator is intended to address such items as plane or helicopter crash into a plant vital area.

Each of these EALs is intended to address events that may have resulted in a plant vital area being subjected to forces beyond design limits, and thus damage may be assumed to have occurred to plant safety systems. The initial "report" should not be interpreted as mandating a lengthy damage assessment magnitude of the damage. The declaration of an Alert and the activation of the TSC will provide the Emergency Coordinator with the resources needed to perform these damage assessments.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety****Initiating Condition****Emergency Classification**

- I. Release of Toxic or
Flammable Gases Deemed
Detrimental to Safe
Operation of the Plant.

Unusual Event

MODES: At All Times

Indicators**Any of the following:**

1. Report or detection of toxic or flammable gases that enter within the Exclusion Area Boundary, that have created a HAZARDOUS ATMOSPHERE per CTP-ZZ-01300, deemed detrimental to safe operation.
2. Confirmed report by local, County or State Officials of potential evacuation of site personnel as determined from the DOT evacuation tables for selected hazardous materials in the DOT Emergency Response Guide for Hazardous Materials.

Bases:

This Initiating Condition is based on releases in concentrations within the site boundary that will affect the health of plant personnel or affecting the safe operation of the plant with the plant being within the evacuation area of an offsite event (i.e., tanker truck accident releasing toxic gases, etc.) The evacuation area is as determined from the DOT Evacuation Tables for Selected Hazardous Materials, in the DOT Emergency Response Guide for Hazardous Materials.

This EAL does not apply to routine or planned activities such as painting, use of cleaners/solvents, etc., that do not affect safe operation of the Plant.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety****Initiating Condition****Emergency Classification**

J. Release of Toxic or
Flammable Gases Within a
Facility Structure Which
Jeopardizes Operation of
Systems Required to Establish
or Maintain Cold Shutdown.

Alert

MODES: At All Times

Indicators

Any of the following:

1. Report or detection of a toxic or flammable gases, not properly contained, within or adjacent to any of the following Safe Shutdown Areas, that have created a HAZARDOUS ATMOSPHERE per CTP-ZZ-01300, jeopardizing operation of systems required to establish or maintain Cold Shutdown.
 - Area 5
 - Containment
 - Aux Feed Pump Rooms
 - Aux Building
 - Diesel Generator Building
 - UHS Cooling Tower
 - ESW Pumphouse
 - Control Building
 - RWST
 - Fuel Building

Bases:

This Initiating Condition is based on gases that have entered a plant structure affecting the safe operation of the plant. This Initiating Condition applies to Safe Shutdown Areas. The intent of this Initiating Condition is not to include buildings (i.e., warehouses) or other areas that are not immediately adjacent to Safe Shutdown Areas. It is appropriate that increased monitoring be done to ascertain whether consequential damage has occurred.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety**Initiating ConditionEmergency Classification

K. Control Room Evacuation
Has Been Initiated.

Alert

MODES: At All Times

Indicators

Entry into OTO-ZZ-00001, Control Room Inaccessibility, is required.

Bases:

With the control room evacuated, additional support, monitoring and direction through the Technical Support Center and/or other Emergency Operations Center is necessary.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 3 Hazards Affecting Plant Safety**Initiating ConditionEmergency Classification

L. Control Room Evacuation
Has Been Initiated and
Plant Control Cannot Be
Established.

Site Emergency

MODES: At All Times

Indicators

1. Entry into OTO-ZZ-00001, Control Room Inaccessibility is required.

and

2. Control of the Aux Feed System and a SG PORV for cooldown cannot be established within 15 minutes.

Bases:

Expeditious transfer of safety systems has not occurred but fission product barrier damage may not yet be indicated. The time for transfer is based on how quickly control must be reestablished without core uncovering and/or core damage. In cold shutdown and refueling modes, operator concern is directed toward maintaining core cooling such as is discussed in Generic Letter 88-17, "Loss of Decay Heat Removal." In power operation, hot standby, and hot shutdown modes, operator concern is primarily directed toward maintaining critical safety functions and thereby assuring fission product barrier integrity.

The 15 minutes is consistent with Westinghouse Response Plan for Immediate Evacuation of the Control Room Time Study. "Plant cooldown established" per OTO-ZZ-00001 would require Aux feed to be initiated and control of SG Power Operated Relief valves and the Aux feed pumps to be established from the Aux shutdown panel.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

- A. Unplanned Loss of Most
or All Alarms (Annunciators)
for Greater Than 15 Minutes.

Unusual Event

MODES: 1-4

Indicators

1. Any of the following:
 - a. 3 of 4 field power supplies have failed for greater than 15 minutes (loss of all annunciators) and not a result of planned action.
 - b. Field Power Supply voltage is less than 105 volts for greater than 15 minutes (loss of all annunciators) and not a result of planned action.
 - c. Ten or more logic power supplies have failed for greater than 15 minutes (loss of all annunciators) and not a result of planned action.
 - d. Five or more Multiplexer Adapter Rack Fuses have failed for greater than 15 minutes and not a result of planned action.
- or
2. All of the following:
 - a. Any combination of power supplies (including Optical Isolators) or Multiplexer Adapter Rack Fuses have failed for greater than 15 minutes.
 - b. Any minimum compensatory actions, per OTO-RK-00001, cannot be maintained.
 - c. The loss does not result from planned action.

Bases:

This Initiating Condition and its associated EAL are intended to recognize the difficulty associated with monitoring changing plant conditions without the use of a major portion of the annunciation or indication equipment.

Since the system is operating at just over 3 amps, and each power supply is rated for a maximum 3 amps, soon after losing the third power supply the fourth will fail due to overcurrent. Output voltage of the Field Power Supply less than 105 volts indicates that a degraded voltage situation exists. Under this condition, all Field Power Supplies are considered inoperable.

Losing 10 of the 14 logic power supplies is considered losing "Most" annunciators.

| Losing 5 of the 8 annunciator racks is considered losing "Most" of the annunciators.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Due to the limited number of safety systems in operation during cold shutdown, refueling, and defueled modes, no Initiating Condition is indicated during these modes of operation.

This Unusual Event will be escalated to an Alert if a transient is in progress during the loss of annunciation or indication.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

- B. Unplanned Loss of Most or All Annunciators With Either a Transient In Progress, or the Plant Computer is Unavailable.

Alert

MODES: 1-4

Indicators

1. Any of the following:
 - a. 3 of 4 field power supplies have failed for greater than 15 minutes (loss of all annunciators) and not a result of planned action.
 - b. Field Power Supply voltage is less than 105 volts for greater than 15 minutes (loss of all annunciators) and not a result of planned action.
 - c. Ten or more logic power supplies have failed for greater than 15 minutes (loss of all annunciators) and not a result of planned action.
 - d. Five or more Multiplexer Adapter Rack Fuses have failed for greater than 15 minutes and not a result of planned action.
- or
2. All of the following:
 - a. Any combination of power supplies (including Optical Isolators) or Multiplexer Adapter Rack Fuses have failed for greater than 15 minutes.
 - b. Any minimum compensatory actions, per OTO-RK-00001, cannot be maintained.
 - c. The loss does not result from planned action.
- and
3. Any of the following:
 - a. A change in reactor power greater than $\pm 10\%$.
 - b. Safety injection initiation.
 - c. Compensatory plant parameters monitored via the plant computer, per OTO-RK-00001, are not valid or cannot be obtained.

Bases:

This Initiating Condition and its associated EAL are intended to recognize the difficulty associated with monitoring changing plant conditions without the use of a major portion of the annunciation or indication equipment during a transient. Recognition of the availability of computer based indication equipment is considered SPDS, plant computer, etc.)

Since the system is operating at just over 3 amps, and each power supply is rated for a maximum 3 amps, soon after losing the third power supply the fourth will fail due to overcurrent. Output voltage of the Field Power Supply less than 105 volts indicates that a degraded voltage situation exists. Under this condition, all Field Power Supplies are considered inoperable.

Losing 10 of the 14 logic power supplies is considered losing "Most" annunciators.

Losing 5 of the 8 annunciator racks is considered losing "Most" of the annunciators.

"Planned" loss of annunciators or indicators includes scheduled maintenance and testing activities.

If both a major portion of the annunciation system and all computer monitoring are unavailable to the extent that additional operating personnel are required to monitor indications, the Alert is required.

Due to the limited number of safety systems in operation during cold shutdown, refueling and defueled modes. No Initiating Condition is indicated during these modes of operation.

This Alert will be escalated to a Site Emergency if the operating Crew cannot monitor the transient in progress.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

- C. Inability to Monitor a Significant Transient in Progress.

Site Emergency

MODES: 1-4

Indicators

1. Any of the following:
 - a. 3 of 4 field power supplies indicate < 105 volts (loss of all annunciators).
 - b. Field Power Supply voltage is less than 105 volts (loss of all annunciators).
 - c. Ten or more logic power supplies have failed (loss of all annunciators).
 - d. Five or more Multiplexer Adapter Rack Fuses have failed (loss of all annunciators).

or

2. All of the following:
 - a. Any combination of power supplies (including Optical Isolators) or Multiplexer Adapter Rack Fuses have failed.
 - b. Any minimum compensatory actions, per OTO-RK-00001, cannot be maintained.

and

3. Any of the following:
 - a. A change in reactor power greater than ± 10 %.
 - b. Safety injection initiation.

and

4. Compensatory plant parameters monitored via the plant computer, per OTO-RK-00001, are not valid or cannot be obtained.

Bases:

This Initiating Condition and its associated EAL are intended to recognize the inability of the control room staff to monitor the plant response to a transient. A Site Emergency is considered to exist if the control room staff cannot monitor safety functions needed for protection of the public.

Since the system is operating at just over 3 amps, and each power supply is rated for a maximum 3 amps, soon after losing the third power supply the fourth will fail due to overcurrent. Output voltage of the Field Power Supply less than 105 volts indicates that a degraded voltage situation exists. Under this condition, all Field Power Supplies are considered inoperable.

Losing 10 of the 14 logic power supplies is considered losing "Most" annunciators.

| Losing 5 of the 8 annunciator racks is considered losing "Most" of the annunciators.

"Planned" actions are included in this EAL since the loss of instrumentation of this magnitude is of such significance during a transient that the cause of the loss is not important.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

D. Loss of All Offsite Power
to Essential Busses for
Greater Than 15 Minutes.

Unusual Event

MODES: 1-6

Indicators

All of the following:

1. Loss of offsite power to NB01 and NB02.
2. The loss of offsite power has occurred for >15 minutes.

Bases:

Prolonged loss of AC power reduces required redundancy and potentially degrades the level of safety of the plant by rendering the plant more vulnerable to a complete Loss of AC Power (Station Blackout). Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionsEmergency Classification

- E. Only One AC Source to
Essential Busses for
>15 Minutes Such
That Any Additional Single
Failure Would Result In
Station Blackout.

Alert

MODES: 1-4

Indicators

1. Loss of any 3 of the following power sources:
 - a. Offsite power to NB01
 - b. Offsite power to NB02
 - c. Emergency Diesel NE01
 - d. Emergency Diesel NE02
- and
2. The Loss of all 3 has occurred for >15 minutes.

Bases:

The condition indicated by this Initiating Condition is the degradation of the off-site and on-site power systems such that any additional single failure would result in a station blackout. The subsequent loss of this single power source would escalate the event to a Site Emergency after an additional 15 minutes.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

F. Loss of All Offsite
Power and Loss of All
Onsite AC Power to
Essential Busses.

Site Emergency

MODES: 1-4

Indicators

1. Loss of all 4 of the following power sources:

- a. Offsite power to NB01
- b. Offsite power to NB02
- c. Emergency Diesel NE01
- d. Emergency Diesel NE02

and

2. The Loss of all 4 has occurred for >15 minutes.

Bases:

Loss of all AC power compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal and the Ultimate Heat Sink. Prolonged loss of all AC power will cause core uncovering and loss of containment integrity, thus this event can escalate to a General Emergency.

The 15 minutes ensures the loss is other than a transient or momentary power loss.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

G. Loss of All Vital DC
Power

Site Emergency

MODES: 1-4

Indicators

1. Loss (Bus Voltage < 106.9 VDC) of all 4 of the following busses:

- a. NK01
- b. NK02
- c. NK03
- d. NK04

and

2. Failure to restore power to at least one DC bus within 15 minutes.

Bases:

Loss of all DC power compromises ability to monitor and control plant safety functions. Prolonged loss of all DC power will cause core uncovering and loss of containment integrity when there is significant decay heat and sensible heat in the reactor system. Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

H. Prolonged Loss of All
Offsite Power and Prolonged
Loss of All Onsite AC Power.

General Emergency

MODES: 1-4

Indicators

All of the following:

1. Loss of offsite power to NB01 and NB02.
2. Loss of both Emergency Diesel Generators NE01 and NE02.
3. a. Restoration of at least one emergency bus within 4 hours is not likely.
 or
 b. Meet the entry requirements for FRC.1, Red Path for Core Cooling.

Bases:

Loss of all AC power compromises all plant safety systems requiring electric power including RHR, ECCs, Containment Heat Removal and the Ultimate Heat Sink. Prolonged loss of all AC power will lead to loss of fuel clad, RCS, and containment. The 4 hours to restore AC power is based on a site blackout coping analysis FSAR Appendix 8.3A "Station Blackout", performed in conformance with 10 CFR 50.63 and Regulatory Guide 1.155, "Station Blackout".

This Initiating Condition is specified to assure that in the unlikely event of a prolonged station blackout, timely recognition of the seriousness of the event occurs and that declaration of a General Emergency occurs as early as is appropriate, based on a reasonable assessment of the event trajectory.

The likelihood of restoring at least one emergency bus should be based on a realistic appraisal of the situation since a delay in an upgrade decision based on only a chance of mitigating the event could result in a loss of valuable time in preparing and implementing public protective actions. In addition, under these conditions, fission product barrier monitoring capability may be degraded. Although it may be difficult to predict when power can be restored, it is necessary to give the Emergency Coordinator a reasonable idea of how quickly (s)he may need to declare a General Emergency based on two major considerations:

1. Are there any present indications that core cooling is already degraded to the point that Loss or Potential Loss of Fission Product Barriers is IMMINENT?
2. If there are no present indications of such core cooling degradation, how likely is it that power can be restored in time to assure that a loss of two barriers with a potential loss of the third barrier can be prevented?

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

- I. Loss of Required DC Power
During Cold Shutdown or
Refueling Mode for Greater
Than 15 Minutes.

Unusual Event

MODES: 5,6

Indicators

1. Loss of Division 1 Vital DC power as indicated by <106.9 VDC on:
NK01 or NK03
and
Loss of Division 2 Vital DC power as indicated by <106.9 VDC on:
NK02 or NK04.

and

2. Failure to restore power to at least one operable Division of Vital
DC power within 15 minutes.

Bases:

The purpose of this Initiating Condition and its associated EALs is to recognize a loss of DC power compromising the ability to monitor and control the removal of decay heat during Cold Shutdown or Refueling operations. This EAL is intended to be anticipatory in as much as the operating crew may not have necessary indication and control of equipment needed to respond to the loss.

Unplanned was not used in this Initiating Condition and EAL, because as written one Division of Vital DC power can be inoperable for planned maintenance activities. The loss of the remaining operable train would require an Unusual Event. In no instance would maintenance be planned on both divisions.

The 106.9 VDC bus voltage in Indicator 1, is based on the minimum bus voltage necessary for the operation of safety related equipment.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

J. Loss of All Offsite Power
to Essential Busses for
Greater Than 15 Minutes.

Unusual Event

MODES: 5-6

Indicators

All of the following:

1. Loss of offsite power to NB01 and NB02.
2. The loss of offsite power has occurred for >15 minutes.

Bases:

Prolonged loss of AC power reduces required redundancy and potentially degrades the level of safety of the plant by rendering the plant more vulnerable to a complete Loss of AC Power (Station Blackout). Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

- | | | |
|----|--|-------|
| K. | Loss of All Offsite
Power and Loss of All
Onsite AC Power to
Essential Busses During
Cold Shutdown or Refueling. | Alert |
|----|--|-------|

MODES: 5,6, and Defueled

Indicators

1. Loss of all 4 of the following power sources:
 - a. Offsite power to NB01
 - b. Offsite power to NB02
 - c. Emergency Diesel NE01
 - d. Emergency Diesel NE02

and

2. The loss of all 4 has occurred for >15 minutes.

Bases:

Loss of all AC power compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal, Spent Fuel Heat Removal and the Ultimate Heat Sink. When in cold shutdown, refueling, or defueled mode the event can be classified as an Alert, because of the significantly reduced decay heat, lower temperature and pressure, increasing the time to restore one of the emergency busses, relative to that specified for the Site Emergency EAL. Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

L.* Inability to Perform a
Required Shutdown Within
Technical Specification
Limits.

Unusual Event

MODES: 1-4

Indicators

1. The plant is not brought to a required operating mode within a Technical Specification LCO action completion time.

*It is not intended to declare an Unusual Event due to an unknown condition or failure resulting in exceeding the allowable action statement time. The allowable action completion time is always available from the time of discovery.

Bases:

Limiting Conditions of Operation (LCOs) require the plant to be brought to a required shutdown mode when the Technical Specification required configuration cannot be restored. Depending on the circumstances, this may or may not be an emergency or precursor to a more severe condition. In any case, the initiation of plant shutdown required by the site Technical Specifications requires a one hour report fewer than 10 CFR 50.72 (b) Non-emergency events. The plant is within its safety envelope when being shut down within the allowable action completion time in the Technical Specifications. An immediate Notification of an Unusual Event is required when the plant is not brought to the required operating mode within the allowable action completion time in the Technical Specifications.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

M. Inability to Maintain
Plant in Cold Shutdown

Alert

MODES: 5,6

Indicators

1. Any of the following:

- a. Complete loss of both trains of RHR.
- b. Complete loss of both trains of CCW.
- c. Complete loss of both trains of ESW.

and

2. Either of the following:

- a. Greater than 200°F on any valid incore thermocouple.*
- b. Uncontrolled temperature rise, with no actions available that will likely prevent approaching 200°F on any valid incore thermocouple.*

*If a thermocouple is not available, use Wide Range Hot Leg temperature indications:

- BBTI413A - Loop 1
- BBTI423A - Loop 2
- RECORDERS
- BBTR413 - Loop 1
- BBTR423 - Loop 2
- BBTR433 - Loop 3
- BBTR443 - Loop 4

Bases:

Indicators 1 and 2 indicate a complete loss of Technical Specification required functions to maintain Cold Shutdown.

For PWRs, this Initiating Condition and its associated EAL are based on concerns raised by Generic Letter 88-17, "Loss of Decay Heat Removal." A number of phenomena such as pressurization, vortexing, steam generator U-tube draining, RCS level differences when operating at a mid-loop condition, decay heat removal system design, and level instrumentation problems can lead to conditions where decay heat removal is lost and core uncover can occur. NRC analyses show that sequences that can cause core uncover in 15 to 20 minutes and severe core damage within an hour after decay heat removal is lost. Under these conditions, RCS integrity is lost and fuel clad integrity is lost or potentially lost, which is consistent with a Site Emergency.

"Uncontrolled" means that system temperature increase is not the result of planned actions by the plant staff. The intent is to declare the ALERT when less than 200°F, only when temperature is increasing and it is known that there is not time to take action to stop the temp from exceeding 200°F.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

N. Loss of Water Level That
Has or Will Uncover Fuel
in the Reactor Vessel.

Site Emergency

MODES: 5, 6

Indicators

1. Any of the following:

- a. Complete loss of both trains of RHR.
- b. Complete loss of both trains of CCW.
- c. Complete loss of both trains of ESW.

and

2. Either of the following:

- a. Greater than 200°F on any valid incore thermocouple.*
- b. Uncontrolled temperature rise, with no actions available that will likely prevent approaching 200°F on any valid incore thermocouple.*

and

3. a. Water level in the reactor vessel is less than 2.0 inches on BB-LI-0053A or B.

or

b. RVLIS (pumps off) <55%.

*If a thermocouple is not available, use Wide Range Hot Leg temperature indications:

- BBTI413A - Loop 1
- BBTI423A - Loop 2
- RECORDERS
 - BBTR413 - Loop 1
 - BBTR423 - Loop 2
 - BBTR433 - Loop 3
 - BBTR443 - Loop 4

Bases:

Under the conditions specified by this Initiating Condition, severe core damage can occur and reactor coolant system pressure boundary integrity may not be assured.

For indicator 3.a. 2.0 inches is used as the lowest readable level on the instruments within their accuracy. For indicator 3.b. RVLIS (pumps off) is used. If a Reactor Coolant pump is running, void fraction rather than core water level would have to be considered.

This Initiating Condition covers sequences such as prolonged boiling following loss of decay heat removal. Thus, declaration of a Site Emergency is warranted under the conditions specified by the Initiating Condition. Escalation to a general emergency is via radiological effluence.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

- O. Complete Loss of Function
Needed to Achieve or
Maintain Hot Shutdown.

Site Emergency

MODES: 1-4

Indicators

1. All of the following:

- a. Failure to bring the reactor subcritical with the control rods fully inserted.
- b. Complete loss of all Boron Injection Flowpaths.

or

2. All of the following:

- a. All steam generator levels <10% wide range.
- b. All steam dump valves to condenser (ABUV34, 35, and 36) are NOT responding to steam header pressure controller (AB PK507 or AB UK-33).
- c. All steam generator steam dump valves to atmosphere are NOT operating properly (AB-PIC-1A, 2A, 3A, and 4A).
- d. Complete loss of both RHR trains. (A complete loss of ESW or CCW constitutes a complete loss of RHR.)

or

3. All of the following:

- a. The Ultimate Heat Sink (UHS) is inoperable as a result of level or temperature.
- b. Complete loss of both UHS Cooling Tower trains.

Bases:

This EAL addresses complete loss of functions, including ultimate heat sink and reactivity control, required for hot shutdown with the reactor at pressure and temperature. Under these conditions, there is an actual major failure of a system intended for protection of the public. Thus, declaration of a Site Emergency is warranted.

Indicator 1. a., control rods, defines the inability to shutdown the reactor normally.

Indicator 1.b., defines the inability to add boric acid to the RCS. A complete loss of Boron Injection is defined as a loss of the required FSAR 16.1.2.2 Boron Injection flowpath(s).

Indicator 2 indicates a complete loss of Heat Sink.

Indicator 3 indicates a complete loss of the Ultimate Heat Sink.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

P. Unplanned Loss of All
Onsite or Offsite
Communication Capabilities

Unusual Event

MODES: 1-6

Indicators

1. All of the following on-site systems:

- a. Complete failure of Plant telephone systems.
- b. Complete failure of Gai-tronics systems.
- c. Complete failure of Plant radios.
- d. Complete failure of Plant Emergency Dedicated Phones.

or

2. All of the following offsite systems:

- a. Complete failure of ENS (Red Phone) line.
- b. Complete failure of Back Up Radio System (BURS).
- c. Complete failure of Plant telephone system.
- d. Complete failure of the Sheriff's radio system.
- e. Complete failure of the Sentry notification system.

Bases:

The purpose of this Initiating Condition and its associated EALs is to recognize a loss of communications capability that either defeats the plant operations staff ability to perform routine tasks necessary for plant operations or the ability to communicate problems with offsite authorities. The loss of offsite communications ability is expected to be significantly more comprehensive than the condition addressed by 10 CFR 50.72.

Indicator 1, encompasses the total loss of all means of routine communications.

Indicator 2, encompasses the loss of all means of communications with offsite authorities.

This EAL is intended to be used only when extraordinary means are being utilized to make communications possible (relaying of information from radio transmissions, individuals being sent to offsite locations, etc.)

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

Q. Fuel Clad Degradation

Unusual Event

MODES: 1-6

Indicators1. Any of the following:

- a. >1.0 $\mu\text{Ci}/\text{gram}$ Dose Equivalent I-131 for greater than a 48 hour continuous period.
- b. Dose Equivalent I-131 activity exceeding the limits of Tech Spec Fig. 3.4.16-1.
- c. >100/E bar $\mu\text{Ci}/\text{gram}$ of gross radioactivity.

Bases:

This Initiating Condition is included as an Unusual Event because it is considered to be a potential degradation in the level of safety of the plant and a potential precursor of more serious problems.

Indicators 1, 2 and 3 are Technical Specification 3.4.16 limits.

The Alert alarm for the Chemical and Volume Control System Letdown Monitor (Failed Fuel Monitor) SJ-RE-01 was not used as an indicator for high coolant activity. If the monitor alarms, our procedures require sampling to confirm hi activity. Listing it as an indicator duplicates the other indicators.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

R. RCS Leakage

Unusual Event

MODES: 1-4

Indicators

1. Any of the following:
 - a. Unidentified leakage greater than 10 gpm.
 - b. Pressure boundary leakage greater than 10 gpm.
 - c. Identified leakage greater than 25 gpm.

Bases:

This Initiating Condition is included as an Unusual Event because it may be a precursor of more serious conditions and, as result, is considered to be a potential degradation of the level of safety of the plant. The 10 gpm value for the unidentified and pressure boundary leakage was selected as it is observable with normal control room indications. Lesser values must generally be determined through time-consuming surveillance tests (e.g., mass balances). The EAL for identified leakage is set at a higher value due to the lesser significance of identified leakage in comparison to unidentified or pressure boundary leakage.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

S. Failure of Reactor
Protection System
Instrumentation to Complete
or Initiate an Automatic
Reactor Trip Once a Reactor
Protection System Setpoint
Has Been Exceeded AND Manual
Trip Was Successful.

Alert

MODES: 1,2

Indicators

1. All of the following:
 - a. An automatic (not manual) reactor trip setpoint has been exceeded as listed in Attachment 1 of E-0.
 - b. An automatic reactor trip is NOT successful.
 - c. A manual reactor trip IS successful using manual trip switches SB-HS-1 on RL003 OR SB-HS-42 on RL006.

Bases:

This condition indicates failure of the automatic protection system to trip the reactor. This condition is more than a potential degradation of a safety system in that a front line automatic protection system did not function in response to a plant transient and thus the plant safety has been compromised, and design limits of the fuel may have been exceeded. An Alert is indicated because conditions exist that lead to potential loss of fuel clad or RCS. A reactor protection system setpoint being exceeded (rather than limiting safety system setpoint being exceeded) is specified here because failure of the automatic protection system is the issue.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

T. Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Trip Once a Reactor Protection System Setpoint Has Been Exceeded AND Manual Trip Was NOT Successful.

Site Emergency

MODES: 1, 2

Indicators

1. All of the following:

- a. An automatic (not manual) reactor trip setpoint has been exceeded as listed in Attachment 1 of E-0.
- b. An automatic reactor trip is NOT successful.
- c. A manual reactor trip is NOT successful using manual trip switches SB-HS-1 on RL003 AND SB-HS-42 on RL006.

Bases:

Automatic and manual trip are not considered successful if action away from the reactor control console was required to trip the reactor.

Under these conditions, the reactor may produce more heat than the maximum decay heat load for which the safety systems are designed.

A Site Emergency is indicated because conditions exist that may lead to imminent loss or potential loss of both fuel clad and RCS. Although this Initiating Condition may be viewed as redundant to the Fission Product Barrier Degradation Initiating Condition, its inclusion is necessary to better assure timely recognition and emergency response.

EMERGENCY ACTION LEVEL INDICATORS BASES**Group 4 System Malfunctions**Initiating ConditionEmergency Classification

U. Failure of the Reactor Protection System to Complete an Automatic Trip AND Manual Trip Was NOT Successful AND There is Indication of an Extreme Challenge to the Ability to Cool the Core.

General Emergency

MODES: 1, 2

Indicators

1. All of the following:
 - a. An automatic (not manual) reactor trip setpoint has been exceeded as listed in Attachment 1 of E-0.
 - b. An automatic reactor trip is NOT successful.
 - c. A manual reactor trip is NOT successful using manual trip switches SB-HS-1 on RL003 AND SB-HS-42 on RL006.
 - d. Meet the entry requirements for FRC.1 OR FRH.1, red path summaries for core cooling or heat sink.

Bases:

Automatic and manual trip are not considered successful if action away from the reactor control console is required to scram the reactor.

Under the conditions of this Initiating Condition and its associated EALs, efforts to bring the reactor subcritical have been unsuccessful and, as a result, the reactor is producing more heat than the maximum decay heat load for which the safety systems were designed. Although there are capabilities away from the reactor control console, such as emergency boration, the continuing temperature rise indicates that these capabilities are not effective. This situation could be a precursor for a core melt sequence.

The entry requirements for FRC.1 indicate an extreme challenge to the ability to cool the core. The entry requirements for FRH.1 indicate a extreme challenge to the ability to initially remove heat during the early stages of this sequence.

In the event either of these challenges exist at a time that the reactor has not been brought below the power associated with the safety system design (typically 3 to 5% power) a core melt sequence exists. In this situation, core degradation can occur rapidly. For this reason, the General Emergency declaration is intended to be anticipatory of the fission product barrier matrix declaration to permit maximum off-site intervention time.

Containment ARM Dose Rate for Abnormal Radiation Events**FHA-RB**

ISO TO PE	Source Term from calc ZZ-341 rev1 (Ci)	Iodine Filter Correction Factor* (unitless)	Corrected for pre-filtration (Ci)	PERCENT OF TOTAL in Cont. Dec. equiv.	EPA-400 EDE Table 5-3 Dose Conversion FACTOR (rem-cm3/uCi-Hr)	Weighted Dose Conversion FACTOR (rem-cm3/uCi-Hr)	Unit correction factor (mr/rem)	Weighted Dose Conversion FACTOR (mr-cm3/uCi-Hr)	Tech Spec value for Cont. Conc (uCi/cc)	Dose Rate equivalent to Tech Spec value of 5.0E-3 uCi/cc (mR/hr)**
Kr-83m	0.00E+00	1	0.00E+00	0.000	0.00E+00	0.00E+00	1.00E+03	0.00E+00	5.00E-03	0.00E+00
Kr-85	2.46E+02	1	2.46E+02	0.019	1.30E+00	2.42E-02	1.00E+03	2.42E+01	5.00E-03	1.21E-01
Kr-85m	0.00E+00	1	0.00E+00	0.000	9.30E+01	0.00E+00	1.00E+03	0.00E+00	5.00E-03	0.00E+00
Kr-87	0.00E+00	1	0.00E+00	0.000	5.10E+02	0.00E+00	1.00E+03	0.00E+00	5.00E-03	0.00E+00
Kr-88	0.00E+00	1	0.00E+00	0.000	1.30E+03	0.00E+00	1.00E+03	0.00E+00	5.00E-03	0.00E+00
Kr-89	0.00E+00	1	0.00E+00	0.000	1.20E+03	0.00E+00	1.00E+03	0.00E+00	5.00E-03	0.00E+00
I-131	1.29E-01	100	1.29E+01	0.001	2.20E+02	2.15E-01	1.00E+03	2.15E+02	5.00E-03	1.07E+00
Xe-131m	9.75E+01	1	9.75E+01	0.007	4.90E+00	3.61E-02	1.00E+03	3.61E+01	5.00E-03	1.81E-01
I-132	1.09E-01	100	1.09E+01	0.001	1.40E+03	1.15E+00	1.00E+03	1.15E+03	5.00E-03	5.77E+00
I-133	1.36E-02	100	1.36E+00	0.000	3.50E+02	3.60E-02	1.00E+03	3.60E+01	5.00E-03	1.80E-01
Xe-133	1.26E+04	1	1.26E+04	0.952	2.00E+01	1.90E+01	1.00E+03	1.90E+04	5.00E-03	9.52E+01
Xe-133m	2.38E+02	1	2.38E+02	0.018	1.70E+01	3.06E-01	1.00E+03	3.06E+02	5.00E-03	1.53E+00
I-134	0.00E+00	100	0.00E+00	0.000	1.60E+03	0.00E+00	1.00E+03	0.00E+00	5.00E-03	0.00E+00
I-135	9.71E-06	100	9.71E-04	0.000	9.50E+02	6.97E-05	1.00E+03	6.97E-02	5.00E-03	3.49E-04
Xe-135	2.31E+01	1	2.31E+01	0.002	1.40E+02	2.44E-01	1.00E+03	2.44E+02	5.00E-03	1.22E+00
Xe-135m	7.79E-02	1	7.79E-02	0.000	2.50E+02	1.47E-03	1.00E+03	1.47E+00	5.00E-03	7.36E-03
Xe-138	0.00E+00	1	0.00E+00	0.000	7.10E+02	0.00E+00	1.00E+03	0.00E+00	5.00E-03	0.00E+00
TOTALS			1.32E+04	1.000				2.11E+04		1.05E+02

* The source term in calc zz-341, rev1 is a post filter source term based on a 99% iodine removal efficiency. Since the EAL dose rate is for the atmosphere within containment (upstream of the filter), the removed portions of the iodine had to be refactored back into the equation.

** Assumes 1mr/hr=1mR/hr

Fuel Bldg ARM Dose Rate for Abnormal Radiation Events**FHA-FB**

ISO TO PE	Source Term from calc ZZ-341 rev1 (Ci)	Iodine Filter Correction Factor* (unitless)	Corrected for pre-filtration (Ci)	PERCENT OF TOTAL in FB Dec. equiv.	EPA-400 EDE Table 5-3 Dose Conversion FACTOR (rem-cm3/uCi-Hr)	Weighted Dose Conversion FACTOR (rem-cm3/uCi-Hr)	Unit correction factor (mr/rem)	Weighted Dose Conversion FACTOR (mr-cm3/uCi-Hr)	Hi-Hi alarm setpoint on GT-RE-27/28 (uCi/cc)	Dose Rate equivalent to Hi-Hi alarm on GT-RE-27/28 (mR/hr)**
Kr-83m	0.00E+00	1	0.00E+00	0.000	0.00E+00	0.00E+00	1.00E+03	0.00E+00	1.46E-03	0.00E+00
Kr-85	5.89E+02	1	5.89E+02	0.019	1.30E+00	2.41E-02	1.00E+03	2.41E+01	1.46E-03	3.53E-02
Kr-85m	0.00E+00	1	0.00E+00	0.000	9.30E+01	0.00E+00	1.00E+03	0.00E+00	1.46E-03	0.00E+00
Kr-87	0.00E+00	1	0.00E+00	0.000	5.10E+02	0.00E+00	1.00E+03	0.00E+00	1.46E-03	0.00E+00
Kr-88	0.00E+00	1	0.00E+00	0.000	1.30E+03	0.00E+00	1.00E+03	0.00E+00	1.46E-03	0.00E+00
Kr-89	0.00E+00	1	0.00E+00	0.000	1.20E+03	0.00E+00	1.00E+03	0.00E+00	1.46E-03	0.00E+00
I-131	3.33E-01	100	3.33E+01	0.001	2.20E+02	2.31E-01	1.00E+03	2.31E+02	1.46E-03	3.37E-01
Xe-131m	2.34E+02	1	2.34E+02	0.007	4.90E+00	3.62E-02	1.00E+03	3.62E+01	1.46E-03	5.28E-02
I-132	2.82E-01	100	2.82E+01	0.001	1.40E+03	1.24E+00	1.00E+03	1.24E+03	1.46E-03	1.82E+00
I-133	3.52E-02	100	3.52E+00	0.000	3.50E+02	3.88E-02	1.00E+03	3.88E+01	1.46E-03	5.67E-02
Xe-133	3.02E+04	1	3.02E+04	0.952	2.00E+01	1.90E+01	1.00E+03	1.90E+04	1.46E-03	2.78E+01
Xe-133m	5.70E+02	1	5.70E+02	0.018	1.70E+01	3.06E-01	1.00E+03	3.06E+02	1.46E-03	4.46E-01
I-134	0.00E+00	100	0.00E+00	0.000	1.60E+03	0.00E+00	1.00E+03	0.00E+00	1.46E-03	0.00E+00
I-135	2.51E-05	100	2.51E-03	0.000	9.50E+02	7.52E-05	1.00E+03	7.52E-02	1.46E-03	1.10E-04
Xe-135	5.55E+01	1	5.55E+01	0.002	1.40E+02	2.45E-01	1.00E+03	2.45E+02	1.46E-03	3.58E-01
Xe-135m	1.87E-01	1	1.87E-01	0.000	2.50E+02	1.47E-03	1.00E+03	1.47E+00	1.46E-03	2.15E-03
Xe-138	0.00E+00	1	0.00E+00	0.000	7.10E+02	0.00E+00	1.00E+03	0.00E+00	1.46E-03	0.00E+00
TOTALS			3.17E+04	1.000				2.12E+04		3.09E+01

* The source term in calc zz-341, rev1 is a post filter source term based on a 99% iodine removal efficiency. Since the EAL dose rate is for the atmosphere within the fuel building (upstream of the filter), the removed portions of the iodine had to be refactored back into the equation.

**Assumes 1mR=1mr

Containment ARM Dose Rate for RCS Barrier EAL

ISO TOPE	RCS Source Term Normal concentration ANS-18.1, 1984 (uCi/gm)	Unit Conversion Factor (gm/cc)*	Source Term ANS-18.1, 1984 corrected for units (uCi/cc)	RCS Volume (cc)	Total activity Dispersed within the RCS (uCi)	Containment Volume (cc)	Concentration of activity dispersed into Containment (uCi/cc)	EPA-400 EDE Table 5-3 Dose Conversion FACTOR (rem-cm ³ /uCi-Hr)	Dose Rate (R/hr)**
Kr-85	4.30E-01	6.92E-01	2.98E-01	3.46E+08	1.03E+08	7.08E+10	1.45E-03	1.30E+00	1.89E-03
Kr-85m	1.60E-01	6.92E-01	1.11E-01	3.46E+08	3.83E+07	7.08E+10	5.41E-04	9.30E+01	5.03E-02
Kr-87	1.50E-01	6.92E-01	1.04E-01	3.46E+08	3.59E+07	7.08E+10	5.07E-04	5.10E+02	2.59E-01
Kr-88	2.80E-01	6.92E-01	1.94E-01	3.46E+08	6.70E+07	7.08E+10	9.47E-04	1.30E+03	1.23E+00
I-131	4.50E-02	6.92E-01	3.11E-02	3.46E+08	1.08E+07	7.08E+10	1.52E-04	2.20E+02	3.35E-02
Xe-131m	7.30E-01	6.92E-01	5.05E-01	3.46E+08	1.75E+08	7.08E+10	2.47E-03	4.90E+00	1.21E-02
I-132	2.10E-01	6.92E-01	1.45E-01	3.46E+08	5.03E+07	7.08E+10	7.10E-04	1.40E+03	9.94E-01
I-133	1.40E-01	6.92E-01	9.69E-02	3.46E+08	3.35E+07	7.08E+10	4.73E-04	3.50E+02	1.66E-01
Xe-133	2.60E+00	6.92E-01	1.80E+00	3.46E+08	6.23E+08	7.08E+10	8.79E-03	2.00E+01	1.76E-01
Xe-133m	7.00E-02	6.92E-01	4.84E-02	3.46E+08	1.68E+07	7.08E+10	2.37E-04	1.70E+01	4.02E-03
I-134	3.40E-01	6.92E-01	2.35E-01	3.46E+08	8.14E+07	7.08E+10	1.15E-03	1.60E+03	1.84E+00
I-135	2.60E-01	6.92E-01	1.80E-01	3.46E+08	6.23E+07	7.08E+10	8.79E-04	9.50E+02	8.35E-01
Xe-135	8.50E-01	6.92E-01	5.88E-01	3.46E+08	2.04E+08	7.08E+10	2.87E-03	1.40E+02	4.02E-01
Xe-135m	1.30E-01	6.92E-01	9.00E-02	3.46E+08	3.11E+07	7.08E+10	4.40E-04	2.50E+02	1.10E-01
Xe-137	3.40E-02	6.92E-01	2.35E-02	3.46E+08	8.14E+06	7.08E+10	1.15E-04	1.10E+02	1.26E-02
Xe-138	1.20E-01	6.92E-01	8.30E-02	3.46E+08	2.87E+07	7.08E+10	4.06E-04	7.10E+02	2.88E-01
									6.42E+00

*ANS-18.1 units are in uCi/gm. Assuming an average temperature of 600 degrees F and 2250 psi, 1uCi/gm= 0.692 uCi/cc.
Keenan & Keys Steam Tables 1970

**Assumes 1 R = 1 Rem.

Containment ARM Dose Rate for Fuel Clad Barrier EAL

ISOTOPE	Source Term 1% failed fuel from FSAR Table 11.1-5 (uCi/gm)	DE-131 Factor TID-14844 (unitless)	Converted to DE-131 Iodines only (uCi/gm)	Source Term equivalent to 300 uCi/gm DE-131* (uCi/gm)	Mass of RCS FSAR table 11.1A-1 (gm)	Total activity Dispersed within the RCS (uCi)	Containment Volume (cc)	Concentration of activity dispersed into Containment (uCi/cc)	EPA-400 EDE Table 5-3 Dose Conversion FACTOR (rem-cm ³ /uCi-Hr)	Dose Rate (R/hr)**
Kr-83m	1.82E-01	0	0.00E+00	1.67E+01	2.40E+08	4.00E+09	7.08E+10	5.65E-02	0.00E+00	0.00E+00
Kr-85	6.70E-02	0	0.00E+00	6.14E+00	2.40E+08	1.47E+09	7.08E+10	2.08E-02	1.30E+00	2.70E-02
Kr-85m	9.00E-01	0	0.00E+00	8.24E+01	2.40E+08	1.98E+10	7.08E+10	2.79E-01	9.30E+01	2.60E+01
Kr-87	5.27E-01	0	0.00E+00	4.83E+01	2.40E+08	1.16E+10	7.08E+10	1.64E-01	5.10E+02	8.35E+01
Kr-88	1.69E+00	0	0.00E+00	1.55E+02	2.40E+08	3.72E+10	7.08E+10	5.25E-01	1.30E+03	6.82E+02
Kr-89	4.53E-02	0	0.00E+00	4.15E+00	2.40E+08	9.96E+08	7.08E+10	1.41E-02	1.20E+03	1.69E+01
I-131	2.25E+00	1.000	2.25E+00	2.06E+02	2.40E+08	4.95E+10	7.08E+10	6.99E-01	2.20E+02	1.54E+02
Xe-131m	1.59E-01	0	0.00E+00	1.46E+01	2.40E+08	3.50E+09	7.08E+10	4.94E-02	4.90E+00	2.42E-01
I-132	8.33E-01	0.036	3.00E-02	7.63E+01	2.40E+08	1.83E+10	7.08E+10	2.59E-01	1.40E+03	3.62E+02
I-133	3.17E+00	0.270	8.56E-01	2.90E+02	2.40E+08	6.97E+10	7.08E+10	9.84E-01	3.50E+02	3.44E+02
Xe-133	4.33E+01	0	0.00E+00	3.97E+03	2.40E+08	9.52E+11	7.08E+10	1.34E+01	2.00E+01	2.69E+02
Xe-133m	8.67E-01	0	0.00E+00	7.94E+01	2.40E+08	1.91E+10	7.08E+10	2.69E-01	1.70E+01	4.58E+00
I-134	3.92E-01	0.017	6.66E-03	3.59E+01	2.40E+08	8.62E+09	7.08E+10	1.22E-01	1.60E+03	1.95E+02
I-135	1.58E+00	0.084	1.33E-01	1.45E+02	2.40E+08	3.47E+10	7.08E+10	4.91E-01	9.50E+02	4.66E+02
Xe-135	2.58E+00	0	0.00E+00	2.36E+02	2.40E+08	5.67E+10	7.08E+10	8.01E-01	1.40E+02	1.12E+02
Xe-135m	1.18E-01	0	0.00E+00	1.08E+01	2.40E+08	2.59E+09	7.08E+10	3.66E-02	2.50E+02	9.16E+00
Xe-137	8.15E-02	0	0.00E+00	7.47E+00	2.40E+08	1.79E+09	7.08E+10	2.53E-02	1.10E+02	2.78E+00
Xe-138	3.96E-01	0	0.00E+00	3.63E+01	2.40E+08	8.71E+09	7.08E+10	1.23E-01	7.10E+02	8.73E+01
Total DE-131 3.28E+00										2.81E+03

* Multiply the Source term in column 2 by 300/3.28 total for I-131 DE .

**Assumes 1 R = 1 Rem.

CALLAWAY PLANT
EMERGENCY PLAN IMPLEMENTING PROCEDURE

EIP-ZZ-00102

EMERGENCY IMPLEMENTING ACTIONS

RESPONSIBLE DEPARTMENT EMERGENCY PREPAREDNESS

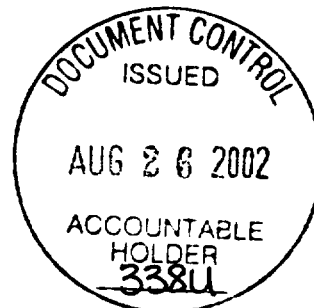
PROCEDURE OWNER W. R. Bevard

WRITTEN BY W. R. Bevard

PREPARED BY W. R. Bevard

APPROVED BY Warren A. Smith

DATE ISSUED 8-26-02



This procedure contains the following:

Pages	<u>1</u>	through	<u>6</u>
Attachments	<u>1</u>	through	<u>5</u>
Tables	<u> </u>	through	<u> </u>
Figures	<u> </u>	through	<u> </u>
Appendices	<u> </u>	through	<u> </u>
Checkoff Lists	<u> </u>	through	<u> </u>

This procedure has checkoff list(s) maintained in the mainframe computer.

Conversion of commitments to TRS reference/hidden text completed by Revision Number:

Non-T/S Commitments 019

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EMERGENCY IMPLEMENTING ACTIONS

1 PURPOSE AND SCOPE

- 1.1 This procedure provides guidance to the Emergency Coordinator for implementing emergency actions when an emergency has been classified or reclassified per **EIP-ZZ-00101**, Classification of Emergencies. (COMN 3312)

2 DEFINITIONS

- 2.1 RELEASE ABOVE NORMAL OPERATING LIMITS - A discharge of radioactive effluent that results in a reading of 0.1 mrem/hr or greater at the Exclusion Area Boundary (EAB).

3 RESPONSIBILITIES

3.1 EMERGENCY COORDINATOR

- 3.1.1 Responsible for implementing this procedure and directing emergency response as follows: (COMN 42570)

<p><u>NOTE:</u> The responsibilities that the Emergency Coordinator may delegate are indicated with an asterisk (*).</p>
--

- 3.1.1.1 Classifying and declaring emergencies.
- 3.1.1.2 Authorizing personnel exposure in excess of 10CFR20 limits.
- 3.1.1.3 Assumes decision-making responsibilities for implementing strategies identified in the Severe Accident Management Guidelines.
- 3.1.1.4 *Directing operations of emergency response organizations.
- 3.1.1.5 *Requesting the formation of emergency teams.
- 3.1.1.6 *Initiating the implementation of on-site protective actions.
- 3.1.1.7 *Ensuring that on-site and off-site emergency response organizations are kept up to date on emergency conditions.

- 3.1.1.8 *Ensuring that site-wide announcements are made on the plant Public Address (PA) system.

3.2 SHIFT SUPERVISOR

- 3.2.1 Until relieved, the Shift Supervisor acts as the Emergency Coordinator. (COMN 3314)

4 PROCEDURE

NOTE: Monitor Emergency Action Levels (EALs) throughout this procedure.

NOTE: The flowchart Attachment 5 may be use to assist in the performance of this procedure.

4.1 **Notify Facility Personnel:**

- 4.1.1 Announce the Emergency Classification and the time of declaration.

- 4.1.2 Announce the Cause.

- 4.2 **Manually Initiate ERFIS** from Main Control Board and Do Not "Reset" until instructed by Tech Assessment Staff.

4.3 **Notify On-Site Personnel:**

CAUTION: If CODE RED or CODE BLACK is in progress, on-site emergency announcements should be held to a minimum and prohibit movement of personnel until CODE condition is secured.

- 4.3.1 Prepare Attachment 1. If an Alert or higher is being declared, the Emergency Response Organization SHALL be activated. (COMN 42535) (COMN 3391)

NOTE: The Emergency Response Organization may be activated prior to an ALERT as necessary to provide additional support.

- 4.3.2 Sound the Plant Emergency Alarm from the Control Room.

- 4.3.3 Perform Attachment 1, making the emergency announcement applicable to the Emergency Classification. Include if there is a localized emergency (e.g., fire, flood), announcing the type and location, and instruct personnel to stand clear of the affected area.

NOTE: Pager activation does not need to be done if the pagers have been activated already at a lower classification level.

- 4.4 **At an ALERT or higher classification** call out the emergency organization by having the SAS operator activate the Emergency Paging System per **KOA-ZZ-00200** for rapid responders using **MESSAGE #1**.

NOTE: The Shift Supervisor has a Satellite Cellular Phone to be used as a last resort backup to the telephone and radio systems. If installed systems and backups fail the Satellite Cellular Phone may be used for offsite communications.

4.5 **Notify Off-Site Agencies:**

- 4.5.1 Shift Supervisor complete or direct completion of the SENTRY screen or complete Attachment 4 and give it to the Communicator.

NOTE: If the condition or cause of the classification has already been corrected the form should be completed as prescribed for the emergency. A statement should then be made in the Notes section, lower right hand side, "The condition that caused the (emergency classification) has been corrected and Event closeout has been declared. Also ensure NRC operations is notified within 1 hour. **CARS 199700852**

NOTE: After the initial reporting, if the NRC Operations Center is activated, the NRC will request additional information. The personnel communicating with NRC should be knowledgeable with the facility's operation and with the event to provide and update information about the evolving incident. The level of communication will depend on the development and the significance of the event.

CAUTION: As a minimum, the immediate protective action recommendation for a **GENERAL EMERGENCY**, is evacuation within a 2 mile radius and 5 miles downwind of the plant in affected sectors. (COMN 3954)

4.5.2 Incorporate protective action recommendations in accordance with **EIP-ZZ-00212**, Protective Action Recommendations.

4.5.3 Implement **EIP-ZZ-00201**, Notifications. Initial notifications to State and Local Authorities SHALL be initiated within **15 minutes** after declaration of an emergency. (COMN 3946)

NOTE: Notifications should be initiated within 15 minutes if conditions change and approximately every 30 minutes if conditions are stable. When at an Unusual Event and conditions are stable the notification frequency may be extended with the concurrence of SEMA and the EPZ Counties.

4.6 Ensure **Attachment 2**, Operations Personnel Emergency Actions, is taken to the Field Office for use by the Field Supervisor or first available individual. Extra Operations personnel report to the Field Office at the first Emergency Announcement.

4.7 **Notify the Emergency Duty Officer** and discuss the following: (COMN 3946)

4.7.1 Emergency Classification.

4.7.2 Plant status and actions taken.

4.7.3 Callout of response organizations.

4.7.4 Notification of off-site agencies.

4.8 **Notify the Recovery Manager** of an Unusual Event. (COMN 3946)

NOTE: Notification of the Recovery Manager is not required at an Alert or higher as this is accomplished using **EIP-ZZ-00200** and **KOA-ZZ-00200**.

4.9 If a **Release above normal operating limits is in progress or projected** ensure dose assessment and **EIP-ZZ-00212** is initiated.

- 4.9.1 DISCUSS the need to dispatch the Rapid Plume Assessment Tech (RPAT) with the On Shift Dose Assessment Tech. ref (**KOA-ZZ-1212A**).
- 4.9.2 If Abnormal In-plant radiological conditions exist, set up a ratemeter at the door of the Control Room per Attachment 3.
- 4.10 **Implement EIP-ZZ-00217**, Emergency Response Data System Activation (ERDS) as soon as possible but in all cases **within one-hour** of an **ALERT or higher classification**. The Shift Supervisor may delegate this to Tech Assessment in the TSC.
- 4.11 **Evaluate Assembly/Evacuation per EIP-ZZ-00230**, Accountability. (**COMN 3983**) (**COMN 3986**)

<p><u>NOTE:</u> Accountability SHALL occur within 30 minutes of an Assembly/Evacuation announcement. (COMN 42531)</p>

- 4.12 **Form and/or Dispatch Emergency Teams** as necessary using **EIP-ZZ-00220**, Emergency Team Formation.
- 4.13 Contact Chemistry and **initiate Post-Accident Sampling** as required.
- 4.14 Implement the **Severe Accident Management Guidelines** as required.
- 4.14.1 The control room should implement **SACRG-1**, Severe Accident Control Room Guideline Initial Response.
- 4.14.2 The control room should implement **SACRG-2**, Severe Accident Control Room Guideline for Transients after the TSC is Functional.
- 4.15 If **non-Ameren support** is needed, direct the Admin Coordinator to implement the Additional Assistance section of their checklist.
- 4.16 **Event Reclassification/Plant Recovery/Event Closeout**
- 4.16.1 If emergency has been **reclassified** return to **Step 3.1** and perform the applicable steps.
- 4.16.2 Evaluate **EIP-ZZ-00260**, Event Closeout/Plant Recovery, to determine if plant recovery or closeout conditions have been met.

<p><u>NOTE:</u> The NRC should be notified of the intent to declare recovery.</p>
--

- 4.17 Return to Step 3.11 and continue assessment if emergency has not been reclassified or event closeout/plant recovery has not been declared.

5 **REFERENCES**

- 5.1 Callaway Plant Radiological Emergency Response Plan (RERP)
- 5.2 **APA-ZZ-00743**, Fire Team Organization and Duties
- 5.3 **EIP-ZZ-00200**, Augmentation of the Emergency Organization
- 5.4 **EIP-ZZ-00201**, Notifications
- 5.5 **EIP-ZZ-00211**, Field Monitoring
- 5.6 **EIP-ZZ-00212**, Protective Action Recommendations
- 5.7 **EIP-ZZ-00217**, Emergency Response Data System Activation
- 5.8 **EIP-ZZ-00230**, Accountability
- 5.9 **EIP-ZZ-00260**, Event Closeout/Plant Recovery
- 5.10 **KOA-ZZ-1212A**, Rapid Plume Assessment Tech
- 5.11 NRC Correspondence 11/27/2000, Recording Emergency Notification System Telephone Conversations

6 **RECORDS**

- 6.1 All facility logs, SENTRY or MAGNEM screen prints, office memos, notes, etc., should be attached to the Coordinator checklist and turned in to the Admin Coordinator and/or Emergency Preparedness (EP)

<p><u>NOTE:</u> Recordings of Emergency Notification System (ENS) and Health Physics Network (HPN) lines are available from the NRC recording system following the termination of an emergency event.</p>

6.2 **QA Records**

- 6.2.1 Attachment 1, Emergency Announcement (File K171.0010)

Emergency Announcement**NOTE:**

If **CODE RED** or **CODE BLACK** is in progress, on-site emergency announcements should be held to a minimum and prohibit movement of personnel until CODE condition is secured.

SOUND THE PLANT EMERGENCY ALARM

ATTENTION ALL PERSONNEL! ATTENTION ALL PERSONNEL!

A(N)	UNUSUAL EVENT	HAS BEEN DECLARED AT ____:____ (time)
	ALERT	
	SITE EMERGENCY	
	GENERAL EMERGENCY	

THE CAUSE OF THE EMERGENCY IS

Emergency Organization Activation

<input type="checkbox"/> Unusual Event	ALL MEMBERS OF THE ON-SHIFT EMERGENCY ORGANIZATION REPORT TO YOUR STATIONS.
<input type="checkbox"/> Alert or Higher	ALL MEMBERS OF THE EMERGENCY RESPONSE ORGANIZATION REPORT TO YOUR STATIONS.

Actions For Non-Essential Personnel

<input type="checkbox"/> Unusual Event	ALL NON-ESSENTIAL PERSONNEL CONTINUE WITH YOUR NORMAL DUTIES UNLESS FURTHER INSTRUCTIONS ARE GIVEN.
<input type="checkbox"/> Alert	ALL NON-ESSENTIAL PERSONNEL CONTINUE WITH YOUR NORMAL DUTIES UNLESS FURTHER INSTRUCTIONS ARE GIVEN. IF YOU ARE NOT BADGED FOR PROTECTED AREA ACCESS, YOU MUST EVACUATE THE PLANT SITE.
<input type="checkbox"/> Site/General (Consider weather and radiological conditions PRIOR to making announcement.)	<input type="checkbox"/> Normal hours ALL NON-ESSENTIAL PERSONNEL REPORT TO YOUR PRE-DESIGNATED ASSEMBLY AREAS IN THE CMB AND TRAINING CENTER. TAKE ALL PERSONAL BELONGINGS SUCH AS COATS, CAR KEYS AND PURSES. FOLLOW THE INSTRUCTIONS OF YOUR SUPERVISOR AND SECURITY OFFICERS. ACCOUNTABILITY WILL BE PERFORMED.
	<input type="checkbox"/> Off-normal hours ALL NON-ESSENTIAL PERSONNEL PROCEED TO THE TSC AND AWAIT FURTHER INSTRUCTIONS. ACCOUNTABILITY WILL BE PERFORMED.

Special instructions, (i.e. special routes during releases. seek cover during storms) _____

PERSONNEL CAUTION (If required)

<input type="checkbox"/> Potential Airborne Contamination	THERE WILL BE NO EATING, DRINKING, SMOKING, OR CHEWING UNTIL FURTHER NOTICE.
---	--

(REPEAT ALL ANNOUNCEMENTS)

EC/RM APPROVAL

OPERATIONS PERSONNEL EMERGENCY ACTIONS

NOTE: Pre-designated Personnel inside the Protected Area report to the Control Room/Field Office upon a Reactor Trip or at the first Emergency Announcement. All are Essential Personnel unless specifically released by the Shift Supervisor. Once released they do not report to the Field Office if accountability is declared, they respond as all other Non-Essential Personnel.

1 THE FIELD SUPERVISOR, OR DESIGNEE, PERFORMS THE FOLLOWING:

- 1.1 Prepare a list of personnel reporting to the Field Office along with their badge numbers. (Note: A Security officer is generally assigned to pick up a copy of the list for accountability). Include on-watch Equipment Operators, (EO's). Have all personnel card into the Field Office Conference Room card reader (The card reader is used for accountability only).
- 1.1.1 The Polisher and Primary EO's should report to the Control Room to provide assistance. They should return to the Field Office when relieved by I&C Technicians.
- 1.1.2 The formation and dispatch of Emergency Teams should use **EIP-ZZ-00220** as a guide.
- 1.1.3 Rad Chem Technician(s) report to the Control Room/Field Office to assist in personnel monitoring, team briefing and rapid dose assessment. Emergency Team Briefing Form in **EIP-ZZ-00220** may be used as a guide.

NOTE: When personnel leave the Field Office on assignment they should sign out, card out and be tracked to maintain accountability.

- 1.2 Designate the Fire Brigade members using personnel not on watch if available. Refer to **APA-ZZ-00743**, Fire Team Organization and Duties.
- 1.3 All Field Office personnel should go to HP Access, obtain an Electronic Dosimeter (ED) and sign in on RWP 911. If released as Non-Essential Personnel, individuals should sign off of RWP 911 and return their ED prior to leaving the site. This is to ensure all personnel dispatched from the Control Room or Field Office have their dose tracked.

CAUTION: Remain aware of plant radiological conditions and do not dispatch operators into areas where conditions may be changing without Health Physics support and briefings.

- 1.4 If radiological conditions are a potential hazard, set up a ratemeter at the door and allow entrance only through that door. Refer to Attachment 3.
- 1.5 If the Field Office is required to be evacuated, all personnel then report to the Control Room or TSC as needed.
- 1.6 Assign Operators to the TSC for emergency team support as required and available.

SET-UP AND OPERATION OF THE MODEL 177 RATEMETER

1. Remove Model 177 ratemeter, frisker probe, detector cable, power cord, and check source from the E-Kit cabinet located behind the control boards. There are two instruments, one for the door to the field office, one for the door to the Control Room.
2. Connect detector and power cords, if not already connected, to the Model 177 ratemeter and verify the following switch settings:

Front Panel: ☐ On/Off switch in "ON" position.
☐ Volume adjusted to hear audible counts.
☐ Response switch in "slow" position.

Rear Panel: ☐ Subtract switch in "Off" position (if meter has Subtract Switch.)
3. Prior to the first use of the day, perform response check as follows:

☐ Ensure instrument has a current calibration sticker.

☐ Set the range switch to the appropriate position and place the detector on the check source bracket.

☐ Verify the response is within the acceptable range as specified on the response value determination form/sticker for that check source.

☐ Check the instrument alarm by adjusting the ALARM SET switch so that it is slightly less than the count rate of the source.

☐ Remove the source from the detector.

☐ Depress the RESET button. The alarm condition should clear.

☐ If the pre-operational checks are satisfactory, complete the attached pre-operational check sticker. (If either the alarm or the response check failed, notify the Health Physics Coordinator and obtain an operational ratemeter.)

☐ Return the check source to the E-Kit cabinet.
4. Set up one ratemeter at the door to the Field Office and one rate meter at the door to the Control Room for use. For each:

☐ Connect detector and power cords, if not already connected, to the Model 177 ratemeter and verify the following switch settings:

Front Panel: ☐ On/Off switch in "ON" position.
☐ Volume adjusted to hear audible counts.
☐ Response switch in "slow" position.
☐ Range switch to the value necessary to maintain "on scale" display. Normally, this should be the "X1" scale.

Rear Panel: ☐ Alarm set at "5".
☐ Subtract switch in "Off" position if meter has Subtract Switch.

☐ Ensure the probe sets "face up" when not being used. (This allows the next user to frisk prior to handling the detector, and allows the detector to monitor area and airborne radiation levels.)
5. If the ratemeter background reading exceeds the "X1" scale (500 CPM) during use, notify the Health Physics Coordinator.

OFF SITE NOTIFICATION FORM
(FAX Copy to TS(604 & EOF-64900)

EIP-ZZ-00107
Rev. 030

GENERAL INFORMATION:

1) DRILL MESSAGE: ☐ YES ☐ NO

2) EMERGENCY CLASSIFICATION:

3) DATE/TIME DECLARED: / / : :

4) EMERGENCY ACTION LEVEL:

5)

6) REACTOR STATUS:

RELEASE STATUS:

7) RELEASE INFORMATION:

8) LIQUID RELEASE: ☐ YES ☐ NO

9) WIND SPEED: MPH

10) WIND DIRECTION: From Degrees 11) To Degrees

12) AFFECTED SECTORS:

13) RELEASE START TIME: 14) RELEASE DURATION: Hrs.

PLUME ARRIVAL TIME:

15) 2 Miles : 16) 5 Miles : 17) 10 Miles :

18) UPDATE WIND PARAMETERS

PROTECTIVE ACTIONS:

19) PROTECTIVE ACTIONS RECOMMENDED: ☐ YES ☐ NO

20) BASED ON:

TYPE	LOCATION	SECTORS
21)	22)	23)
24)	25)	26)
27)	28)	29)

30) Additional Protective Actions:

PROJECTED DOSES:

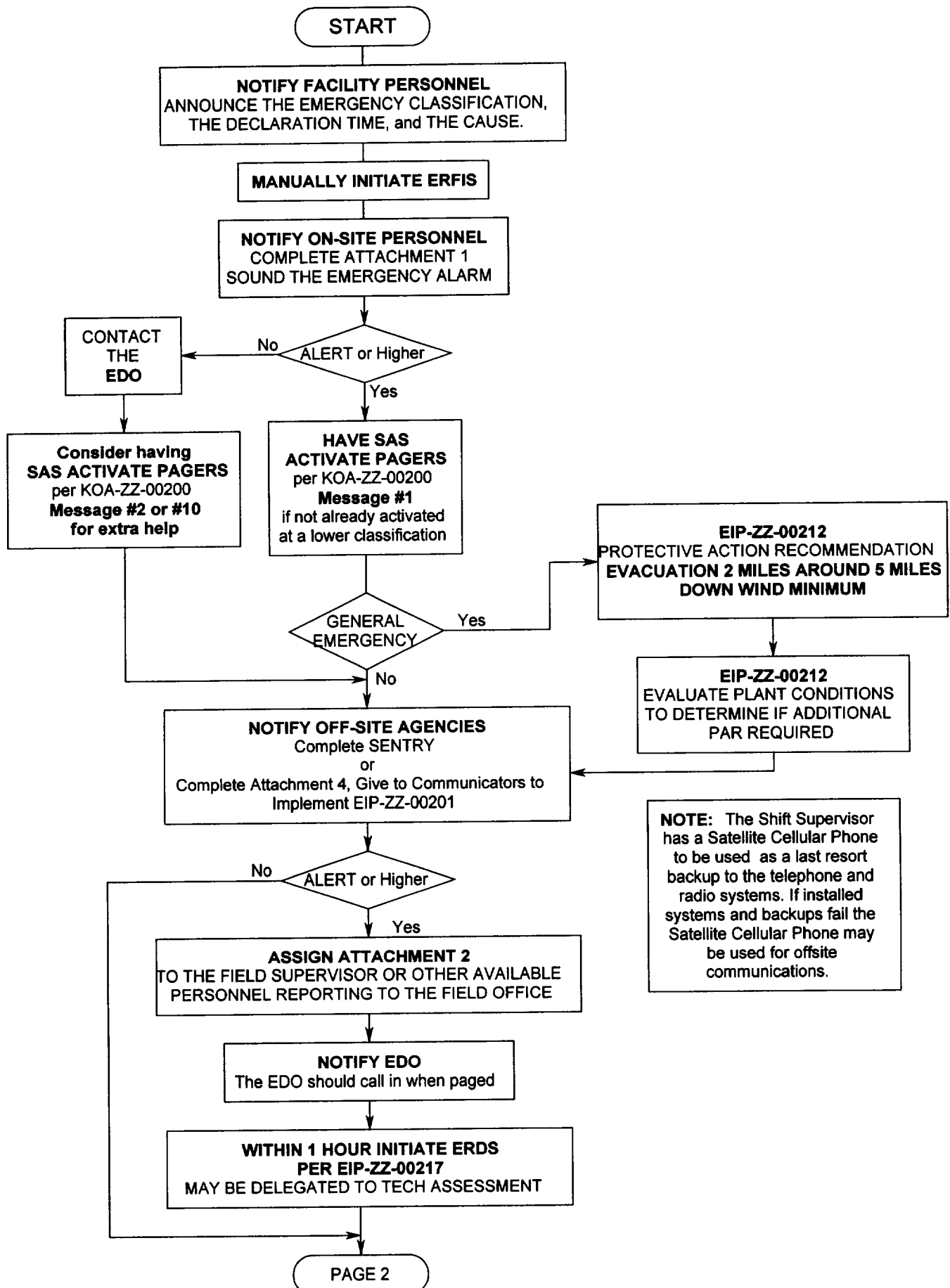
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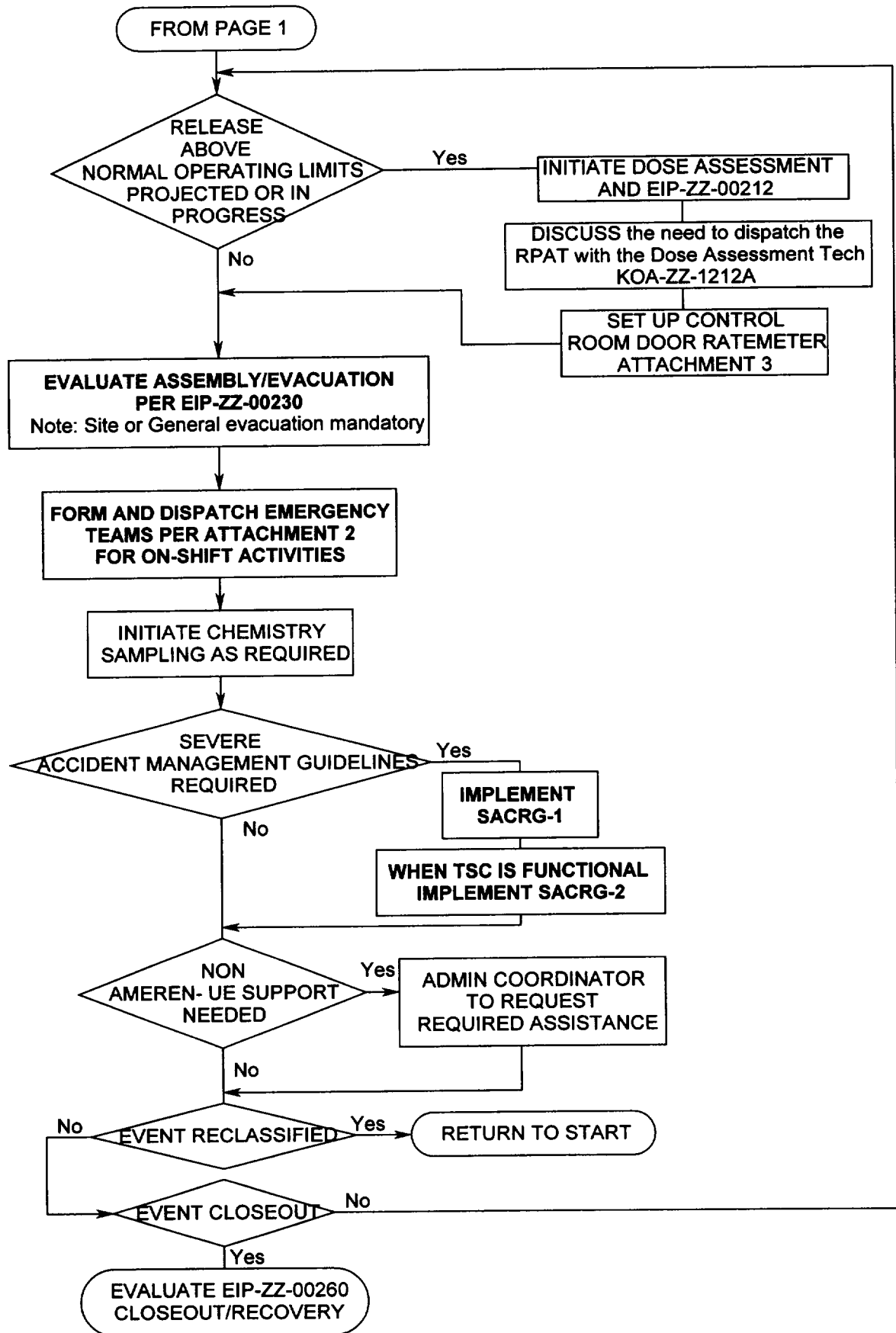
Distance	TEDE (Rem)	Thyroid (Rem)
EAB	32)	36)
2 miles	33)	37)
5 miles	34)	38)
10 miles	35)	39)

ADDITIONAL NOTES:

40)

EC/RM APPROVAL: _____ COMMUNICATOR: _____





CALLAWAY PLANT
EMERGENCY PLAN IMPLEMENTING PROCEDURE

EIP-ZZ-00220

EMERGENCY TEAM FORMATION

RESPONSIBLE DEPARTMENT EMERGENCY PREPAREDNESS

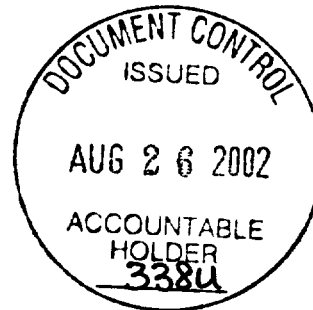
PROCEDURE OWNER K. J. Bruckerhoff

WRITTEN BY W. R. Bevard

PREPARED BY W. R. Bevard

APPROVED BY *S. Salbo* EDO

DATE ISSUED 8-26-02



This procedure contains the following:

Pages	<u>1</u>	through	<u>7</u>
Attachments	<u>1</u>	through	<u>4</u>
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Figures	<u> </u>	through	<u> </u>
Appendices	<u>1</u>	through	<u>1</u>
Checkoff Lists	<u> </u>	through	<u> </u>

This procedure has checkoff list(s) maintained in the mainframe computer.

Conversion of commitments to TRS reference/hidden text completed by Revision Number:

Non-T/S Commitments 011

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EMERGENCY TEAM FORMATION

1 PURPOSE AND SCOPE

1.1 PURPOSE

- 1.1.1 To provide guidance to individuals responsible for forming, briefing, dispatching and debriefing Emergency Teams.

1.2 SCOPE

- 1.2.1 Upon declaration of an emergency, establishes responsibilities for coordinating the activities of the Fire Brigade, Medical Emergency Response Team (MERT), Search & Rescue Teams, and Emergency Repair Team. **(CARS 200001029)**
- 1.2.2 Provides a checklist for briefing and debriefing emergency teams.
- 1.2.3 On shift activities are not included in the scope of this procedure. **(CARS 200001029)**

<p><u>NOTE:</u> On shift activities are performed in accordance with Attachment 2 of EIP-ZZ-00102, Emergency Implementing Actions.</p>

2 RESPONSIBILITIES

2.1 EMERGENCY COORDINATOR / SHIFT SUPERVISOR (EC)

- 2.1.1 Requests the formation of emergency teams. This responsibility may be delegated to the Operations Support Coordinator.
- 2.1.2 Initially, the Shift Supervisor assumes the responsibilities of the EC. At the ALERT (or higher) emergency classification levels, the EDO relieves the Shift Supervisor and assumes the EC duties. **(COMN 3324) (COMN 3325)**
- 2.1.2.1 MERT and the Fire Brigade continue to report to the Shift Supervisor. Responsibility for these two Emergency Teams cannot be delegated to the Emergency Coordinator. **(COMN 3413) (COMN 41801)**

2.2 OPERATIONS SUPPORT COORDINATOR (OSC)

2.2.1 Assesses plant information from the Control Room and technical support staff to establish emergency team priorities and direct operation support activities. (COMN 3324) (COMN 3325)

2.2.1.1 The OSC reports to the Emergency Coordinator (EC) in the Technical Support Center (TSC).

2.3 EMERGENCY TEAM COORDINATOR (ETC)

2.3.1 Assists the Operations Support Coordinator (OSC) in formation, briefing, direction, tracking and debriefing of Emergency Teams.

2.3.1.1 The ETC reports to the Operations Support Coordinator (OSC) in the TSC.

2.4 HEALTH PHYSICS COORDINATOR (HPC)

2.4.1 Assesses radiological conditions and determines radiological protective measures to be implemented.

2.4.2 Ensures that emergency teams are briefed and debriefed on radiological conditions.

2.4.3 Ensures Health Physics support is available for emergency teams, as necessitated by radiological conditions.

<p><u>NOTE:</u> On-Shift Health Physics personnel may perform these duties prior to the time the TSC is operational.</p>

2.5 PROTECTIVE SERVICES STAFF

2.5.1 Approval authority for all appendices for this procedure.

2.6 WORK CONTROL MANAGEMENT
CARS 200107510

2.6.1 Designate personnel qualified to be members of Repair Teams and Search & Rescue Teams.

2.6.1.1 These personnel are typically journeymen craft or planners and supervisors with applicable craft experience.

3 INITIATING CONDITIONS

- 3.1 The procedure is implemented upon direction of the Emergency Coordinator per **EIP-ZZ-00102**, Emergency Implementing Actions.

4 PROCEDURE

The Emergency Team Coordinator (ETC) or designee, at the direction of the Operational Support Coordinator (OSC) ensures completion of the following actions:

4.1 FORMATION OF EMERGENCY TEAMS

- 4.1.1 Assemble an Emergency Team consisting of the following personnel:

CAUTION: Fire Brigade Members perform Emergency Team duties when hazards require use of personal protective equipment (PPE), such as bunker gear, proximity suit, level "A" chemical suit, and/or SCBA, for which they are specifically trained and qualified. (**CARS 200000160**)

The Fire Brigade continues to report to the Shift Supervisor if the activity is a fire or Hazmat response. Response to a fire or Hazmat incident cannot be delegated to the ETC.

- 4.1.1.1 A Repair Team consists of at least two (2) plant personnel as appropriate for the specific repairs. (**COMN 3325**)

NOTE: Fire Brigade Members are trained in damage control repairs, such as plugging, patching, containment, etc., and manipulating valves, breakers, and other Plant Equipment.

- 4.1.1.2 A Search and Rescue Team consists of at least two personnel, one of which SHALL be qualified in first aid procedures. (COMN 3324)
- 4.1.1.2.1 During an event, the Security force, MERT and/or the Fire Brigade may be conducting search and rescue operations. The Fire Brigade and MERT report to the Shift Supervisor. The Security force reports to the Security Coordinator. The ETC should coordinate with the Control room and Security Coordinator to eliminate duplicate searches or other logistical problems. (CARS 200002079) (CARS 200002143)
- 4.1.1.2.2 The ETC should remain cognizant of search areas, both those completed and those still needing to be searched.
- 4.1.1.2.3 Unless directed otherwise by the Shift Supervisor or Fire Brigade Leader, when a Fire Brigade Leader is involved in a search and rescue or medical emergency, the Incident Command System should be implemented. With this, all coordination efforts for Search and Rescue Teams, MERT, nurses, ambulances, etc. are directed by the Fire Brigade Leader.
- 4.1.1.2.4 The ETC should contact the Security Coordinator to identify last known locations of the missing person(s). The Security Coordinator should also brief the ETC on known plant hazards.
- 4.1.2 Health Physics support for the Emergency Teams is coordinated by the HPC if conditions warrant. (COMN 3324) (COMN 3325)
- 4.2 BRIEFING AND DISPATCH OF EMERGENCY TEAMS
- 4.2.1 Prioritization for timely dispatch of Emergency Teams should be made when preparing to dispatch a team. (CARS 199901711)
- 4.2.1.1 A Search and Rescue or Repair Team for trouble shooting or investigations may not require an extensive brief, and when possible should be expedited through the process and dispatched in a timely manner. (CARS 199901711)
- 4.2.1.2 Repair Teams with detailed work instructions, assigned a seldom-performed task, or multiple tasks may require a more extensive brief and/or copies of drawings, procedures, etc.

- 4.2.2 The OSC/ETC, or designee, completes Attachment 1, CA0235a, Emergency Team Briefing Checklist, for each team to be dispatched.
- 4.2.2.1 The ETC or designee conducts a task brief, Section II, Attachment 1.
- 4.2.2.2 Refer to Appendix 1, CA0235e, No Radio Transmission Rooms, as appropriate.
- 4.2.2.3 If conditions warrant, the Health Physics Coordinator or designee conducts a briefing on radiological conditions/hazards, Attachment 2, CA0235b, Emergency Team Health Physics Briefing Checklist and CA0235d, Plant Map. **(CARS 199701061)**
- 4.2.3 Copies of the briefing checklist should be provided to the Emergency Team leader.
- 4.2.4 Record Emergency Team on the Emergency Team Status Board.
- 4.2.5 Dispatch Emergency Team ensuring they check out with Security prior to leaving the TSC.
- 4.2.6 Ensure the OSC is informed the Emergency Team has been dispatched.
- 4.2.7 Maintain communications with the team at intervals specified during the briefing and relay any plant announcements to the team. **(COMN 5402)**
- 4.2.8 Ensure the OSC is informed of the status of all Emergency Teams at frequent intervals.
- 4.3 **DEBRIEFING OF EMERGENCY TEAMS**
- 4.3.1 As soon as possible, debrief the team in accordance with Attachment 3, CA0235c, Emergency Team Debriefing Checklist.
- 4.3.2 Ensure the Emergency Coordinator is notified of accidental or emergency dose in excess of occupational limits.
- 4.3.3 Assign team members to other duties as required.

5 FINAL CONDITIONS

- 5.1 The Emergency Team Coordinator ensures the following actions are accomplished:
 - 5.1.1 Emergency Team members are debriefed and assigned other duties.
 - 5.1.2 Attachments 1, 2 and 3 are completed.
 - 5.1.3 Emergency Team Status Board is up-to-date.
 - 5.1.4 All repairs are reviewed to determine permanency or if condition tags are required to complete final repair or equipment restoration.
(CARS 200107510)

6 REFERENCES

- 6.1 Callaway Plant Radiological Emergency Response Plan (**RERP**)
- 6.2 **EIP-ZZ-00102**, Emergency Implementing Actions
- 6.3 **HDP-ZZ-01450**, Authorization to Exceed Federal Occupational Dose Limits
- 6.4 **HDP-ZZ-01300**, Internal Dosimetry Program.
- 6.5 **APA-ZZ-00310**, Workman's Protection Assurance and Caution Tagging
- 6.6 **APA-ZZ-00802**, Confined Space Program
- 6.7 **SDP-ZZ-00010**, Radio Use
- 6.8 HPCI 01-05, Estimation of TEDE and CDE Thyroid Dose for Emergency Personnel

7 RECORDS

- 7.1 QA RECORDS
 - 7.1.1 Attachment 1, Emergency Team Briefing Checklist
(File K171.0010).
 - 7.1.2 Attachment 2, Emergency Team Health Physics Briefing Checklist
(File K171.0010).

7.1.3 Attachment 3, Emergency Team Debriefing Checklist
(File K171.0010).

7.2 COMMERCIAL RECORDS

None

EMERGENCY TEAM BRIEFING CHECKLIST

TEAM DESIGNATOR _____

☐ EMERGENCY REPAIR TEAM☐ SEARCH & RESCUE TEAM**I. TEAM FORMATION.**

- Emergency Repair Teams require two (2) individuals. COMN 3325
- Search and Rescue Teams require two (2) individuals, one must be qualified First Aid. COMN 3324
- Complete top portion of CA0235b, and give to HPC or designee.

NAME	Badge Number / EID	First Aid Yes/ No

NAME	Badge Number / EID	First Aid Yes/ No

II. TASK BRIEFING (CARS 200106271)

- ☐ **Report of Problem or Condition and Suspected Cause:** _____
- _____
- ☐ **Description of Task:** (Perform assessment, operations, or repairs) _____
- _____
- ☐ **Time Estimate to Complete Task:** _____
- ☐ **Task Location:** _____
- Proceed to the location where emergency repair is to be performed. Report abnormal conditions to the Emergency Team Coordinator (ETC).
 - After arriving at the repair location assess equipment operability and habitability conditions; report the following to the ETC:
 - Extent of damage/equipment status.
 - Abnormal and/or unusual conditions.
 - Additional assistance needed (e.g., tools, equipment, personnel, etc.).
 - Dose rate and contamination levels. (if necessary).
 - For Search and Rescue Teams, consider the following:
 - Request Fire Brigade Leader Support, if available.
 - Coordinate efforts with the Control Room and Security Coordinator.
 - Search areas and search patterns are clearly defined (e.g. room #, north to south, elevation #, east to west)
- ☐ **Special tools, vehicles, equipment needed:** _____
- Perform safety and operability checks on equipment. Replace/substitute equipment, if necessary.
- ☐ **Keys** (may be obtained from these locations)
Security Coordinator / OSC Packet (tool room keys) / TSC key locker
- ☐ **Communications:** (Maintain communications with the ETC at predetermined intervals)
(Radio -channel, Gaitronics-channel, Telephone-No.)
- ETC phone 68426 or _____
 - Radio Channel 1 or _____
 - Primary: _____ Secondary: _____
 - Contact Intervals: 15min/30min/ Other _____
 - Radio usage is prohibited in "No Transmission Areas" as identified by orange signs in the Plant. (CARS 199901711) Refer to Appendix 1 of this procedure.
 - Radio check performed SAT.
- ☐ **Personal Safety:**
Personal Protective equipment
- | | | |
|-----------------------|--------|-----------------------------------|
| • Fall Protection | No/Yes | |
| • Face Protection | No/Yes | |
| • Chemical Protection | No/Yes | |
| • Gloves | No/Yes | |
| • Bunker Gear | No/Yes | Yes, requires Fire Brigade Member |
| • Level A Suit | No/Yes | Yes, requires Fire Brigade Member |
| • Proximity Suit | No/Yes | Yes, requires Fire Brigade Member |
| • SCBA | No/Yes | Yes, requires Fire Brigade Member |
- ☐ **Hazards**
- | | |
|-------------------------|----------------|
| • Electrical Conductors | No/Yes |
| • CSEP (APA-ZZ-00802) | No/Yes |
| • WPA (APA-ZZ-00310) | No/Yes # _____ |
| • Fire (EIP-ZZ-00226) | No/Yes |
| • HAZMAT (EIP-ZZ-03010) | No/Yes |
| • OTHER (Specify) _____ | No/Yes |
- ☐ **Remarks:** _____
- _____

Task Brief completed by (ETC or Designee): _____ Date _____ Time _____

- ☐ Copy of briefing form to team leader.
- ☐ Sign out team on Emergency Team Status Board
- ☐ Inform Team to Check out with Security

EMERGENCY TEAM HEALTH PHYSICS BRIEFING CHECKLIST

TEAM DESIGNATOR _____

☐ EMERGENCY REPAIR TEAM

☐ SEARCH & RESCUE TEAM

I. TEAM FORMATION.

- Emergency Repair Teams require two (2) individuals. (COMN 3325)
- Search and Rescue Teams require two (2) individuals, one must be qualified First Aid. (COMN 3324)

Name	EID	Exposure Margin (mRem)	Debriefed Yes/No	RWP Sign-Out	EXIT Dose (mRem)
(ETC Complete)				(HP Complete)	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	
				<input type="checkbox"/>	

II. HEALTH PHYSICS BRIEF (required if, or the potential for, a radiological hazard exists.)

Radiological Work Permit: (CARS 199803482, CARS 200106250, CARS 200106224)

- ☐ Emergency RWP (enter year) 9 1 1 2 0 EMERG / ADMIN / FED / DRILL
- ☐ SRWP Number: _ _ _ _ _

Radiological Protection:

- Do not enter areas where radiation levels are not measurable.
- If anticipated dose is in excess of 10CFR20 limits, follow instructions in **HDP-ZZ-01450**
- ED Fast Entry mode should only be used for initial entries. Current Occupational Dose DOES NOT have to be considered when assigning Emergency Dose Limits. If dose rate alarm is received during the dispatch of the Team, contact the HPC to determine if the Team should proceed.

- ☐ Request an air sample, if appropriate, and not already taken

- ☐ TEDE/CDE Evaluation: _____

- If no air sample, estimate from radiation levels.
- $MRem \times 3 = TEDE$, $MRem \times 40 = CDE$ thy

- ☐ Dosimetry (monitor approx. 15-30 minutes) (CARS 199803482) (COMN 3960)

- ☐ Alarms - Fast Entry Dose(mRem) 1000 Dose Rate(mRem/hr) 10000

Other Dose(mRem) _____ Dose Rate(mRem/hr) _____

- ☐ Extremity Dosimetry None / Location: _____

- ☐ PC's (circle one): None / Partial / Full / Double

- ☐ Respirator (circle one): None / Full Face Air Purifying / GMRI / SCBA (Fire Brigade Member)

Recommend Potassium Iodide:

- ☐ No

- ☐ Yes

- You should not take KI if you are allergic to iodine.
- If the use of KI is recommended follow instructions in **HDP-ZZ-01300**, Attachment 1.

Turnaround Dose/Dose Rate : (CARS 199803482)

- If Team receives dose rate alarm, contact the HPC for further instructions. Team can continue and seek low dose area with approval of HP Coverage Technician. Withdrawal of the Team should be based on integrated dose.

- ☐ En route to job site 10 R/hr / Other _____

- ☐ At job site 10 R/hr / Other _____

Radiological Conditions: (if known) (CARS 199803482)

- Conditions en route to the job site. ☐ Not Known

- ☐ Routes Release above Normal Operating Limits in progress or anticipated - see Attachment CA0235d, Plant Map.

- ☐ Radiation Levels (mrem/hr) _____

- ☐ Contamination Levels (dpm/100cm²) _____

- ☐ Airborne (DAC): Particulate _____ Iodine _____ Noble Gas _____

- ☐ High Beta Radiation(mrad/hr) _____

- Conditions at the job site ☐ Not Known

- ☐ Radiation Levels (mrem/hr) _____

- ☐ Contamination Levels (dpm/100cm²) _____

- ☐ Airborne (DAC): Particulate _____ Iodine _____ Noble Gas _____

- ☐ High Beta Radiation(mrad/hr) _____

Decon Facilities (CARS 199802961)

- ☐ HPAC

- ☐ TSC

- ☐ Other _____

- ☐ Remarks: _____

HPC Review _____

Health Physics Brief Performed by _____ Date _____ Time _____

EMERGENCY TEAM DEBRIEFING CHECKLIST

TEAM DESIGNATOR _____

☐ EMERGENCY REPAIR TEAM

☐ SEARCH & RESCUE TEAM

TEAM DEBRIEFING

Task Completion

- ☐ Job done YES / NO
- ☐ Dosimetry reading recorded as Exit Dose
- ☐ If an individual's dose is in excess of 10CFR20 limits, follow instructions in **HDP-ZZ-01450**.

Personnel signed out on RWP.

- ☐ Collect ED's and any Extremity TLD's, that were issued.
- ☐ Survey data obtained. (Attach copies).
- ☐ Actions Taken: _____

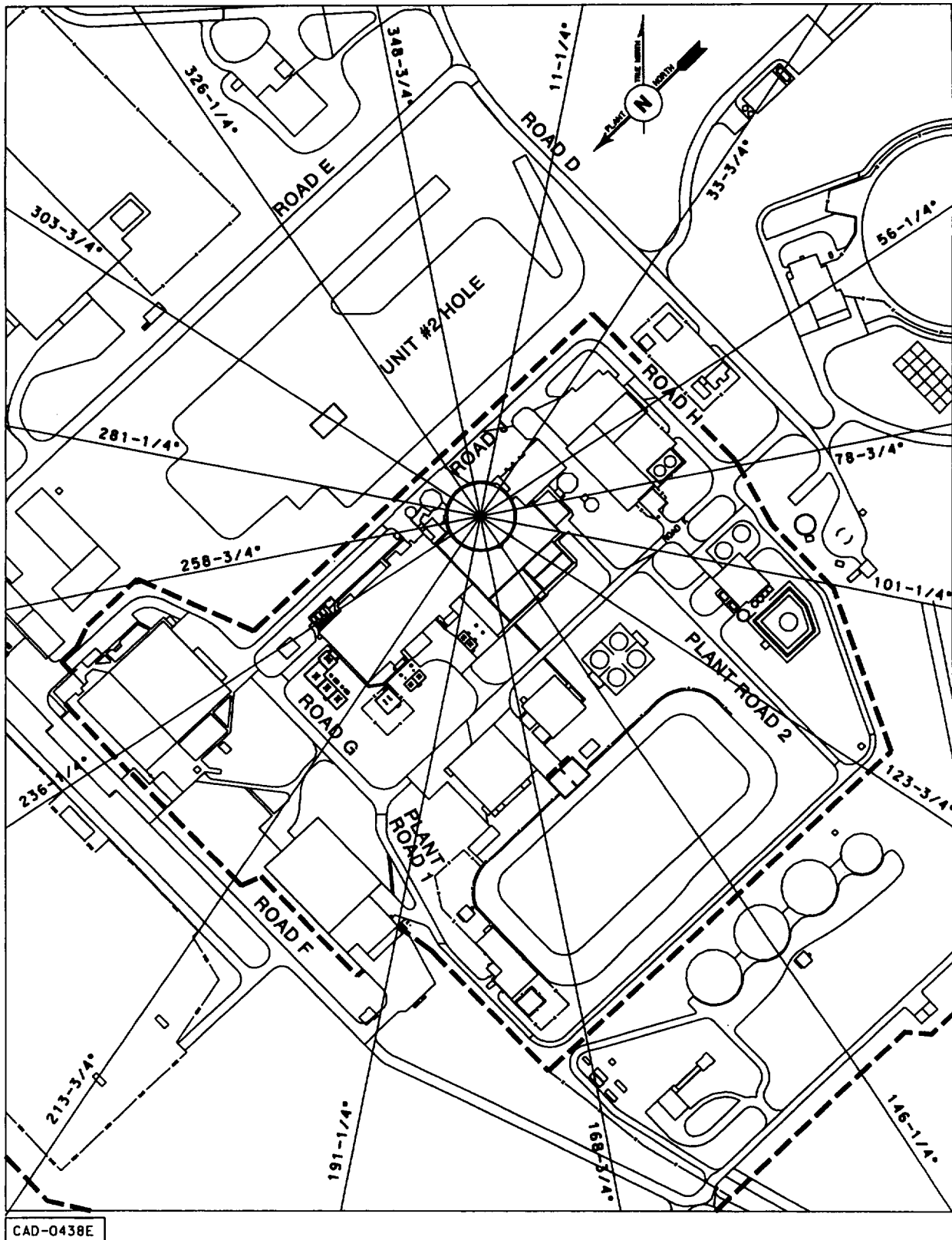
- ☐ **Further Actions Needed:**

- ☐ **Unanticipated problems or hazards encountered** (include on future briefs):

- ☐ **Complete and collect all records.**

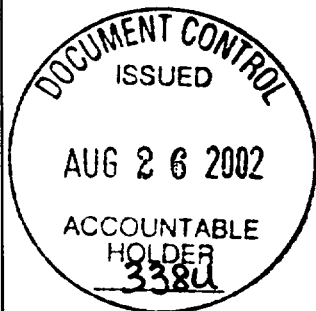
☐ **Remarks:** _____

Debriefing Performed by _____ Date _____ Time _____

PLANT MAP

NO RADIO TRANSMISSION ROOMS **By Description and Room Number**

<u>Area</u>	<u>Room Description</u>	<u>Room No.</u>
Aux Bldg	Area 5	1127
		1207
		1329
	South Electrical Penetration Room	1409
	North Electrical Penetration Room	1410
	Auxiliary Shutdown Panel Room	1413
Containment	Containment	1507
Control Bldg	NB01 Switchgear Room	3301
	NB02 Switchgear Room	3302
	D/G 'A' Room	3302
	D/G 'B' Room	3302
	DC Switchboard Rooms	3403
		3404
		3405
		3407
		3408
		3409
	Lower Cable Spreading Room	3502
	Control Room	3604
		3605
	SAS Room	3609
	Upper Cable Spreader Room	3801
Comm Corridor	BOP Battery Charger/Inverter	4101
Turbine Bldg	EHC Control Cabinet Room	4504



Approval

[Signature]

Member of Protective Services Staff

Date

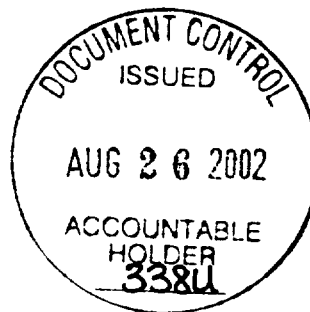
8-19-02



CALLAWAY PLANT
EMERGENCY PLAN IMPLEMENTING PROCEDURE

EIP-ZZ-00240

TECHNICAL SUPPORT CENTER OPERATIONS

RESPONSIBLE DEPARTMENT EMERGENCY PREPAREDNESSPROCEDURE OWNER T. W. PARKERWRITTEN BY T. W. PARKERPREPARED BY T. W. PARKERAPPROVED BY SS Sullbush EDODATE ISSUED 8-26-02

This procedure contains the following:

Pages	<u>1</u>	through	<u>7</u>
Attachments	<u>1</u>	through	<u>9</u>
Tables	<u> </u>	through	<u> </u>
Figures	<u> </u>	through	<u> </u>
Appendices	<u> </u>	through	<u> </u>
Checkoff Lists	<u> </u>	through	<u> </u>

This procedure has checkoff list(s) maintained in the mainframe computer.Conversion of commitments to TRS reference/hidden text completed by Revision Number:Non-T/S Commitments 022

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Attachment 1	Emergency Coordinator Checklist.....	2 Pages
Attachment 2	Technical Assessment Coordinator (TAC) Checklist	5 Pages
Attachment 3	Operations Support Coordinator (OSC) Checklist	3 Pages
Attachment 4	Administrative (Admin.) Coordinator Checklist.....	3 Pages
Attachment 5	Health Physics (HP) Coordinator Checklist	7 Pages
Attachment 6	TSC (ENS) Communicator Checklist.....	1 Page
Attachment 7	Chemistry Coordinator Checklist	2 Pages
Attachment 8	Security Coordinator (SC) Checklist.....	2 Pages
Attachment 9	Emergency Team Coordinator (ETC) Checklist	3 Pages

TECHNICAL SUPPORT CENTER OPERATIONS

1 PURPOSE AND SCOPE

- 1.1 Establishes responsibilities for the Emergency Response Organization, provides guidance and checklists for each coordinator in the Technical Support Center (TSC) during emergency operation of the TSC, including the Operations Support Area (SA).

2 RESPONSIBILITIES

2.1 EMERGENCY COORDINATOR (EC)

- 2.1.1 The Emergency Coordinator has overall responsibility for TSC operations.

2.2 TECHNICAL ASSESSMENT COORDINATOR (TAC)

- 2.2.1 The TAC reports to the EC. The TAC is responsible for directing technical analysis of plant conditions to formulate EAL'S and emergency mitigating recommendations to the EC. Responsible for coordinating Protective Action Recommendations (PAR'S) consistent with plant conditions with the Recovery Manager and Dose Assessment Coordinator in the EOF prior to the arrival of the Protective Measures Coordinator (PMC) and Plant Assessment Coordinator (PAC). The TAC also evaluates Severe Accident Management Guidelines (SAMG's). (COMN 3333)

2.3 ADMINISTRATIVE COORDINATOR (AC)

- 2.3.1 The AC reports to the Emergency Coordinator in the TSC. The AC is responsible for ensuring the completion of the Admin Coordinator checklists. The AC is also responsible for ensuring that technical documents are available, providing food and beverage needs, and ensuring continuity of resources for the On-Site Emergency Response Organization. (COMN 3341)

2.4 TSC (ENS) COMMUNICATOR (TC)

- 2.4.1 The TSC Communicator reports to the EC. He is responsible for manning the ENS Communication Line and relaying technical information to the NRC.

- 2.5 HEALTH PHYSICS COORDINATOR (HPC)
 - 2.5.1 The HPC reports to the Emergency Coordinator in the TSC. The HPC is responsible for assessing on-site radiological conditions, reviewing radiological EAL's, and directing in-plant radiation protection activities. (COMN 3331)
- 2.6 OPERATIONS SUPPORT COORDINATOR (OSC)
 - 2.6.1 The OSC reports to the Emergency Coordinator in the TSC. The OSC assesses plant information from the control room and technical support staff to establish emergency team priorities and direct operation support activities. (COMN 3336)
- 2.7 SECURITY COORDINATOR (SC)
 - 2.7.1 The SC reports to the Emergency Coordinator in the TSC. The SC establishes communications with the Shift Security Supervisor (SSS), assumes overall plant security responsibility, and directs the security force through the SSS. These responsibilities include access control, personnel evacuation and accountability, coordination of any off-site law enforcement agency involvement, and normal and emergency security activities in accordance with the security plan. (COMN 3347)
- 2.8 CHEMISTRY COORDINATOR (CC)
 - 2.8.1 The CC reports to the Technical Assessment Coordinator, and assumes responsibility for plant chemistry operations from the shift supervisor. The Chemistry Coordinator directs primary and secondary chemistry operations, (including post-accident chemistry) and non-radiological environmental monitoring. The CC ensures that the TAC is aware of chemistry activities and provides input to the TSC engineering staff in assessing plant chemistry problems. The CC directs the Rad/Chem Technicians - Chemistry. (COMN 3349)
- 2.9 EMERGENCY TEAM COORDINATOR (ETC)
 - 2.9.1 The ETCs report to the OSC and assist in formation, briefing, direction, and tracking of emergency teams. The Fire Brigade and MERT continue to report to the Shift Supervisor in the Control Room.

2.10 STORES PERSONNEL

- 2.10.1 A member of the Materials Department reports to the OSC and is responsible for obtaining parts, supplies, and materials when needed.

2.11 OTHER TSC STAFF MEMBERS

- 2.11.1 Each TSC coordinator that arrives at the TSC is responsible for starting their Checklist. If the TSC is without power, they should start the TSC diesel per **OOA-UB-EPG70** if it is within their capability.

- 2.11.2 All personnel are responsible for walking through the portal monitor and carding in on the accountability reader as they enter the TSC during a radiological emergency or drill.

<p><u>NOTE:</u> The portal monitor should be response checked as soon as possible by the Health Physics group</p>
--

- 2.11.3 Personnel that leave the Facility should check out with the Security Officer and card out on the accountability reader. If a release above normal operating limits has occurred or is likely to occur a HP brief is required. **CARS 199701061**

- 2.11.4 The following TSC coordinators are responsible for their attachment to this procedure.

- a) Emergency Coordinator (EC)
- b) Technical Assessment Coordinator (TAC)
- c) Operations Support Coordinator (OSC)
- d) Administrative (Admin) Coordinator (AC)
- e) Health Physics (HP) Coordinator (HPC)
- f) TSC (ENS) Communicator (TC)
- g) Chemistry Coordinator (CC)
- h) Security Coordinator (SC)
- i) Emergency Team Coordinator (ETC)

3 PROCEDURE

3.1 TSC STARTUP

- 3.1.1 Each TSC staff member that arrives at the TSC is responsible for carding in on the accountability card reader, assisting in the facility startup and initiating their checklist.

3.2 TSC OPERATION

- 3.2.1 The Emergency Coordinator ensures that Attachment 1, Emergency Coordinators Checklist, is used as a guide.
- 3.2.1.1 The EC should periodically discuss priorities, habitability of the facility and Site radiological conditions with the HPC. If evacuation of the TSC becomes necessary refer to Section 3.3.
- 3.2.1.2 The EC should ensure TSC personnel receive a periodic plant status update, including priorities, any change to facility habitability or Site radiological conditions.
- 3.2.2 Each TSC coordinator is responsible for completing their Checklist.

3.3 TSC EVACUATION

- 3.3.1 Evacuation of the facility should be considered:
- a) When direct dose rates reach or exceed 5,000 mrem/hour, or
 - b) When cumulative dose reaches or exceeds 4,400 mrem, or
 - c) When iodine concentration reaches or exceeds 1.9 E-5 $\mu\text{Ci/ml}$.
- 3.3.2 Evacuation may be required if power is unavailable or the ventilation system fails.

- 3.3.3 Coordinators should go to the facilities as indicated depending on their availability.
- a) Emergency Coordinator (EC) – to Control Room.
 - b) Technical Assessment Coordinator (TAC) – to Field Office if habitable then Control Room.
 - c) Operations Support Coordinator (OSC) – to Field Office if habitable then Control Room.
 - d) Administrative (Admin) Coordinator (AC) – to EOF.
 - e) Health Physics (HP) Coordinator (HPC) – to Field Office if habitable then Control Room.
 - f) TSC (ENS) Communicator (TC) – to Control Room.
 - g) Chemistry Coordinator (CC) – to EOF.
 - h) Security Coordinator (SC) – to EOF.
- 3.3.4 Coordinators reporting to the Control Room should evaluate minimum staff required to go with them and assign others to the EOF.
- 3.3.4.1 The OSC should take the Emergency Team Coordinators and minimum number of team members.
- 3.4 EVENT CLOSEOUT
- 3.4.1 If the emergency conditions allow the initiation of recovery operations or the closeout of the event, the Emergency Coordinator should contact the Recovery Manager (RM) and discuss implementation of **EIP-ZZ-00260**, Event Closeout/Recovery.
- 3.4.2 TSC personnel continue activities in accordance with this procedure until turned over to the Recovery Organization or closeout is declared.
- 3.5 TSC SHUTDOWN
- 3.5.1 If the TSC is to be shut down, direct the Coordinators to initiate Termination and Shutdown section of their Checklist.
- 3.5.2 The Emergency Coordinator should make preparations with the Shift Supervisor to transfer remaining responsibilities to the Control Room.

- 3.5.3 The Administrative Coordinator assesses the status of the TSC and ensures the following actions have been completed:
 - 3.5.3.1 All functional equipment/supplies have been restored to startup conditions.
 - 3.5.3.2 The entire TSC staff has been relieved of all duties associated with the operation of the TSC.
 - 3.5.3.3 All records generated during the operation of the TSC have been collected.
- 3.5.4 After shifting responsibilities, inform the Shift Supervisor and Recovery Manager that the TSC is shut down.

4 REFERENCES

- 4.1 Callaway Plant Radiological Emergency Response Plan (RERP)
- 4.2 **EIP-ZZ-00101**, Classification of Emergencies
- 4.3 **EIP-ZZ-00102**, Emergency Implementing Actions
- 4.4 **EIP-ZZ-00212**, Protective Action Recommendation
- 4.5 **EIP-ZZ-00213**, Technical Assessment
- 4.6 **EIP-ZZ-00217**, Emergency Response Data System Activation
- 4.7 **EIP-ZZ-00220**, Emergency Team Formation
- 4.8 **EIP-ZZ-00230**, Accountability
- 4.9 **EIP-ZZ-00260**, Event Closeout/Recovery
- 4.10 **OTN-ZZ-00001**, TSC Building HVAC System.
- 4.11 HPCI 96-007, Emergency Response Facility Habitability Guidelines
- 4.12 Severe Accident Management Guidelines

5 RECORDS

NOTE: All Facility Logs, SENTRY and MAGNEM screen prints, office memos, notes, etc. should be attached to the Coordinator Checklist and turned in to the Admin Coordinator and/or Emergency Preparedness (EP).

5.1 QA RECORDS

- 5.1.1 Attachment 1, Emergency Coordinator Checklist (File K171.0010)
- 5.1.2 Attachment 2, Technical Assessment Coordinator (TAC) Checklist (File K171.0010)
- 5.1.3 Attachment 3, Operations Support Coordinator (OSC) Checklist (File K171.0010)
- 5.1.4 Attachment 4, Administrative (Admin) Coordinator Checklist (File K171.0010)
- 5.1.5 Attachment 5, Health Physics (HP) Coordinator Checklist (File K171.0010)
- 5.1.6 Attachment 6, TSC (ENS) Communicator Checklist (File K171.0010)
- 5.1.7 Attachment 7, Chemistry Coordinator Checklist (File K171.0010)
- 5.1.8 Attachment 8, Security Coordinator (SC) Checklist (File K171.0010)
- 5.1.9 Attachment 9, Emergency Team Coordinator (ETC) Checklist (File K171.0010)

EMERGENCY COORDINATOR CHECKLIST

Date _____ Time: _____

<u>INITIATION</u>	
<input type="checkbox"/> 1.	<input type="checkbox"/> Card in on the accountability card reader. <input type="checkbox"/> Sign in on Facility Sign-in board. <input type="checkbox"/> Obtain the EC package. <input type="checkbox"/> Clip on Emergency Coordinator badge. <input type="checkbox"/> Adjust Gaitronics Volume <input type="checkbox"/> Review KOA-ZZ- A0002 "COMMAND AND CONTROL GUIDELINES"
<input type="checkbox"/> 2.	Initiate Log Sheet.
<input type="checkbox"/> 3.	Receive briefing by: <input type="checkbox"/> Technical Assessment Coordinator. (EAL Monitoring). <input type="checkbox"/> Shift Supervisor and relieve him as Emergency Coordinator.
<input type="checkbox"/> 4.	Announce assumption of "Emergency Coordinator" duties to TSC staff.
<input type="checkbox"/> 5.	Review plant/group status with TSC Coordinators: <input type="checkbox"/> Administrative. <input type="checkbox"/> TSC (ENS) Communicator. <input type="checkbox"/> Health Physics. <input type="checkbox"/> Operations Support/Support Area. <input type="checkbox"/> Technical Assessment. <input type="checkbox"/> Chemistry. <input type="checkbox"/> Security.
<input type="checkbox"/> 6.	Ensure the following responsibilities have been transferred from Control Room. <input type="checkbox"/> <u>EAL MONITORING.</u> <input type="checkbox"/> <u>ENS COMMUNICATION.</u> <input type="checkbox"/> <u>PAR MONITORING</u> (if the RM position in the EOF is not manned). <input type="checkbox"/> <u>SAMG Implementation</u> (if applicable).
<input type="checkbox"/> 7.	Make a site-wide announcement that, "The TSC has accepted emergency responsibilities from the Control Room."
<input type="checkbox"/> 8.	Announce the following: "TSC Coordinators assess your manpower needs and request additional personnel from the Admin Coordinator as needed. All excess personnel should assemble in the Operations Support Area and await further instructions."
<input type="checkbox"/> 9.	After assessing manpower needs, instruct all excess personnel to return home or return to work (ALERT) and remain near their phones. Personnel sent home should remain fit for duty and will be contacted concerning shift relief and turnover.

<u>OPERATIONS</u>	
<i>(*) Steps are items that MUST be frequently reviewed</i>	
<input type="checkbox"/> *1.	Periodically update TSC personnel including priorities, habitability status and Site radiological conditions. Note: Priorities should be listed on the Priority Status Board
<input type="checkbox"/> *2.	Continue activities per EIP-ZZ-00102, Emergency Implementing Actions.
<input type="checkbox"/> *3.	Perform periodic briefs with the below individuals concerning on-site activities: <input type="checkbox"/> TSC Coordinators. <input type="checkbox"/> RM. <input type="checkbox"/> SS. <input type="checkbox"/> On site NRC personnel.

EMERGENCY COORDINATOR CHECKLIST**TURNOVER**

<input type="checkbox"/> 1.	Incoming Emergency Coordinator briefed on TSC status and log reviewed.
<input type="checkbox"/> 2.	Recovery Manager and Shift Supervisor informed.
<input type="checkbox"/> 3.	Turnover announced to TSC staff.
<input type="checkbox"/> 4.	Turnover complete _____ Time.
<input type="checkbox"/> 5.	Turnover logged.
<input type="checkbox"/> 6.	Initiate a new checklist CA# 259.

RECOVERY

<input type="checkbox"/> 1.	Declare Recovery per EIP-ZZ-00260, Event Closeout/Recovery (if applicable). <input type="checkbox"/> Recovery Manager contacted. <input type="checkbox"/> Shift Supervisor contacted. <input type="checkbox"/> Recovery organization established. <input type="checkbox"/> Make site wide announcement.
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TERMINATION and SHUTDOWN

<input type="checkbox"/> 1.	Shutdown TSC (if required). <input type="checkbox"/> Coordinators directed to shutdown TSC _____ Time. <input type="checkbox"/> Make site wide announcement.
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Emergency Coordinator Signature

TECHNICAL ASSESSMENT COORDINATOR (TAC) CHECKLIST

Date _____ Time: _____

INITIATION	
<input type="checkbox"/> 1.	<input type="checkbox"/> Card in on the accountability card reader. <input type="checkbox"/> Sign in on Facility Sign-in board. <input type="checkbox"/> Obtain the TAC package <input type="checkbox"/> Clip on the Tech. Assessment Coordinators badge. <input type="checkbox"/> Adjust Gaitronics Volume
<input type="checkbox"/> 2.	Ensure the TSC has power. <input type="checkbox"/> Normal power, (i.e. lights on, power available to computers, etc.). <input type="checkbox"/> No Power. Start the TSC diesel per OOA-UB-EPG70 . (WCE Supervisors, WCE Planners, Journeyman Electricians and EOs should be used to operate the Manual Transfer Switch MTSUB7001.) CARS 200200182
<input type="checkbox"/> 3.	Shift the following to UPS power: <input type="checkbox"/> Computer link located in the closet near the kitchen. <input type="checkbox"/> PC power supplies CARS 200105972
<input type="checkbox"/> 4.	If outside temperature is approximately 40°F or above, locate panel FIKUB7001 TSC Air Handling Unit Control Panel , just inside the TSC Equipment Room Door and to the left. Place the TSC Air Handling Unit Control Switch CSUB7005 in the COOL position. CARS 200002783
<input type="checkbox"/> 5.	Initiate Log Sheet.
<input type="checkbox"/> 6.	Activate Plant Status Boards from the Plant Computer (Cancel , type PSB , Return) or use keyboard commands on the PC. NOTE: In the event of Plant Computer System failure, refer to EIP-ZZ-00213 , Technical Assessment, for further guidance.
<input type="checkbox"/> 7.	Turn on the Projected Status Boards using the remote control. They are connected to the PCs. Keyboard controls MUST be used for the PCs.
<input type="checkbox"/> 8.	Obtain brief from the SS, STA or other CR personnel. Contact CR via phone as little as possible until the Control Room TSC Liaison is staffed then use the Tech Assessment Line (dial 211), always provide your name and title.
<input type="checkbox"/> 9.	The following should be logged: <input type="checkbox"/> Plant Status/Event Status <input type="checkbox"/> Current EAL(s) <input type="checkbox"/> Equipment Status (equipment out of service?) <input type="checkbox"/> Protective Action Recommendations (PAR) Issued per EIP-ZZ-00212 . <input type="checkbox"/> Dose Assessment contact _____ (name) section Inform Control Room when accepting _____ EAL(s) PAR(s) SAMG(s) responsibilities Additional instructions? _____
<input type="checkbox"/> 10.	Activate Emergency Response Data System ERDS per EIP-ZZ-00217 (if not already activated) from the Plant Computer. (Cancel , type ERDS , return type in password NRCERDS , return , select F2 to activate) When ERDS is activated the system displays "Data Transmission in Progress". To return to PSB 's, select Cancel , type PSB , Return ; ERDS continues to run unaffected in the background. Inform the ENS Communicator if ERDS cannot be activated (i.e., loss of Plant Computer). CARS 199903613
<input type="checkbox"/> 11.	Assign the Reactor Engineer to: <input type="checkbox"/> Project Shutdown margins for current and anticipated conditions taking into consideration transient Xenon and Boron concentration. <input type="checkbox"/> Perform core damage assessment using EDP-ZZ-00005 .
<input type="checkbox"/> 12.	Begin monitoring Emergency Action Levels (EAL) per EIP-ZZ-00101 .
<input type="checkbox"/> 13.	Brief the Emergency Coordinator, upon his arrival, on the TSC activities.
<input type="checkbox"/> 14.	Place TSC Ventilation System in the Filter Mode per OOA-UB-00005 . (An EO may be used if available.)

<input type="checkbox"/> 15.	Personnel Assessment <div style="margin-left: 40px;"> <input type="checkbox"/> Chemistry Coordinator _____ (Name)(1 required) <input type="checkbox"/> Technical Assessment Status Board Keepers _____ (Name) (3 required) <div style="margin-left: 400px;"> _____ (Name) _____ (Name) </div> </div> Engineers Lead Engineer (1 required) _____ Mechanical (1 required) _____ Electrical (1 required) _____ Reactor (1 required) _____ I&C (1 required) _____ Other _____ Other _____
<input type="checkbox"/> 16.	Ensure the Facility clock is synchronized to the plant computer or control room clock
<input type="checkbox"/> 17.	Technical Assessment Group ready to accept responsibilities. Log and inform the Emergency Coordinator.
<input type="checkbox"/> 18.	Discuss any additional support or supplies required with the Admin Coordinator.

(*) Steps are items that **MUST** be frequently reviewed

- | | |
|------------------------------|--|
| <input type="checkbox"/> *1. | Engineering Personnel that leave the Facility should check out with the Security Officer. If a release above normal operating limits has occurred or is likely to occur a HP brief is required. CARS 199701061 |
| <input type="checkbox"/> *2. | If personnel are dispatched to another facility a follow up call should be initiated in 15-20 minutes to ensure they arrive safely. CARS 199901904 |
| <input type="checkbox"/> *3. | To obtain Plant Status Boards printout from the Plant Computer terminals (not PCs), Cancel , enter FF ; select the TSC printer, then F1 . To use the color printer depress Ctrl & PF20 simultaneously. |
| <input type="checkbox"/> *4. | Toggle between PSB1 and PSB2 using the Blue TOUCH areas on the Plant Computer terminals or keyboard commands on the PCs. To obtain area radiation monitors type ARM or PCD – Return . |
| <input type="checkbox"/> *5. | Inform the EC of any changes in EAL's or of any conditions or trends, that could cause a change in EAL's (i.e. radiation levels, releases, etc.). |
| <input type="checkbox"/> *6. | Plant Computer turn on codes <ul style="list-style-type: none"> <input type="checkbox"/> ARM Area Radiation Monitors <input type="checkbox"/> PCD Dose Assessment general overview including MET data, Rad data and flow status. <input type="checkbox"/> PCDU Dose Assessment for the Unit Vent, Containment and Aux Building releases. <input type="checkbox"/> PCDRS Dose Assessment for Radwaste and Steam releases. |
| <input type="checkbox"/> *7. | Upon entry into the Recirculation Phase of RHR perform the following: <ul style="list-style-type: none"> <input type="checkbox"/> Direct the Chemistry Coordinator to obtain 12 hour RWST samples per CSP-ZZ-07540. <input type="checkbox"/> Inform HPC of probable increase in Auxiliary Building dose rates. <input type="checkbox"/> Inform HPC of possible valve leakage back to RWST, which could change dose rates. |

TECHNICAL ASSESSMENT COORDINATOR (TAC) CHECKLIST**TURNOVER**

<input type="checkbox"/> 1.	Incoming Technical Assessment Coordinator briefed on TSC status and review log.
<input type="checkbox"/> 2.	Emergency Coordinator informed.
<input type="checkbox"/> 3.	Turnover announced to Technical Assessment staff.
<input type="checkbox"/> 5.	Turnover complete _____ Time.
<input type="checkbox"/> 6.	Turnover logged.
<input type="checkbox"/> 7.	Initiate a new checklist CA# 261.

RECOVERY

<input type="checkbox"/> 1.	Assess the following: <input type="checkbox"/> a. Plant equipment status <input type="checkbox"/> b. Accident assessment <input type="checkbox"/> c. Control of radiological releases <input type="checkbox"/> d. Ability to resume normal operations
<input type="checkbox"/> 2.	Continue Technical Assessment activities until directed otherwise by the Emergency Coordinator or RM.

TERMINATION and SHUTDOWN

<input type="checkbox"/> 1.	When directed by the Emergency Coordinator, inform Tech Assessment staff of deactivation.
<input type="checkbox"/> 2.	Ensure equipment and supplies are deactivated and/or stored.
<input type="checkbox"/> 3.	Ensure documents are collected and given to the Admin Coordinator.
<input type="checkbox"/> 4.	Restore PC UPS power supply to LINE.
<input type="checkbox"/> 5.	Contact Operations to return TSC Ventilation to Normal Mode
<input type="checkbox"/> 6.	Restore TSC Air Handling Unit Control Switch to <u>AUTO</u> position.

Technical Assessment Coordinator Signature

TECHNICAL ASSESSMENT COORDINATOR (TAC) CHECKLIST**PLANT COMPUTER GUIDE****COLOR AND DESCRIPTION OF COMPUTER POINT QUALITY CODES**

The Plant Computer System (PCS) assigns a "Data Quality Code" to each field input and calculated variable at the time the point is processed. These quality codes are determined by a series of checks/tests performed during both input-data validation and point processing. A list of the quality codes follows, which is ordered by severity:

1. **UNK** (Blue) – Unknown; point not yet processed. If a point is deleted from processing when SAIPMS is first activated, "UNK" quality code is assigned. This quality code is also displayed for calculated or derived points which have not yet cycled through their first processing period.
2. **DEL** (Blue) – Point has been deleted from processing. If a point was active when the SAIPMS software was activated, and was subsequently disabled from processing, the quality code "DEL" is assigned and no further engineering unit conversion is attempted.
3. **NCAL** (Blue) – Derived point not calculable. This quality code is assigned when it has been determined that insufficient inputs exist to accurately perform the associated equation or calculation.
4. **INVL** (Blue) – Invalid code is generated when a point's defined hardware channel address has not been selected, does not exist, or cannot be accessed. This usually indicates either an invalid hardware channel address, or a failed hardware component. For example, if a defined card slot address does not contain a card, all points assigned to that card are tagged as INVL. Also, if a multiplexer has either failed or been taken offline, all points assigned to that multiplexer are tagged as INVL.
5. **RDER** (Blue) – Sensor Read Error code is generated when no test return/input is received for a point in response to a scan command/output to a valid hardware channel address. This usually indicates a faulty sensor or a multiplexer communication problem. Whenever a quality code of RDER is observed, a hardware error condition exists.
6. **OTC** (Blue) – Open thermocouple.
7. **BAD** (Blue) – The BAD (Bad Scanned Value) code is generated when the "corrected" scanned value (i.e. adjusted for A/D gain and zero-drift error) exceeds the sensor range as defined by a point's "SENSOR LIMIT LOW" and "SENSOR LIMIT HIGH" values in the database.
8. **HRL** (Blue) – Point exceeds high reasonable limits. This condition is tested after engineering unit conversion and if the value exceeds the defined High Reasonable limit, a quality code of "HRL" is assigned.
9. **LRL** (Blue) – Point exceeds low reasonable limits. This condition is tested after engineering unit conversion and if the value exceeds the defined Low Reasonable limit, a quality code of "LRL" is assigned.
10. **REDU** (Cyan) – Point fails redundant point check. If a point has a defined Redundant Point and its current value does not match the defined point within the specified tolerance, it is assigned a quality code of "REDU".

TECHNICAL ASSESSMENT COORDINATOR (TAC) CHECKLIST**PLANT COMPUTER GUIDE**

11. **HIHI**(Red) – Point above high alarm limit. This condition is met when a point's current value has exceeded the defined High Alarm limit, and is assigned a quality code of "HIHI".
12. **LOLO** (Red) – Point below low alarm limit. This condition is met when a point's current value is less than the defined LOW Alarm limit, and is assigned a quality code of "LOLO".
13. **HALM** (Yellow) – Point above high warning limit. This condition is met when a point's current value has exceeded the defined High Operating limit, and is assigned a quality code of "HALM".
14. **LALM** (Yellow) – Point below low warning limit. This condition is met when a point's current value is below the defined Low Operating limit, and is assigned a quality code of "LALM".
15. **ALM** (Red) – State/Change-of-State alarm. Any logical-value point may be alarm monitored against either a defined logical state (i.e., "TRUE", or "FALSE"), or a defined change-of-state condition (i.e., "TRUE" to "FALSE", "FALSE" to "TRUE", or either state change). A quality code of "ALM" is assigned if the point meets any of the above conditions.
16. **SUB** (Cyan) – Substitute value inserted for point. If a substitute value has been entered for a point, the point is assigned a quality code of "SUB", and no further alarm checks or engineering unit conversions are made.
17. **DALM** (Cyan) – Point is deleted from alarm checks. If a point is currently disabled from alarm processing, it is assigned a quality code of "DALM", and no further alarm checks are made.
18. **INHB** (Green) – Point is inhibited from alarm by cut-out point. If a point has an assigned cut-out point, and the current state of the cut-out point matches the specified alarm inhibit state, the point is assigned a quality code of "INHB", and no alarm transaction is generated. While inhibited, the point value WILL continue to update, only the alarm condition is inhibited.
19. **GOOD** (Green) – Point passed all the above checks. The quality code "GOOD" indicates that all defined alarm conditions, states, or values have not been exceeded or met.

Date _____ Time: _____

<u>INITIATION</u>	
<input type="checkbox"/> 1.	<input type="checkbox"/> Card in on the accountability card reader. <input type="checkbox"/> Sign in on Facility Sign-in board. <input type="checkbox"/> Obtain the OSC package. <input type="checkbox"/> Clip on the Operations Support Coordinator badge. <input type="checkbox"/> Adjust Gaitronics Volume
<input type="checkbox"/> 2.	Ensure the TSC has power. <input type="checkbox"/> Normal power <input type="checkbox"/> No Power. Start the TSC diesel per OOA-UB-EPG70 . (WCE Supervisors, WCE Planners, Journeyman Electricians and EOs should be used to operate the Manual Transfer Switch MTSUB7001.) CARS 200200182
<input type="checkbox"/> 3.	Inform Emergency Coordinator and Admin. Coordinator of your arrival.
<input type="checkbox"/> 4.	Initiate Log Sheet.
<input type="checkbox"/> 5.	Control Room/TSC Liaison contacted and status brief obtained.
<input type="checkbox"/> 6.	Contact Emergency Team Coordinator(s) (ETC) and obtain the Support Area (SA) status.
<input type="checkbox"/> 7.	Personnel Assessment a. Emergency Team Coordinator (s) Mechanical: _____ (name) (1 required) Electrical: _____ (name) (1 required) b. Personnel: Mechanics _____ (number) (2 required) Electricians _____ (number) (2 required) I&C Techs. _____ (number)(This should include the shift Techs) (2 required) Storekeeper _____ (name) (1 required)
<input type="checkbox"/> 8.	OSC Group ready for responsibilities _____ Time. (Also make log entry).
<input type="checkbox"/> 9.	Emergency Coordinator and Admin. Coordinator informed OSC ready.
<input type="checkbox"/> 10.	Discuss any additional support or supplies required with the Admin Coordinator. OSA Support Request may be made utilizing page 3 of 3 of this attachment.

<p align="center"><u>OPERATIONS</u></p> <p align="center"><i>(*) Steps are items that MUST be frequently reviewed</i></p>	
<input type="checkbox"/> *1.	Maintain contact with Control Room/TSC Liaison and keep Emergency Coordinator informed of significant activities/events.
<input type="checkbox"/> *2.	Periodically brief the Emergency Coordinator on the priorities that have been established for Emergency Teams. CARS 199903669
<input type="checkbox"/> *3.	Inform the ETC that Support Area Personnel that leave the Facility should check out with the Security Officer. If a release above normal operating limits has occurred or is likely to occur a HP brief is required. CARS 199701061
<input type="checkbox"/> *4.	If personnel are dispatched to another facility a follow up call should be initiated in 15-20 minutes to ensure they arrive safely. CARS 199901904
<input type="checkbox"/> *5.	Ensure Emergency Teams are formed and briefed as needed per EIP-ZZ-00220 Emergency Team Formation.
<input type="checkbox"/> *6.	Ensure Emergency Team Coordinators track Teams as to location and progress of their assignment.

OPERATIONS SUPPORT COORDINATOR (OSC) CHECKLIST

<input type="checkbox"/> *7.	Interface with the Technical Assessment and Health Physics Groups to ensure coordination of activities.
<input type="checkbox"/> 8.	If accountability is declared, provide Security Coordinator with badge numbers of personnel that have been assigned to an emergency team that has left the TSC.
<input type="checkbox"/> *9.	Monitor TSC operating equipment periodically: <ul style="list-style-type: none"> <input type="checkbox"/> TSC Emergency Diesel. <input type="checkbox"/> TSC Emergency Ventilation Filter System. (NOTE: Be aware of rapidly changing radiation levels during periods of releases.)

TURNOVER

<input type="checkbox"/> 1.	Incoming OSC Coordinator briefed on OSC status and review log.
<input type="checkbox"/> 2.	Notify the Emergency Team Coordinators of the turnover.
<input type="checkbox"/> 3.	Notify the Control Room/TSC Liaison of the turnover.
<input type="checkbox"/> 4.	Emergency Coordinator informed.
<input type="checkbox"/> 5.	Turnover complete _____ Time.
<input type="checkbox"/> 6.	Turnover logged.
<input type="checkbox"/> 7.	Initiate a new checklist CA# 262.

RECOVERY

<input type="checkbox"/> 1.	Assess the following: <ul style="list-style-type: none"> <input type="checkbox"/> Plant equipment status. <input type="checkbox"/> Emergency team status. All Emergency Team work needs to be completed, turned over to Recovery or normal maintenance. <input type="checkbox"/> Ability to resume normal operations
<input type="checkbox"/> 2.	Continue Operations Support activities until directed otherwise by the Emergency Coordinator or RM.

TERMINATION and SHUTDOWN

<input type="checkbox"/> 1.	Upon direction of the Emergency Coordinator/Administrative Coordinator, contact the Emergency Team Coordinator and inform of deactivation
<input type="checkbox"/> 2.	Ensure OSC/SA equipment and supplies are deactivated and/or stored.
<input type="checkbox"/> 3.	Ensure documents are collected and given to the Admin Coordinator.

 Operations Support Coordinator Signature

OPERATIONS SUPPORT COORDINATOR (OSC) CHECKLIST**OSA SUPPORT REQUEST**

Administrative (Admin.) Coordinator,

The Operations Support Area (OSA) requires the following support. This support is needed (circle one)

Immediately

At next Shift, at _____ (enter time)

POSITION**NUMBER NEEDED**

Operations Support Coordinator

Electrical Emergency Team Coordinator

Mechanical Emergency Team Coordinator

Storekeeper

Mechanical Supervisor

Electrical Supervisor

I&C Supervisor

Mechanical Planner

Electrical Planner

I&C Planner

Electrician

Machinist

Welder

I & C Technician

Electrical Apprentice

Machinist Apprentice

Welder Apprentice

I&C Apprentice

Insulator

Plant Helper

Nuclear Utility Worker

Tool Room Mechanic

Operating Supervisor (Shift Supervisor concurrence obtained)

Equipment Operator (Shift Supervisor concurrence obtained)

ADMINISTRATIVE (ADMIN) COORDINATOR CHECKLIST

Date _____ Time: _____

INITIATION

<input type="checkbox"/> 1.	<input type="checkbox"/> Card in on the accountability card reader. <input type="checkbox"/> Sign in on Facility Sign-in board. <input type="checkbox"/> Obtain the Admin Coordinators package. <input type="checkbox"/> Clip on the Admin Coordinators badge <input type="checkbox"/> Adjust Gaitronics Volume
<input type="checkbox"/> 2.	Inform Emergency Coordinator and Technical Assessment Coordinator of your presence.
<input type="checkbox"/> 3.	Shift the SENTRY Computer power supply to UPS position.
<input type="checkbox"/> 4.	Initiate Log Sheet.

OPERATIONS CARS 199903558*(*) Steps or items that must be frequently reviewed*

<input type="checkbox"/> 1.	Equipment availability and operation. Check on: <ul style="list-style-type: none"> <input type="checkbox"/> Personal Computers (PC) <input type="checkbox"/> SENTRY Computer (NOTE: Ensure SENTRY is operational) CARS 200105707 <input type="checkbox"/> Telephones <input type="checkbox"/> Copier <input type="checkbox"/> Fax <input type="checkbox"/> Reader/Printer <input type="checkbox"/> Print Plotter
<input type="checkbox"/> 2.	Status TSC Coordinators and keep the EC informed periodically until all positions are filled. <ul style="list-style-type: none"> <input type="checkbox"/> Technical Assessment Coordinator <input type="checkbox"/> Health Physics Coordinator <input type="checkbox"/> Operations Support Coordinator <input type="checkbox"/> TSC (ENS) Communicator <input type="checkbox"/> Chemistry Coordinator <input type="checkbox"/> Security Coordinator
<input type="checkbox"/> *3.	Check status of TSC emergency responders per EIP-ZZ-00200 Attachment 2. DO NOT delete messages until all positions are filled. Distribute copies of Attachment 2 to the coordinators periodically until all positions are filled. Paging or calling using the Emergency phone directory may be required. <ul style="list-style-type: none"> <input type="checkbox"/> Call 64777 to obtain Audix. <input type="checkbox"/> Enter 68400 and the # sign. <input type="checkbox"/> Enter the password which is only the # sign. <input type="checkbox"/> Follow the instructions to listen to the new messages and complete attachment 2. <input type="checkbox"/> Contact SAS (68785) for any positions that was logged due to Audix message transfer.
<input type="checkbox"/> 4.	Personnel Assessment Admin/Clerical Support Personnel (call in as necessary) CARS 199903558 <ul style="list-style-type: none"> <input type="checkbox"/> _____ (name) <u>One NIS Support person should be considered.</u> <input type="checkbox"/> _____ (name) <u>One person to callout/canvass additional support.</u> <input type="checkbox"/> _____ (name) <u>One person for the RM in the EOF.</u> <input type="checkbox"/> _____ (name) <u>One person for the LSC in the EOF.</u> <input type="checkbox"/> _____ (name) <u>One person for the EC in the TSC.</u> <input type="checkbox"/> _____ (name) <input type="checkbox"/> _____ (name) <input type="checkbox"/> _____ (name) <p>As personnel request are made, contact Admin Personnel in the CMB by calling 68369 or by Gaitronics.</p>

ADMINISTRATIVE (ADMIN) COORDINATOR CHECKLIST

<input type="checkbox"/> *5.	<input type="checkbox"/> Monitor the Declaration Status Boards. <input type="checkbox"/> Ensure the Declaration Status Boards are current with the Emergency Classification announcements. CARS 199903558 <input type="checkbox"/> Monitor the receipt of SENTRY Notifications at LAN printer and /or Fax machine and deliver to ENS Communicator.
<input type="checkbox"/> *6.	Personnel that leave the Facility should check out with the Security Officer. If a release above normal operating limits has occurred or is likely to occur a HP brief is required. CARS 199701061
<input type="checkbox"/> *7.	If personnel are dispatched to another facility a follow up call should be initiated in 15-20 minutes to ensure they arrive safely. CARS 199901904
<input type="checkbox"/> *8.	Ensure the availability of the following administrative services: <ul style="list-style-type: none"> <input type="checkbox"/> Typing, Word Processing <input type="checkbox"/> Copying, Reproduction <input type="checkbox"/> Fax <input type="checkbox"/> Document control <input type="checkbox"/> Drawings <input type="checkbox"/> Message and mail Delivery <input type="checkbox"/> Telephone Repair and Installation <input type="checkbox"/> Radio Repair (Ameren Telecom.) <input type="checkbox"/> _____ <input type="checkbox"/> _____
<input type="checkbox"/> *9.	If operations become or have the potential to become long term, coordinate with the Logistics Support Coordinator (LSC) in the EOF to address the following items for site personnel. <ul style="list-style-type: none"> <input type="checkbox"/> Contact Security for number of personnel inside the protected area. CARS 199903558 <input type="checkbox"/> Meals ordered and scheduled for the entire organization; personnel informed of meal times and locations. <input type="checkbox"/> Sleeping space arranged for emergency personnel: personnel informed as to location. <input type="checkbox"/> Shift schedule prepared for emergency personnel: appropriate personnel notified. (Use the sign in board and Emergency Telephone Directory to make up roster.) <input type="checkbox"/> Janitorial/waste disposal services arrangements made.
<input type="checkbox"/> *10.	Requests for additional vendor support personnel are to be coordinated with the Logistics Support Coordinator in the EOF. Obtain the following information from the Logistics Support Coordinator: <ul style="list-style-type: none"> <input type="checkbox"/> Name(s) of personnel <input type="checkbox"/> Social Security Number <input type="checkbox"/> Work space requirements <input type="checkbox"/> Estimated time of arrival Contact: <ul style="list-style-type: none"> <input type="checkbox"/> Supervisor Admin, Access Control and arrange for plant access as required. <input type="checkbox"/> Plant helper group to set up desk etc., as required.
<input type="checkbox"/> *11.	Coordinate requests for additional equipment with the Logistics Support Coordinator in the EOF. <ul style="list-style-type: none"> <input type="checkbox"/> Obtain the information from the requesting organization and supply it to the Logistics Support Coordinator: <input type="checkbox"/> Explicit equipment requirements in writing <input type="checkbox"/> Amount needed <input type="checkbox"/> Delivery location <input type="checkbox"/> Person on site to contact
<input type="checkbox"/> *12.	Contact the Logistical Support Coordinator in the EOF and coordinate to provide Administrative Support to the entire organization.

ADMINISTRATIVE (ADMIN) COORDINATOR CHECKLIST

<input type="checkbox"/> *13.	<p>In the event of an accident or illness perform the following: (<i>Note: DO NOT release the individual's name.</i>) Call the control room (CR/TSC Liaison via OSC) and obtain the following. CARS 199903558</p> <p><input type="checkbox"/> Nature of injury or illness. <input type="checkbox"/> Contaminated? <input type="checkbox"/> Transported offsite to doctor, hospital etc. <input type="checkbox"/> If the incident may attract media attention call the JPIC Administrator or Coordinator and supply them with the information.</p>
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TURNOVER

<input type="checkbox"/> 1.	Brief the incoming Admin. Coordinator of the status of administrative activities and review log.
<input type="checkbox"/> 2.	Notify the Admin. and clerical staff of the turnover.
<input type="checkbox"/> 3.	Notify the Emergency Coordinator turnover complete.
<input type="checkbox"/> 4.	Turnover complete _____ Time.
<input type="checkbox"/> 5.	Turnover logged.
<input type="checkbox"/> 6.	Initiate a new Checklist CA# 263.

RECOVERY

<input type="checkbox"/> 1.	Continue Administrative activities until directed otherwise by the Emergency Coordinator or RM.
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TERMINATION and SHUTDOWN

<input type="checkbox"/> 1.	<p>Upon direction of the Emergency Coordinator, begin terminating operation as follows</p> <p><input type="checkbox"/> Responsibilities transferred to the Control Room. <input type="checkbox"/> All functional equipment/supplies have been restored to startup conditions. <input type="checkbox"/> Restore SENTRY Computer UPS power supply to Line position. <input type="checkbox"/> Records collected, and forwarded to Emergency Preparedness Department. <input type="checkbox"/> Staff relieved of TSC duties.</p>
<input type="checkbox"/> 2.	Control Room informed of TSC shutdown.
<input type="checkbox"/> 3.	TSC shut down Time _____.

Administrative Coordinator Signature

HEALTH PHYSICS (HP) COORDINATOR CHECKLIST

Date _____ Time: _____

INITIATION		
<input type="checkbox"/> 1.	<input type="checkbox"/> Card in on the accountability card reader. <input type="checkbox"/> Close front door to vestibule and back hallway door from support area. <input type="checkbox"/> Direct incoming traffic to enter through portal monitor <input type="checkbox"/> Sign in on Facility Sign-in board. <input type="checkbox"/> Obtain the Health Physics Coordinators package. <input type="checkbox"/> Clip on the Health Physics Coordinators badge. <input type="checkbox"/> Adjust Gaitronics Volume	
<input type="checkbox"/> 2.	Inform Emergency Coordinator and Admin. Coordinator of your presence.	
<input type="checkbox"/> 3.	Initiate Log Sheet.	
<input type="checkbox"/> 4.	Shift the HPC Plant Computer power supply to the UPS position.	
<input type="checkbox"/> 5.	Personnel Assessment On Shift: <input type="checkbox"/> _____ (name) HP Ops Shift Technician (HPOPS) . Obtain Plant status and radiological concerns. Status setup of Control Room / Field Office in accordance with EIP-ZZ-00102 , Attachment 2. HPOPS Tech to provide HP coverage for On Shift personnel as directed by Shift Supervisor. <input type="checkbox"/> _____ (name) HP Tech Support Technician (HPTS) . Obtain Plant, radiological release, meteorological, and Protective Action Recommendation status from the HPTS Tech performing dose assessment. <input type="checkbox"/> _____ (name) Chemistry Technician . The Chemistry Technician is responsible for sampling and analysis as needed to identify the source and magnitude of the emergency. Chemistry Technicians are qualified as Support Area Personnel in the Health Physics group.	
<input type="checkbox"/> 6.	OSA Responders NOTE: Minimum 14 R/C Support Personnel required, (one MUST be a Chemistry Tech.) Assign personnel as they arrive to the TSC based on priorities, <u>not</u> as listed, using the below guidance.	
	1. _____	<input type="checkbox"/> Contact the DAC and discuss the need to Assign R/C Support Personnel to the Rapid Plume Assessment Tech, (RPAT) position if not already dispatched.
	2. _____ 3. _____	<input type="checkbox"/> Assign 2 R/C Support Personnel to FMTs. HPC obtains FMT Driver from OSA, Engineering or Rad Chem Departments. Dispatch the teams and drivers in accordance with EIP-ZZ-00211 .
	4. _____ 5. _____	<input type="checkbox"/> Assign 2 R/C Support Personnel to the EOF for Dose Assessment Staff and FMT Communicator. Brief with FMTs if personnel are available, but do not delay dispatching.
	6. _____	<input type="checkbox"/> Assign R/C Support Personnel to perform Onsite survey of plume if a release above normal operating limits is suspected or in progress, monitor habitability of MAF, Field Office, HPAC, and Control Room as needed.
	7. _____	<input type="checkbox"/> Assign R/C Support Personnel to monitor Plant Computer Screens, maintain Facility Log, and answer phones / radio. Initiate FF Logs and update HPC on any changes approx. every 15 minutes. Wind speed and wind direction should be closely monitored along with In Plant radiological conditions.

HEALTH PHYSICS (HP) COORDINATOR CHECKLIST

8. _____	<input type="checkbox"/> Assign HP Brief Tech to report directly to the OSC to support Radiological Briefings and Emergency Teams. All prepared radiological briefings should be reviewed with HPC prior to conducting brief of Emergency Team. <input type="checkbox"/> Have R/C Techs response check portable instruments, prepare equipment and supplies. <input type="checkbox"/> Have R/C Tech set up EDs in Rapid Entry Mode. Request Setpoints from HPC <input type="checkbox"/> Have R/C Tech ensure all OSA personnel read and sign the Emergency RWP. TEDE/CDE Evaluation: Mrem gamma X 3 = TEDE Mrem gamma X 40 =CDE thy
9. _____	
10. _____	
11. _____	
12. _____	<input type="checkbox"/> Assign Chemistry Support Personnel to the Chemistry Coordinator (if needed).
13. _____	<input type="checkbox"/> Assign R/C Support Personnel to communicate with the NRC via the HPN line (if requested from NRC).
14. _____	<input type="checkbox"/> Assign R/C Support Personnel to maintain Habitability of TSC per Initiation Step 8 and Operation Step 10 of HPC Checklist. Direct R/C Tech to conduct HP briefs and provide dosimetry for personnel leaving the facility that are not assigned to Emergency Teams (as needed).
<input type="checkbox"/> 7.	Contact Dose Assessment Coordinator (DAC) at EOF (ext. 64999): — Inform DAC of RPAT , FMT , Dose Assessment Staff, and FMT Communicator deployment status.
<input type="checkbox"/> 8.	Establish Radiological Habitability Controls in the TSC: <input type="checkbox"/> Portal Monitor energized and response checked. <input type="checkbox"/> Set up a frisking station using a model 177 Rate Meter, as needed, to backup the portal monitor. <input type="checkbox"/> AMS 3 energized and source checked. <input type="checkbox"/> Control Dosimetry placed at HPC Desk.
<input type="checkbox"/> 9.	Notify Emergency Coordinator that HP is ready for operation and habitability in the TSC is established.
<input type="checkbox"/> 10.	HP Group ready for responsibilities at _____ Time. (Also make log entry)..

OPERATIONS

(*) Steps are items that must be frequently reviewed.

<input type="checkbox"/> *1.	Make Facility Announcement that "All personnel leaving the TSC should check out with the Security Officer prior to leaving the facility." If a release above normal operating limits is in progress or anticipated, announce "an HP brief will also be required." NOTE: If a release above normal operating limits is in progress or anticipated, ensure all personnel dispatched from the TSC are issued Electronic Dosimeters and dose is tracked. The Security Officer will verify HP briefs prior to exit.
<input type="checkbox"/> *2.	If personnel are dispatched to another facility a follow up call should be initiated in 15-20 minutes to ensure they arrive safely. CARS 199901904 .

HEALTH PHYSICS (HP) COORDINATOR CHECKLIST

<input type="checkbox"/> *3.	<p>Review needed protective actions for On Site personnel:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Ensure dosimetry issued to Security personnel and Security Coordinator briefed on radiological conditions, wind speed and direction. <input type="checkbox"/> Inform Security Coordinator if a Release Above Normal Operating Limits occurs. <input type="checkbox"/> Coordinate Assembly and Evacuation actions per EIP-ZZ-00230 with the Security Coordinator. (Assembly and Evacuation are required at a SITE and GENERAL EMERGENCY. When discussing Evacuation routes utilizing MAGNEM, use the 10 Mile projected map.) <ul style="list-style-type: none"> <input type="checkbox"/> If Needed the Hearn Center is the preferred Care and Reception Center. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><u>NOTE:</u> If the Hearn Center is not available, the Security Coordinator will provide an alternate based on discussions with SEMA.</p> </div> <ul style="list-style-type: none"> <input type="checkbox"/> Determine need for R/C Support Personnel to monitor Assembly and Evacuation. <input type="checkbox"/> Evaluate restricting access to areas due to release or potential release based on wind direction. <input type="checkbox"/> Evaluate need for Respiratory Protection per HTP-ZZ-01201. <input type="checkbox"/> Evaluate Potassium Iodide (KI) distribution to Emergency Teams, Ops Department and Security personnel per HDP-ZZ-01300 section 7, items 7.1 through 7.1.4..
<input type="checkbox"/> 4.	Obtain Respirator Issue Log and Daily Dose Report from HPACA if LAN and Mainframe Computer are unavailable in the TSC.
<input type="checkbox"/> *5.	Monitor Plant Computer Screens associated with Group 1 & 2 EALs from EIP-ZZ-00101 , Classification of Emergencies. Report any changes in readings to the Technical Assessment Coordinator and EC.
<input type="checkbox"/> *6.	Personnel requiring decontamination should be sent to HPACA. If needed, the back entrance of the TSC can be staged to receive contaminated personnel.

<input type="checkbox"/> *7.	<p>Verify sufficient inventory of the following (additional quantities are available from HPAC or Cal Facility):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Electronic Dosimeters (ED) <input type="checkbox"/> Portable Instruments <input type="checkbox"/> Respirators <input type="checkbox"/> Protective Clothing (PC) <input type="checkbox"/> Consumables (rope, postings, bags, etc.)
<input type="checkbox"/> *8.	Consider preparation of Emergency Dose Extensions for selected Operations Support Area personnel in the event Plant radiological conditions change in accordance with HDP-ZZ-01450 .
<input type="checkbox"/> *9.	<p>Monitor Plant conditions and emergency activities to ensure personnel dose is maintained ALARA.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Monitor and trend Plant Area Radiation monitors, including Control Room and HPACA. <input type="checkbox"/> Radiation levels are expected to increase when Safety Injection recirculation is lined up to Containment. <input type="checkbox"/> Monitor the RWST radiation levels when in the recirculation mode. <input type="checkbox"/> Notify the EC and make announcements to the TSC as Radiological Conditions change. <input type="checkbox"/> Establish radiological postings in the Plant as time and resources allow (MUST be performed prior to Re-entry).
<input type="checkbox"/> *10.	<p>Monitor facility habitability radiological conditions and recommended appropriate protective actions:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Direct dose rate ≥ 600 mrem/hr, inform the EC, and commence monitoring cumulative dose. <input type="checkbox"/> Cumulative dose of $\geq 4,400$ mrem, recommend evacuation of the facility. <input type="checkbox"/> Direct dose rate of $\geq 5,000$ mrem/hr, recommend evacuation. <input type="checkbox"/> Iodine concentrations of $\geq 2.4E^{-6}$ $\mu\text{Ci/ml}$, inform the EC, and commence air sampling to ensure total intake does not exceed 25 rem CDE. <input type="checkbox"/> Iodine concentrations of $\geq 1.9E^{-5}$ $\mu\text{Ci/ml}$, recommend evacuation.
<input type="checkbox"/> *11.	Periodically update the Emergency Coordinator on radiological conditions in the Plant and the status of TSC habitability.

HEALTH PHYSICS (HP) COORDINATOR CHECKLIST

<input type="checkbox"/> *12.	If additional HP support or supplies are needed, coordinate requests through the Admin. Coordinator or Stores person.
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TURNOVER

<input type="checkbox"/> 1.	Brief the oncoming HP Coordinator on radiological information, and any protective actions, both recommended and implemented.
<input type="checkbox"/> 2.	Brief the oncoming HP Coordinator on the status of deployed Emergency Teams.
<input type="checkbox"/> 3.	Review HPC Checklist and Log.
<input type="checkbox"/> 4.	Contact Dose Assessment Coordinator in EOF <ul style="list-style-type: none"> — Arrange for FMT turnover. — Obtain weather forecast. — Inform DAC of oncoming relief.
<input type="checkbox"/> 5.	Notify the Emergency Coordinator of the Turnover
<input type="checkbox"/> 6.	Turnover complete _____ Time.
<input type="checkbox"/> 7.	Turnover logged.
<input type="checkbox"/> 8.	Initiate a new Checklist CA# 264.

RECOVERY

<input type="checkbox"/> 1.	Discuss: <ul style="list-style-type: none"> <input type="checkbox"/> Maintaining of personnel exposure ALARA and preventing spread of contamination. <input type="checkbox"/> Survey and Posting Status. <input type="checkbox"/> Need to implement EIP-ZZ-00225, Reentry <input type="checkbox"/> Decontamination activities. <input type="checkbox"/> Need for additional assistance, supplies, or equipment. <input type="checkbox"/> Long term monitoring. <input type="checkbox"/> Activation of Automated Access Control.
<input type="checkbox"/> 2.	Continue HP operations until directed otherwise by the Emergency Coordinator or RM.

TERMINATION and SHUTDOWN

<input type="checkbox"/> 1.	Upon direction of the Emergency Coordinator/Admin. Coordinator, notify R/C personnel of shutdown.
<input type="checkbox"/> 2.	Turn over any HP support to normal plant staff.
<input type="checkbox"/> 3.	Contact DAC in EOF.
<input type="checkbox"/> 4.	Ensure HP equipment is de-energized, supplies and materials are stored as required. (Note: Gamma 10 should remain on.)
<input type="checkbox"/> 5.	Ensure documents are collected and given to the Admin. Coordinator.
<input type="checkbox"/> 6.	Restore HPC Plant Computer UPS power supply to LINE position.

HEALTH PHYSICS (HP) COORDINATOR CHECKLIST**GAMMA-10 PORTAL MONITOR RESPONSE CHECK****NOTE:**

The key for the electronics cabinet is attached to the response source.

1. Verify 110 VAC power to the unit (green operational light is illuminated and no alarms are activated).
2. Set the NIMBIN power supply On-Off switch to ON and ensure the power light is illuminated.
3. Set the HV-2 NIM On-Off switch to on and ensure the Positive LED is illuminated.
4. Verify that a current calibration label is affixed to the Electronics Box and the pot settings, on the box, are the same as identified on the label.
5. Inspect the monitor for physical damage.
6. Verify no alarms are activated. If alarms are activated clear alarms before continuing.
7. Ensure green operational light is illuminated.
8. Pass the Gamma-10 Response Source through the central region of the monitor. The Contamination alarm should activate on the box, a light and buzzer, and a red light on the portal should illuminate.
9. Depress the reset button on the portal. The alarms should clear and the green operational light should remain lit.
10. If the monitor passes this check, initial and date the Pre-Operational Check Sticker affixed to the Electronics Box.

If the monitor fails the Pre-Operational Checks, tag the unit Out Of Service and notify the Health Physics Coordinator. Set up Frisking Station and have personnel entering the building and those already in the building frisk for contamination, if it is expected.

HEALTH PHYSICS (HP) COORDINATOR CHECKLIST**AMS-3 STARTUP AND OPERATION**

This Startup Sequence augments HTP-ZZ-04137, Operation of the Eberline AMS-III. It is designed to be used in an Emergency Response Facility when an HP Operations Technician is not immediately available.

- 1) Connect AMS-3 (monitor) and air sampler to 110 VAC power.
- 2) Ensure monitor and air sampler have current calibration label.
- 3) Inspect the chart paper. Ensure an adequate supply of paper remains. If a RED line appears on the chart paper, notify Health Physics and continue the startup procedure.
- 4) Set monitor ON-OFF switch (located on back of monitor) to the ON position. Allow monitor to warm-up for 5 minutes.
- 5) Set BACKGROUND SUBTRACT switch (located on front of monitor) to the ON position.
- 6) Push in "PUSH TO SET" on bottom left side of monitor and note the alarm setpoint value of 20,000 cpm (this is the first scale mark to the right of the 10^4 scale value).
- 7) Set alarm setpoint to 1000 cpm by adjusting the SET knob while holding in "PUSH TO SET" button.
- 8) Remove sample holder located on the right front side of monitor by loosening the clamp and pulling out on handle.
- 9) Obtain check source from HP E-Kit Locker. Center source over sample holder opening with the recessed side of the source bracket facing the opening.
- 10) The audible alarm and the alarm light should energize (activate). If not notify Health Physics. (The startup procedure should not continue until the problem is resolved).
- 11) Press ACKNOWLEDGE button to silence alarm.
- 12) Verify count rate on chart recorder is as indicated on the response value listed on back of source bracket or a sticker on the instrument.
- 13) Remove check source. Ensure alarm light resets and count rate decreases on chart recorder.
- 14) Remove the filter in the filter holder. (Remove the filter retaining ring on the filter holder, this snaps on the end of the filter holder assembly, and may fit somewhat tight.)
- 15) Obtain a new filter from the HP Emergency Kit Locker and place it on the sample holder with the "ROUGH SIDE" of filter facing upwards.
- 16) Replace retaining ring on the sample holder and insert the sample holder into the sample chamber. Lock the filter holder into place.
- 17) Set the alarm setpoint to 20,000 cpm by adjusting the SET knob while holding in the "PUSH TO SET" button.
- 18) Place the toggle switch on the power cord to the "ON" position. The air sampler pump should start.
- 19) Ensure airflow as indicated on flowmeter is within the tolerance listed on the calibration label (read the flow at the center of the rotometer float ball.) If it is not, notify Health Physics.
- 20) Initial and date the Preoperational Check sticker.

HEALTH PHYSICS (HP) COORDINATOR CHECKLIST**SET-UP AND OPERATION OF THE MODEL 177 RATEMETER**

1. Remove Model 177 ratemeter, frisker probe, detector cable, power cord, and check source from the E-Kit cabinet.
2. Connect detector and power cords, if not already connected, to the Model 177 ratemeter and verify the following switch settings:
 - Front Panel:
 1. On/Off switch in "ON" position.
 2. Volume adjusted to hear audible counts.
 3. Response switch in "slow" position.
 4. Range switch to "X1" scale.
 - Rear Panel:
 1. Alarm set at '5'.
 2. Subtract switch in "Off" position if meter has Subtract Switch.
3. Perform response check as follows:
 - ☐ Ensure instrument has a current calibration sticker.
 - ☐ Set the range switch to the appropriate position and place the detector on the check source bracket.
 - ☐ Verify the response is within the acceptable range as specified on the response value determination form/sticker for that check source.
 - ☐ Check the instrument alarm by adjusting the ALARM SET switch so that it is slightly less than the count rate of the source.
 - ☐ Remove the source from the detector.
 - ☐ Depress the RESET button. The alarm condition should clear.
 - ☐ If the pre-operational checks are satisfactory, complete the attached pre-operational check sticker. If either the alarm or the response check failed, notify the Health Physics Coordinator and obtain an operational ratemeter.
4. Return the check source to the E-Kit cabinet.

TSC COMMUNICATOR (ENS) CHECKLIST

Date _____ Time: _____

INITIATION	
<input type="checkbox"/> 1.	<input type="checkbox"/> Card in on the accountability card reader. <input type="checkbox"/> Sign in on Facility Sign-in board. <input type="checkbox"/> Obtain the ENS Communicators package. <input type="checkbox"/> Clip on the Communicators badge. <input type="checkbox"/> Adjust Gaitronics Volume
<input type="checkbox"/> 2.	Ensure the TSC has power. <input type="checkbox"/> Normal power, (i.e. lights on, power available to computers, etc.). <input type="checkbox"/> No Power. Start the TSC diesel per OOA-UB-EPG70 . (WCE Supervisors, WCE Planners, Journeyman Electricians and EOs should be used to operate the Manual Transfer Switch MTSUB7001.) CARS 200200182
<input type="checkbox"/> 3.	Shift the PC power supplies to the UPS position.
<input type="checkbox"/> 4.	Emergency Coordinator and Admin Coordinator informed of your presence.
<input type="checkbox"/> 5.	Initiate Log sheet.
<input type="checkbox"/> 6.	Activate Plant Status Boards on the Plant Computer (Cancel , type PSB , Return).
<input type="checkbox"/> 7.	Check dial tone on the ENS line. (If phone is manned in CR the line will not have a dial tone.)
<input type="checkbox"/> 8.	Contact Control Room Communicator and get a brief as to the status of ENS Communications.
<input type="checkbox"/> 9.	Accept responsibility of ENS Communications per EIP-ZZ-00201 , CA-#2517B , or as directed by the NRC.
<input type="checkbox"/> 10.	Discuss any additional support or supplies required with the Admin Coordinator.

OPERATIONS	
<i>(*) Steps are items that must be frequently reviewed.</i>	
<input type="checkbox"/> 1.	Call the NRC or accept transfer from the Control Room on the ENS line and inform them of your name and that you are communicating from the Callaway Plant Technical Support Center.
<input type="checkbox"/> *2.	Remain on the phone and gather facts as requested by the NRC from individual positions, plant computer or status boards and relay those facts back to the NRC, per EIP-ZZ-00201 . (All notifications transmitted to the State and local agencies should also be given to the NRC Operations Center unless directed otherwise.)
<input type="checkbox"/> *3	Log information requested and relayed to the NRC as deemed appropriate.
<input type="checkbox"/> *4	Personnel that leave the Facility should check out with the Security Officer. If a release above normal operating limits has occurred or is likely to occur a HP brief is required. CARS 199701061
<input type="checkbox"/> *5	If personnel are dispatched to another facility a follow up call should be initiated in 15-20 minutes to ensure they arrive safely. CARS 199901904

TURNOVER	
<input type="checkbox"/> 1.	Brief the incoming ENS Communicator on the status of NRC requests, awaiting information and review log.
<input type="checkbox"/> 2.	Log turnover.
<input type="checkbox"/> 3.	Turnover complete _____ Time.
<input type="checkbox"/> 4.	Inform Emergency Coordinator or Technical Assessment Coordinator turnover complete.
<input type="checkbox"/> 5.	Initiate a new checklist CA# 265.

RECOVERY	
<input type="checkbox"/> 1.	Continue providing the NRC with requested information.

TERMINATION and SHUTDOWN	
<input type="checkbox"/> 1.	When directed, assist with the TSC deactivation.
<input type="checkbox"/> 2.	Ensure area is put into order and logs collected and give to the Admin Coordinator.
<input type="checkbox"/> 3.	Restore PC UPS power supply to LINE.

TSC Communicator (ENS)

CHEMISTRY COORDINATOR CHECKLIST

Date _____ Time: _____

<u>INITIATION</u>	
<input type="checkbox"/> 1.	<input type="checkbox"/> Card in on the accountability card reader. <input type="checkbox"/> Sign in on Facility Sign-in board. <input type="checkbox"/> Obtain the Chemistry Coordinators package. <input type="checkbox"/> Clip on the Chemistry Coordinators badge. <input type="checkbox"/> Adjust Gaitronics Volume
<input type="checkbox"/> 2.	Inform Emergency Coordinator and Admin. Coordinator of arrival and ready to assume duties of Chemistry Coordinator. (Make log entry.)
<input type="checkbox"/> 3.	Initiate Log sheet.
<input type="checkbox"/> 4.	Contact on shift Chemistry Tech and ensure <ul style="list-style-type: none"> <input type="checkbox"/> Remind on-duty Chem tech to card in at the Field Office during accountability. <input type="checkbox"/> RERP vehicle is operational and in the parking lot. <input type="checkbox"/> All sample results are updated immediately on Chemistry Data Management System (CDMS). <input type="checkbox"/> Verify CCW is lined up to the SJ panel.
<input type="checkbox"/> 5.	Personnel Assessment Rad./Chem. Chemistry technicians (2 required) <input type="checkbox"/> _____ (name), _____ (responsibilities) <input type="checkbox"/> _____ (name), _____ (responsibilities) <input type="checkbox"/> _____ (name), _____ (responsibilities) Rad./Chem. Technicians available. (Chemistry) _____ (number).
<input type="checkbox"/> 6.	Assign an available Chemistry Supervisor to the Hot Lab as needed.
<input type="checkbox"/> 7.	Discuss plant chemistry status with Emergency Coordinator and Tech Assessment Coordinator.

<u>OPERATIONS</u>	
<i>(*) Steps are items that must be frequently reviewed.</i>	
<input type="checkbox"/> * 1.	Review and distribute updated CDMS data as it becomes available: Give a copy of CDMS Data to the: <ul style="list-style-type: none"> <input type="checkbox"/> Tech Assessment Coordinator. <input type="checkbox"/> HP Coordinator. <input type="checkbox"/> Reactor Engineer.
<input type="checkbox"/> * 2.	Personnel that leave the Facility should check out with the Security Officer. If a release above normal operating limits has occurred or is likely to occur a HP brief is required. CARS 199701061
<input type="checkbox"/> * 3.	If personnel are dispatched to another facility a follow up call should be initiated in 15-20 minutes to ensure they arrive safely. CARS 199901904
<input type="checkbox"/> * 4.	Compare latest results of Dose Equivalent I-131 and 100/E bar total specific activity to Group 2 & 4 EAL's per EIP-ZZ-00101 , Classification of Emergencies, and report any EAL that is being approached or exceeded to the Technical Assessment Coordinator and Emergency Coordinator.
<input type="checkbox"/> * 5.	Evaluate Secondary Chemistry conditions including Primary-to-Secondary Leakage, SEE CTP-ZZ-02590 and APA-ZZ-01023..

CHEMISTRY COORDINATOR CHECKLIST

<input type="checkbox"/> 6.	If Post Accident Sample is requested, refer to CTP-ZZ-08100 located in CC Packet.
<input type="checkbox"/> *7.	Monitor Post Accident Sampling data and provide recommendations as necessary.
<input type="checkbox"/> *8.	<p>On a SI actuation, SJ sample cooling water will be lost.</p> <p><input type="checkbox"/> Request the Tech to secure high temp samples.</p> <p><input type="checkbox"/> Request Ops to open EGHV69A & B and EGHV70A & B to restore cooling flow as soon as practical.</p> <p>CVCS letdown samples will remain representative as long as letdown flow is available.</p>
<input type="checkbox"/> * 9.	Identify additional support (e.g. personnel, off-site analysis) and coordinate requests through the Admin Coordinator.

TURNOVER

<input type="checkbox"/> 1.	<input type="checkbox"/> Brief the incoming Chemistry Coordinator of Chemistry activities and review log.
<input type="checkbox"/> 2.	<input type="checkbox"/> Notify the Tech. Assessment Coordinator of the Turnover.
<input type="checkbox"/> 3.	Turnover complete _____ Time.
<input type="checkbox"/> 4.	Turnover logged.
<input type="checkbox"/> 5.	Initiate new checklist.

RECOVERY

<input type="checkbox"/> 1.	Continue Chemistry activities until directed otherwise by the Emergency Coordinator or RM.
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TERMINATION and SHUTDOWN

<input type="checkbox"/> 1.	Upon direction assist with TSC deactivation.
<input type="checkbox"/> 2.	Ensure Chemistry work area is deactivated and/or stored.
<input type="checkbox"/> 3.	Ensure documents are collected and given to the Admin Coordinator.

 Chemistry Coordinator Signature

SECURITY COORDINATOR (SC) CHECKLIST

Date _____ Time: _____

INITIATION	
<input type="checkbox"/> 1.	<input type="checkbox"/> Card in on the accountability card reader. <input type="checkbox"/> Sign in on Facility Sign-in board. <input type="checkbox"/> Obtain the Security Coordinators package. <input type="checkbox"/> Clip on the Security Coordinators badge <input type="checkbox"/> Adjust Gaitronics Volume.
<input type="checkbox"/> 2.	Inform Emergency Coordinator and Admin. Coordinator of arrival.
<input type="checkbox"/> 3.	Initiated Log sheet.
<input type="checkbox"/> 4.	Personnel Assessment (Call in extra personnel as required). <input type="checkbox"/> Contact the Shift Security Supervisor and obtain number and names of security personnel available for assignment.
<input type="checkbox"/> 5.	Station security officers at the Emergency Response Facilities entrances to log personnel entrance and egress.
<input type="checkbox"/> 6.	Contact Health Physics Coordinator (Health Physics Tech Support on back shift 68496) and request: <ul style="list-style-type: none"> • Is there a Release Above Normal Operating Limits In Progress? YES / NO • What is wind direction? From: _____ TO: _____ • What are the affected sectors? _____, _____, _____, _____.
<input type="checkbox"/> 6.1	• If YES, contact SEMA. Normal hours 751-2748, off-hours 17188 (Troop F) and request activation of Hearn's Reception and Care Center.
<input type="checkbox"/> 6.2	• If YES, instruct the Security Personnel performing the OCA Sweep to use "ANNOUNCEMENT # 2".
<input type="checkbox"/> 6.3	• If NO, instruct the Security Personnel performing the OCA Sweep to use "ANNOUNCEMENT # 1".
<input type="checkbox"/> 7.	Discuss any additional support or supplies required with the Admin Coordinator.

OPERATIONS	
<i>(*) Steps are items that must be frequently reviewed.</i>	
<input type="checkbox"/> *1.	Conduct normal and emergency security activities in accordance with the Security Plan. If the plan cannot be followed, obtain authorization from the EC to deviate (refer to OTO-SK-00001 Attachment 1), in accordance with 10CFR50.54(x)(y) to deviate. Inform the ENS Communicator (1 hour NRC notification). CARS 199901754
<input type="checkbox"/> 2.	Ensure patrol(s) initiate a sweep of OCA/EAB at the ALERT classification per Owner Controlled Area Patrol Post Instruction. Unbadged personnel MUST evacuate the site unless authorized by EC or Security Coordinator. CARS 200201995
<input type="checkbox"/> *3.	Assist the EC in Evacuation and Accountability per EIP-ZZ-00230 .
<input type="checkbox"/> 4.	If accountability is declared, obtain badge numbers of personnel assigned to emergency teams that have left the TSC from the OSC, and report these badge numbers to the SSS.
<input type="checkbox"/> *5.	Personnel that leave the Facility should check out with the Security Officer. If a release above normal operating limits has occurred or is likely to occur a HP brief is required. CARS 199701061
<input type="checkbox"/> *6.	If personnel are dispatched to another facility a follow up call should be initiated in 15-20 minutes to ensure they arrive safely. CARS 199901904

SECURITY COORDINATOR (SC) CHECKLIST

<input type="checkbox"/> *7.	Contact the HP Coordinator to determine the affected areas in the case of a release above normal operating limits. If Security is to be pulled back from their posts, consider requirements in Step 1, Operations (above).
<input type="checkbox"/> *8.	Ensure that the Security Force has the appropriate dosimetry. Check with the HPC.
<input type="checkbox"/> *9.	Coordinate plant access control.
<input type="checkbox"/> *10.	Contact local law enforcement to coordinate traffic control (i.e. for evacuation routes).
<input type="checkbox"/> 11.	If SITE Evacuation is announced, ensure Patrol(s) initiate sweep of OCA/EAB per Owner Controlled Area Patrol Post Instruction, to ensure all personnel have left areas in question. CARS 200201995
<input type="checkbox"/> *12.	Coordinate personnel evacuation and accountability. (NOTE: Accountability is required within 30 minutes of declaring accountability.)
<input type="checkbox"/> *13.	Coordinate any off-site law enforcement agency involvement.

TURNOVER

<input type="checkbox"/> 1.	Brief the incoming Security Coordinator of Security activities and review log.
<input type="checkbox"/> 2.	Notify the Emergency Coordinator of the turnover.
<input type="checkbox"/> 3.	Turnover complete _____ Time.
<input type="checkbox"/> 4.	Turnover logged.
<input type="checkbox"/> 5.	Initiate new checklist.

RECOVERY

<input type="checkbox"/> 1.	Continue Security activities until directed otherwise by the Emergency Coordinator.
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TERMINATION and SHUTDOWN

<input type="checkbox"/> 1.	Upon direction assist with TSC deactivation.
<input type="checkbox"/> 2.	Ensure security equipment is deactivated and/or stored.
<input type="checkbox"/> 3.	Ensure documents are collected and given to the Admin Coordinator.

Security Coordinator Signature

Date _____ Time: _____

<input type="checkbox"/> 1.	<input type="checkbox"/> Card in on the accountability card reader. <input type="checkbox"/> Sign in on Facility Sign-in board. <input type="checkbox"/> Obtain the ETC package. <input type="checkbox"/> Clip on the Emergency Team Coordinator badge. <input type="checkbox"/> Adjust Gaitronics Volume <input type="checkbox"/> Adjust Gaitronics Volume in the OSA																																				
<input type="checkbox"/> 2.	Inform Operations Support Coordinator (OSC) of your arrival. If OSC has not reported, initiate OSC Checklist.																																				
<input type="checkbox"/> 3.	Initiate Log Sheet.																																				
<input type="checkbox"/> 4.	Personnel Assessment (number) <table border="0" style="width: 100%;"> <tr> <td style="width: 40%;"></td> <td style="width: 20%; text-align: center;">Supervisor</td> <td style="width: 10%; text-align: center;">/</td> <td style="width: 30%; text-align: center;">Planner</td> </tr> <tr> <td>a. Management:</td> <td colspan="3">_____ / _____</td> </tr> <tr> <td>b. Personnel:</td> <td>Machinist/Welders (2 required)</td> <td>_____</td> <td>(machinist)</td> </tr> <tr> <td></td> <td></td> <td>_____</td> <td>(welder)</td> </tr> <tr> <td></td> <td>Electricians (2 required)</td> <td>_____</td> <td></td> </tr> <tr> <td></td> <td>Plant Helpers</td> <td>_____</td> <td></td> </tr> <tr> <td></td> <td>Nuclear Utility Workers</td> <td>_____</td> <td></td> </tr> <tr> <td></td> <td>I&C</td> <td>_____</td> <td></td> </tr> <tr> <td></td> <td>Other _____</td> <td>_____</td> <td></td> </tr> </table>		Supervisor	/	Planner	a. Management:	_____ / _____			b. Personnel:	Machinist/Welders (2 required)	_____	(machinist)			_____	(welder)		Electricians (2 required)	_____			Plant Helpers	_____			Nuclear Utility Workers	_____			I&C	_____			Other _____	_____	
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b. Personnel:	Machinist/Welders (2 required)	_____	(machinist)																																		
		_____	(welder)																																		
	Electricians (2 required)	_____																																			
	Plant Helpers	_____																																			
	Nuclear Utility Workers	_____																																			
	I&C	_____																																			
	Other _____	_____																																			
<input type="checkbox"/> 5.	Open Key Box and Tool Cabinets.																																				
<input type="checkbox"/> 6.	ETC Group ready for responsibilities _____ Time. (Also make log entry).																																				
<input type="checkbox"/> 7.	Operations Support Coordinator informed ETC ready.																																				
<input type="checkbox"/> 8.	Brief and Pre-stage an investigative/search & rescue team for immediate response. Team members can be reassigned after accountability and job priorities are completed.																																				
<input type="checkbox"/> 9.	Discuss any additional support or supplies required with the Admin Coordinator. Page 3 of 3 of this attachment, OSA Support Request, may be used as an aid.																																				

() Steps are items that MUST be frequently reviewed*

- | | |
|------------------------------|---|
| <input type="checkbox"/> *1. | Keep Operations Support Coordinator informed of significant activities/events. |
| <input type="checkbox"/> *2. | Inform Support Area Personnel that leave the Facility that they should check out with the Security Officer. If a release above normal operating limits has occurred or is likely to occur a HP brief is required. CARS 199701061 |
| <input type="checkbox"/> *3. | Ensure Emergency Teams are formed and briefed as needed per EIP-ZZ-00220 Emergency Team Formation. |
| <input type="checkbox"/> *4. | Ensure Emergency Teams are tracked to location and progress of their assignment at specified intervals. |
| <input type="checkbox"/> *5. | Interface with the Health Physics Groups to ensure coordination of activities. |

EMERGENCY TEAM COORDINATOR (ETC) CHECKLIST

<input type="checkbox"/> *6.	Ensure log and status board is maintained.
<input type="checkbox"/> *7	Periodically brief OSA Support personnel on Plant status and job priorities.

TURNOVER

<input type="checkbox"/> 1.	Incoming ETC Coordinator briefed on ETC status and review log.
<input type="checkbox"/> 2.	Notify the Operations Support Coordinator of the turnover.
<input type="checkbox"/> 3.	Notify the OSA Support personnel of the turnover.
<input type="checkbox"/> 4.	Turnover complete _____ Time.
<input type="checkbox"/> 5.	Turnover logged.
<input type="checkbox"/> 6.	Initiate a new checklist CA#0262a.

RECOVERY

<input type="checkbox"/> 1.	Assess the following: <ul style="list-style-type: none"> <input type="checkbox"/> Emergency team status. All Emergency Team work is completed or turned over to the Recovery Organization or normal maintenance. <input type="checkbox"/> Able to resume normal operations.
<input type="checkbox"/> 2.	Continue Emergency Team activities until directed otherwise by the Operations Support Coordinator.

TERMINATION and SHUTDOWN

<input type="checkbox"/> 1.	Ensure OSA equipment and supplies are deactivated and/or stored.
<input type="checkbox"/> 2.	Ensure documents are collected and given to the Admin Coordinator.

 Emergency Team Coordinator Signature

EMERGENCY TEAM COORDINATOR (ETC) CHECKLIST**OSA SUPPORT REQUEST**

Administrative (Admin.) Coordinator,

The Operations Support Area (OSA) requires the following support. This support is needed (circle one)

Immediately

At next Shift, at _____ (enter time)

POSITION**NUMBER NEEDED**

Operations Support Coordinator

Electrical Emergency Team Coordinator

Mechanical Emergency Team Coordinator

Storekeeper

Mechanical Supervisor

Electrical Supervisor

I&C Supervisor

Mechanical Planner

Electrical Planner

I&C Planner

Electrician

Machinist

Welder

I&C Technician

Electrical Apprentice

Machinist Apprentice

Welder Apprentice

I&C Apprentice

Insulator

Plant Helper

Nuclear Utility Worker

Tool Room Mechanic

Operating Supervisor (Shift Supervisor concurrence obtained)

Equipment Operator (Shift Supervisor concurrence obtained)

CALLAWAY PLANT
EMERGENCY PLAN IMPLEMENTING PROCEDURE

EIP-ZZ-00260

EVENT CLOSEOUT/PLANT RECOVERY

RESPONSIBLE DEPARTMENT EMERGENCY PREPAREDNESS

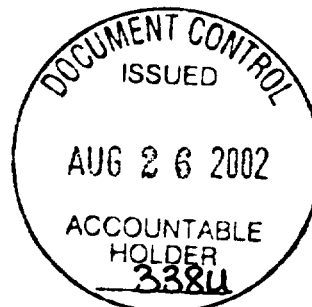
PROCEDURE OWNER W. R. Bevard

WRITTEN BY W. R. Bevard

PREPARED BY W. R. Bevard

APPROVED BY *SS Sullivan* EOD

DATE ISSUED 8-26-02



This procedure contains the following:

Pages	<u>1</u>	through	<u>7</u>
Attachments	<u>1</u>	through	<u>3</u>
Tables	<u> </u>	through	<u> </u>
Figures	<u> </u>	through	<u> </u>
Appendices	<u> </u>	through	<u> </u>
Checkoff Lists	<u> </u>	through	<u> </u>

This procedure has checkoff list(s) maintained in the mainframe computer.

Conversion of commitments to TRS reference/hidden text completed by Revision Number:

Non-T/S Commitments 010

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6 REFERENCES	6
7 RECORDS	7
Attachment 1 - Event Closeout/Recovery Criteria	10 Pages
Attachment 2 - Event Closeout/Recovery Announcements	1 Page
Attachment 3 - Recovery Organization and Objectives	1 Page

EVENT CLOSEOUT/PLANT RECOVERY

1 PURPOSE AND SCOPE

- 1.1 Provides guidelines for determining when Event Closeout can be declared.
- 1.2 Provides guidelines for directing plant recovery operations including:
 - Determining when plant recovery can be declared.
 - Establishing a recovery organization.
 - Directing initial and long term recovery operations.

2 DEFINITIONS

- 2.1 Event Closeout - The condition declared after Emergency Action Level (EAL) specific criteria has been met and initiates the transition from emergency operations back to normal operations. Event closeout is typically declared after response to an Unusual Event or Alert has been completed.
- 2.2 Recovery - The condition declared after the immediate hazards to life and safety have been removed and the following conditions exist. **COMN 42504**
 - a. In-plant radiation levels are stable or decreasing with time,
 - b. The reactor is stable with adequate core cooling capability,
 - c. Release of radioactive materials to the environment are controlled and within Radioactive Effluent Controls limits,
 - d. Fire, natural events, security threats or other similar emergency conditions are under control and plant effects assessed.

Recovery is typically declared after response to a Site or General Emergency has been completed.

3 RESPONSIBILITIES

3.1 EMERGENCY COORDINATOR

- 3.1.1 Assesses plant conditions and determines when those plant conditions warrant the declaration of plant Recovery or Event Closeout. **COMN 42504**

3.2 RECOVERY MANAGER

- 3.2.1 Assumes overall command and control of Callaway Plant Recovery operations. Coordinates the recovery with the Manager, Callaway Plant and off-site organizations utilizing their input. **COMN 42488**
- 3.2.2 Ensures that Plant personnel and off-site authorities are informed when the emergency has been closed out or recovery declared, as appropriate. **COMN 3931**
- 3.2.3 Establishes a recovery organization capable of maintaining the plant in a stable condition and directs recovery operations, in an effort to restore the plant to normal operating conditions.
- 3.2.4 Ensures that Plant recovery operations which have a potential for affecting off-site recovery operations are coordinated with off-site authorities.
- 3.2.5 Provides off-site authorities with recommendations for off-site recovery activities.
- 3.2.6 Evaluates and approves/disapproves requests for Plant support for off-site recovery activities. **COMN 3933**

4 PROCEDURE

4.1 EVENT CLOSEOUT DECLARATION

- 4.1.1 Assess plant conditions using Attachment 1 to determine if Event Closeout should be implemented when the criteria for the applicable EAL is met.
- 4.1.2 Notify site personnel of Event Closeout as follows:
- 4.1.2.1 Sound the plant emergency alarm

- 4.1.2.2 Announce the "Event Closeout" portion of Attachment 2 over the plant gai-tronics system.
- 4.1.2.3 Notify off-site agencies of the Event Closeout declaration in accordance with **EIP-ZZ-00201**, Notifications.
- 4.1.2.3.1 The Recovery Manager should provide a verbal summary of the event to the counties and SEMA upon closeout and extend an invitation to the ERT per the Event Review Team Checklist of **APA-ZZ-00542**, Event Review.
- 4.1.2.3.2 A written summary of the event should be provided to the counties and SEMA by Emergency Preparedness on the next working day.
- 4.1.3 Ensure that a CARS documenting the event which led to the emergency has been submitted in accordance with **APA-ZZ-00500**, Corrective Action Program.
- 4.1.4 Ensure that an in service inspection is conducted on all steam generators per the Callaway Plants' Technical Specifications, when any of the following have occurred:
 - a. Reactor Coolant System (RCS) to secondary tube leak greater than allowed by Technical Specification,
 - b. A seismic occurrence greater than Operating Basis Earthquake (OBE),
 - c. A Loss of Coolant Accident (LOCA) requiring activation of the Engineered Safety Features (ESF),
 - d. A Main Steam or Feedwater line break.
- 4.1.5 If the emergency was due to high winds/tornado hitting the plant site, ensure divers check the Ultimate Heat Sink (UHS) pond for debris.

4.2 PLANT RECOVERY DECLARATION

- 4.2.1 Assess plant conditions using Attachment 1 to determine if Plant Recovery can be declared when the criteria for the applicable EAL is met.

<p><u>NOTE:</u> Review APA-ZZ-00521, Government Agency Interface Instructions, if a NRC Incident Investigation Team is mobilized.</p>
--

- 4.2.2 Discuss with the NRC the intent to declare Plant Recovery prior to the declaration if possible. **COMN 42504**
- 4.2.3 Notify site personnel of 'Plant Recovery' as follows: **COMN 3934**
- 4.2.3.1 Sound the plant emergency alarm.
- 4.2.3.2 Announce the 'Plant Recovery' portion of Attachment 2 over the plant gai-tronics system.
- 4.2.4 Notify off-site agencies of the declaration of Plant Recovery in accordance with **EIP-ZZ-00201**, Notifications. **COMN 3934**
- 4.2.4.1 The Recovery Manager should provide a verbal summary of the event to the counties and SEMA upon declaration of plant recovery and extend an invitation to the ERT per the Event Review Team Checklist of **APA-ZZ-00542**, Event Review.
- 4.2.4.2 A written summary of the event should be provided to the counties and SEMA by Emergency Preparedness on the next working day.
- 4.2.5 Determine the staffing requirements necessary to support recovery operations. **COMN 3932**

4.3 RECOVERY ACTIONS

4.3.1 RECOVERY ORGANIZATION

- 4.3.1.1 As recovery operations commence, the Recovery Manager should use Attachment 3 as a basic structure for an organization to support on-site and off-site recovery operations. This organization can be modified as necessary to provide 24 hr/day operations as required.

- 4.3.2 **SHORT TERM OBJECTIVES COMN 42496**
- 4.3.2.1 **Maintain the plant in a safe and stable condition.**
- 4.3.2.1.1 Assign individuals to close out Emergency Plan Implementing Procedures as conditions allow. Modify/revise normal plant procedures as necessary to facilitate recovery operations.
- 4.3.2.1.2 Administrative controls imposed on normal operations should be maintained during the recovery phase as conditions allow. Procedures should be generated for each specific operation and maintenance evolution and be reviewed for nuclear safety concerns, personnel safety, and environmental impact by the Onsite Review Committee. **COMN 3974**
- 4.3.2.1.3 Ensure that applicable Limiting Conditions for Operations (LCO's) and surveillance requirements are complied with, to the extent practical, based on equipment availability and status and safety aspects of post-accident conditions.
- 4.3.2.2 **Maintain control of the release of radioactive material to the environment** within Radioactive Effluent Controls limits.
- 4.3.2.3 **Maintain control of personnel exposures.**
- 4.3.2.3.1 Exposure controls will be based upon ALARA considerations, plant conditions and 10CFR20 limits.
- 4.3.2.3.2 Establish reentry requirements for evacuated plant areas using **EIP-ZZ-00225**, Reentry, as guidance.
- 4.3.2.4 **Maintain adequate communications with Federal, State and local agencies.**
- 4.3.2.4.1 Provide Plant support to off-site agencies if requested (i.e. decontamination assistance, etc.).
- 4.3.2.4.2 The Plant will assist, if requested, the Department of Health (DOH) in evaluating and determining:
- The adequacy of existing off-site Protective Actions;
 - The need for population relocation and/or return;
 - The total population exposure due to radioactive releases from the plant. **COMN 42503**

- 4.3.2.5 Maintain adequate capability to provide timely and factual information to the general public.
- 4.3.3 LONG TERM OBJECTIVES COMN 42497
- 4.3.3.1 Restore the plant to its pre-emergency condition
- 4.3.3.1.1 Ensure that an in service inspection is conducted on all steam generators per the Callaway Plant's Technical Specifications, when any of the following have occurred:
- RCS to secondary tube leak greater than allowed by technical specification for operation.
 - A seismic occurrence greater than OBE,
 - A LOCA requiring activation of the engineered safety features,
 - A main steam or feedwater line break.
- 4.3.3.2 If the emergency was due to high winds/tornado hitting the plant site, ensure divers check the UHS Pond for debris.
- 4.3.3.3 Provide for the Storage and/or Disposal of Waste Materials Generated During the Emergency and Recovery Phase.
- 4.3.3.4 Evaluate the Cause of the Emergency, Response to the Emergency and Potential Effects on Future Plant Operations.

5 FINAL CONDITIONS

- 5.1 The plant has been restored to a safe operating condition and responsibilities of the Emergency/Recovery Organization have been assumed by the normal plant organization.

6 REFERENCES

- 6.1 Callaway Plant Radiological Emergency Response Plan (RERP)
- 6.2 Callaway Plant Technical Specifications
- 6.3 **APA-ZZ-00500**, Corrective Action Program
- 6.4 **APA-ZZ-00521**, Government Agency Interface Instructions

- 6.5 **APA-ZZ-00542, Event Review**
- 6.6 **APA-ZZ-01003, Off-site Dose Calculation Manual**
- 6.7 **EIP-ZZ-00201, Notifications**
- 6.8 **EIP-ZZ-00225, Reentry**
- 6.9 **10CFR20**

7 **RECORDS**

None

EVENT CLOSEOUT/RECOVERY CRITERIA

The following table should be used as guidance to determine when an emergency classification (based on a specific Emergency Action Level) can be closed out or when recovery should be declared.

Group 1 ABNORMAL RADIATION EVENTS
Offsite Events

<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
<p>A. Any Unplanned Release of Radioactivity to the Environment That Exceeds 2 Times the Radiological Effluent Control Limits in the ODCM, (APA-ZZ-01003) for ≥60 minutes.</p> <p>MODES: At All Times</p> <p><u>Closeout:</u></p> <p>ODCM Effluent Control Limit action statements complied with.</p>	<p>B. Any Unplanned Release of Radioactivity to the Environment That Exceeds 200 Times the Radiological Effluent Control Limits in the ODCM, (APA-ZZ-01003) for ≥15 minutes.</p> <p>MODES: At All Times</p> <p><u>Closeout:</u></p> <p>ODCM Effluent Control Limit action statements complied with.</p>	<p>C. EAB Dose Resulting From an Actual or Imminent Release of Gaseous Radioactivity Exceeds 100 mrem TEDE or 500 mrem CDE Thyroid for the Actual or Projected Duration of the Release.</p> <p>MODES: At All Times</p> <p><u>Recovery:</u></p> <p>Refer to Section 4.2</p>	<p>D. EAB Dose Resulting From an Actual or Imminent Release of Gaseous Radioactivity Exceeds 1000 mrem TEDE or 5000 mrem CDE Thyroid for the Actual or Projected Duration of the Release.</p> <p>MODES: At All Times</p> <p><u>Recovery:</u></p> <p>Refer to Section 4.2</p>

EVENT CLOSEOUT/RECOVERY CRITERIA

Group 1 ABNORMAL RADIATION EVENTS
Onsite Events

<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>ALERT</u>
<p>E. An Unexpected Increase in Plant Radiation.</p> <p>MODES: At All Times</p> <p><u>Closeout:</u></p> <p>Cause determined and radiation levels are controlled. Actions are in progress to reduce radiation levels.</p>	<p>F. Major Damage to Irradiated Fuel or Loss of Water Level That Has or Will Result in the Uncovering of Irradiated Fuel Outside the Reactor Vessel.</p> <p>MODES: At All Times</p> <p><u>Closeout:</u></p> <p>Fuel in a safe condition, no increasing radiation levels and water level restored.</p>	<p>G. Release of Rad Material, or an Increase in Rad Level that <u>Either</u> Impedes Safe Operations or the Ability to Establish or Maintain Cold Shutdown.</p> <p><u>Closeout:</u></p> <p>Cause determined and radiation levels are controlled. Actions are in progress to reduce radiation levels.</p>

EVENT CLOSEOUT/RECOVERY CRITERIA

Group 2 FISSION PRODUCT BARRIERS

A. <u>UNUSUAL EVENT</u> Any <u>CONTAINMENT BARRIER</u> Indicator	B. <u>ALERT</u> Any <u>RCS BARRIER</u> Indicator or Any <u>FUEL CLAD BARRIER</u> Indicator	C. <u>SITE EMERGENCY</u> Any <u>RCS BARRIER</u> Indicator Indicator and Any <u>FUEL CLAD BARRIER</u>	D. <u>SITE EMERGENCY</u> A <u>CTMT BARRIER Loss</u> Indicator and Any <u>RCS or FUEL CLAD BARRIER</u> Indicator	E. <u>GENERAL EMERGENCY</u> A <u>Loss</u> Indicator from any two barriers and Any Indicator from the third
MODES: 1-4	MODES: 1-4	MODES: 1-4	MODES: 1-4	MODES: 1-4
<u>Closeout:</u> Restore the Containment barrier	<u>Closeout:</u> Restore the RCS or FUEL CLAD BARRIER	<u>Recovery:</u> Refer to Section 4.2	<u>Recovery:</u> Refer to Section 4.2	Recovery: Refer to Section 4.2

EVENT CLOSEOUT/RECOVERY CRITERIA

**Group 3 HAZARDS AFFECTING PLANT SAFETY
Security Events**

<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
<p>A. Confirmed Security Event Which Indicates a Potential Degradation in the Level of Safety of the Plant.</p> <p>MODES: At All Times</p> <p><u>Closeout:</u></p> <p>Event terminated.</p>	<p>B. Security Event in the Plant Protected Area.</p> <p><u>Closeout:</u></p> <p>Event terminated.</p>	<p>C. Security Event in a Safe Shutdown Area.</p> <p>MODES: At All Times</p> <p><u>Recovery:</u></p> <p>Refer to Section 4.2</p>	<p>D. Security Event Resulting in a Loss of the Ability to Reach and Maintain Cold Shutdown.</p> <p>MODES: At All Times</p> <p><u>Recovery:</u></p> <p>Refer to Section 4.2</p>

EVENT CLOSEOUT/RECOVERY CRITERIA

Group 3 HAZARDS AFFECTING PLANT SAFETY

Fires

<u>UNUSUAL EVENT</u>	<u>ALERT</u>
<p>E. Fire Within Protected Area Boundary Not Extinguished Within 15 Minutes of Verification. MODES: At All Times</p> <p><u>Closeout:</u></p> <p>Fire extinguished.</p>	<p>F. Fire Affecting the Operability of Plant Safety Systems Required to Establish or Maintain Safe Shutdown. MODES: At All Times</p> <p><u>Closeout:</u></p> <p>Fire extinguished and systems operable or Tech Spec actions complied with.</p>

Natural Events

<u>UNUSUAL EVENT</u>	<u>ALERT</u>
<p>G. Natural and Destructive Phenomena Affecting the Protected Area. MODES: At All Times</p> <p><u>Closeout:</u></p> <p>Natural or destructive event terminated or controlled.</p>	<p>H. Natural and Destructive Phenomena Affecting a Safe Shutdown Area. MODES: At All Times</p> <p><u>Closeout:</u></p> <p>Natural or destructive event terminated or controlled.</p>

EVENT CLOSEOUT/RECOVERY CRITERIA

Group 3 HAZARDS AFFECTING PLANT SAFETY

Toxic Gas

<u>UNUSUAL EVENT</u>	<u>ALERT</u>
<p>I. Release of Toxic or Flammable Gases Deemed Detrimental to Safe Operation of the Plant.</p> <p>MODES: At All Times</p> <p><u>Closeout:</u></p> <p>HAZARDOUS ATMOSPHERE eliminated.</p>	<p>J. Release of Toxic or Flammable Gases Within a Facility Structure Which Jeopardizes Operation of Systems Required to Establish or Maintain Cold Shutdown.</p> <p>MODES: At All Times</p> <p><u>Closeout:</u></p> <p>HAZARDOUS ATMOSPHERE eliminated.</p>

Control Room Evacuation Events

<u>ALERT</u>	<u>SITE EMERGENCY</u>
<p>K. Control Room Evacuation Has Been Initiated.</p> <p>MODES: At All Times</p> <p><u>Closeout:</u></p> <p>Control re-established in Control Room or plant is stable and shutdown with control at the Aux Shutdown panel.</p>	<p>L. Control Room Evacuation Has Been Initiated and Plant Control Cannot Be Established.</p> <p>MODES: At All Times</p> <p><u>Recovery:</u></p> <p>Refer to Section 4.2</p>

EVENT CLOSEOUT/RECOVERY CRITERIA

Group 4 SYSTEM MALFUNCTIONS
Annunciator Events

<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE EMERGENCY</u>
<p>A. Unplanned Loss of Most or All Alarms (Annunciators) for Greater Than 15 Minutes.</p> <p>MODES: 1-4</p> <p><u>Closeout:</u></p> <p>Alarms restored and compensated for.</p>	<p>B. Unplanned Loss of Most or All Annunciators With Either a Transient In Progress, or the Plant Computer is Unavailable.</p> <p>MODES: 1-4</p> <p><u>Closeout:</u></p> <p>Alarms are restored and compensated for</p> <p><u>and</u></p> <p>The plant computer is restored <u>or</u> the transient is stabilized.</p>	<p>C. Inability to Monitor a Significant Transient in Progress.</p> <p>MODES: 1-4</p> <p><u>Closeout:</u></p> <p>Alarms are restored and compensated for</p> <p><u>and</u></p> <p>The plant computer is restored</p> <p><u>and</u></p> <p>The transient is stabilized.</p>

EVENT CLOSEOUT/RECOVERY CRITERIA

Group 4 SYSTEM MALFUNCTIONS

Electrical Events (Operating)

<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE EMERGENCY</u>	<u>SITE EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
D. Loss of All Offsite Power to Essential Busses for Greater Than 15 Minutes.	E. Only One AC Source to Essential Busses for >15 Minutes Such That Any Additional Single Failure Would Result in Station Blackout.	F. Loss of All Offsite Power and Loss of All Onsite AC Power to Essential Busses.	G. Loss of All Vital DC Power	H. Prolonged Loss of All Offsite Power and Prolonged Loss of All Onsite AC Power.
MODES: 1-4	MODES:1-4	MODES: 1-4	MODES: 1-4	MODES: 1-4
<u>Closeout:</u>	<u>Closeout:</u>	<u>Recovery</u>	<u>Closeout:</u>	<u>Recovery</u>
When power is restored.	When power is restored	Refer to Section 4	When power is restored.	Refer to Section 4.2

Electrical Events (Shutdown)

<u>UNUSUAL EVENT</u>	<u>UNUSUAL EVENT</u>	<u>ALERT</u>
I. Loss of Required DC Power During Cold Shutdown or Refueling Mode for Greater Than 15 Minutes.	J. Loss of All offsite power to essential buses for greater than 15 minutes.	K. Loss of All Offsite Power and Loss of All Onsite AC Power to Essential Busses During Cold Shutdown or Refueling.
MODES: 5, 6	MODES: 5, 6	MODES: 5, 6
<u>Closeout:</u>	<u>Closeout:</u>	<u>Closeout:</u>
When power is restored.	When power is restored.	When power is restored.

EVENT CLOSEOUT/RECOVERY CRITERIA

Group 4 SYSTEM MALFUNCTIONS

Shutdown Capability

<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE EMERGENCY</u>	<u>SITE EMERGENCY</u>
L. Inability to Perform a Required Shutdown Within Technical Specification Limits. MODES: 1-4	M. Inability to Maintain Plant in Cold Shutdown. MODES: 5, 6	N. Loss of Water Level That Has or Will Uncover Fuel in the Reactor Vessel. MODES: 5, 6	O. Complete Loss of Function Needed to Achieve or Maintain Hot Shutdown. MODES: 1-4
<u>Closeout:</u> When the Tech. Spec. action statement is completed or exited.	<u>Closeout:</u> RHR, CCW and ESW restored <u>and</u> less than 200° on any valid incore thermocouple or Wide Range Hot Leg Indicator.	<u>Recovery:</u> Refer to Section 4.2	<u>Recovery:</u> Refer to Section 4.2

EVENT CLOSEOUT/RECOVERY CRITERIA

Group 4 SYSTEM MALFUNCTIONS

Communication Events		RCS/Fuel Events		Reactor Protection System		
<u>UNUSUAL EVENT</u>		<u>UNUSUAL EVENT</u>	<u>UNUSUAL EVENT</u>	<u>ALERT</u>	<u>SITE EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
<p>P. Unplanned Loss of All Onsite or Offsite Communication Capabilities</p> <p>MODES: 1-6</p> <p><u>Closeout:</u></p> <p>When capability restored.</p>		<p>Q. Fuel Clad Degradation</p> <p>MODES: 1-6</p> <p><u>Closeout:</u></p> <p>When plant is in Hot Standby with Tave <500°F.</p>	<p>R. RCS Leakage</p> <p>MODES: 1-4</p> <p><u>Closeout:</u></p> <p>When plant is in Cold Shutdown or leak isolated.</p>	<p>S. Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Trip Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Trip Was Successful.</p> <p>MODES: 1, 2</p> <p><u>Closeout:</u></p> <p>When ES-0.1 completed.</p>	<p>T. Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Trip Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Trip Was <u>NOT</u> Successful.</p> <p>MODES: 1, 2</p> <p><u>Recovery:</u></p> <p>Refer to Section 4.2</p>	<p>U. Failure of the Reactor Protection System to Complete an Automatic Trip and Manual Trip Was <u>NOT</u> Successful and There Is Indication of an Extreme Challenge to the Ability to Cool the Core.</p> <p>MODES: 1, 2</p> <p><u>Recovery:</u></p> <p>Refer to Section 4.2</p>

EVENT CLOSEOUT/RECOVERY ANNOUNCEMENT

-- Sound the Plant Emergency Alarm --

ATTENTION ALL PERSONNEL! ATTENTION ALL PERSONNEL!

(Repeat All Announcements)

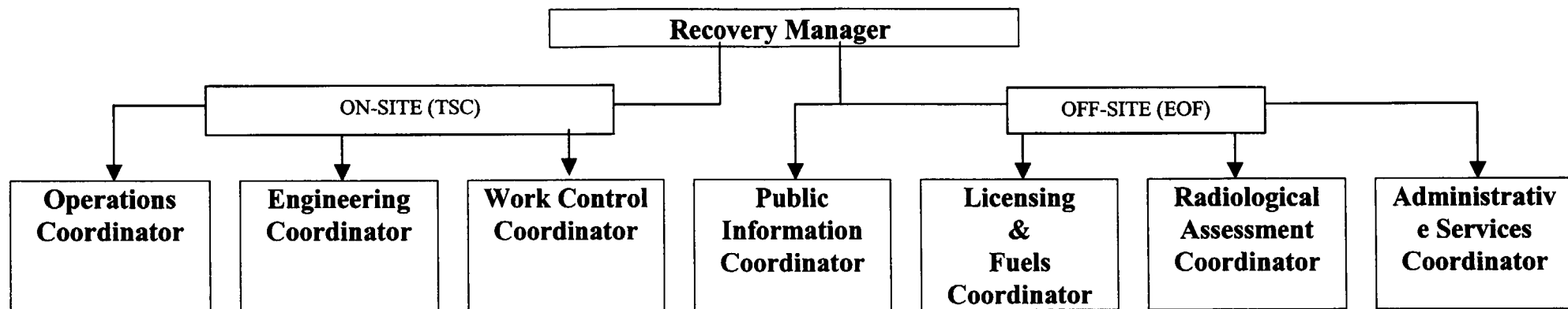
☐ CLOSEOUT OF EVENT

**CLOSEOUT OF EVENT HAS BEEN DECLARED. ALL
EMERGENCY RESPONSE PERSONNEL BEGIN DEACTIVATION
OF EMERGENCY FACILITIES. ALL OTHER PERSONNEL
RESUME NORMAL DUTIES.**

☐ PLANT RECOVERY

**PLANT RECOVERY HAS BEEN DECLARED. ALL EMERGENCY
RESPONSE PERSONNEL REMAIN AT YOUR STATIONS AND
AWAIT FURTHER INSTRUCTIONS.**

RECOVERY ORGANIZATION



Operations Coordinator- responsible for day-to-day plant operations and coordinates recovery operations within the plant to ensure that modifications and repairs performed in a safe and competent manner. Requirements for reentry into affected and evacuated areas of the plant during recovery would be established by the operations coordinator and evaluated and approved by the recovery manager. **COMN 42489**

Engineering Coordinator- Responsible for providing and coordinating technical support to operations and recovery activities. This support includes core physics, thermal hydraulics, design activities, procedure development, and also ensuring that specifications for procurement of materials and equipment are met. **COMN 42490**

Work Control Coordinator- Responsible for normal and outage planning and scheduling activities to support recovery. **COMN 42491**

Public Information Coordinator- Appointed by corporate communications to assist the recovery manager and the recovery effort. The position need not be physically located at the plant site. **COMN 42492**

Licensing & Fuels Coordinator- Responsible for providing licensing and technical support to the recovery effort in areas of reactor systems and fuel related concerns. The licensing and fuels coordinator would also be the liaison between Ameren UE and the NSSS supplier, A/E, and other contractors. **COMN 42493**

Radiological Assessment Coordinator- Responsible for coordinating activities involving plant personnel or equipment, assisting the state department of health in estimating and assessing population exposure calculations, coordinating off-site sampling total population exposure calculations, and coordinating off-site sampling and analysis. **COMN 42494**

Administrative Services Coordinator- Responsible for ensuring that administrative, logistical, and personnel support is available to support recovery operations. **COMN 42495**

CALLAWAY PLANT
EMERGENCY PLAN IMPLEMENTING PROCEDURE

EIP-ZZ-01211

MANAGEMENT ACTION GUIDES FOR NUCLEAR EMERGENCIES
(MAGNEM)

RESPONSIBLE DEPARTMENT EMERGENCY PREPAREDNESS

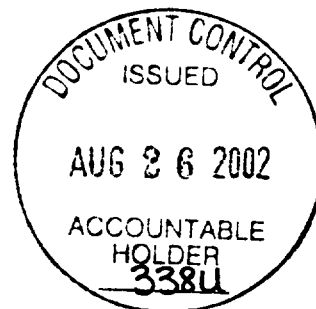
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DATE ISSUED 8-26-02



This procedure contains the following:

Pages	<u>1</u>	through	<u>4</u>
Attachments	<u>1</u>	through	<u>1</u>
Tables	<u> </u>	through	<u> </u>
Figures	<u> </u>	through	<u> </u>
Appendices	<u> </u>	through	<u> </u>
Checkoff Lists	<u> </u>	through	<u> </u>

This procedure has checkoff list(s) maintained in the mainframe computer.

Conversion of commitments to TRS reference/hidden text completed by Revision Number:

Non-T/S Commitments 020

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 Attachment 1 PC Dose Assessment Data Input	 2 Pages

MANAGEMENT ACTION GUIDES FOR NUCLEAR EMERGENCIES (MAGNEM)

1 PURPOSE AND SCOPE

1.1 PURPOSE

This procedure provides guidance for using the MAGNEM computer program for Dose Assessment.

1.2 SCOPE

This procedure provides a method of entering data into the MAGNEM computer program using effluent monitors, grab samples, and field monitoring team data.

2 DEFINITIONS

- 2.1 Above Normal Operating Limits-Is a release threshold indicated by dose rates of 0.1 mr/hr at the EAB either by direct measurement or by dose projection.

3 RESPONSIBILITIES

3.1 RAD/CHEM TECHNICIAN HPTS (CONTROL ROOM) COMN 3951

Performs dose calculations using MAGNEM and forwards results to the Emergency Coordinator, until the EOF is manned and ready to accept responsibility.

3.2 DOSE ASSESSMENT COORDINATOR (EOF)

Assumes responsibility from the Dose Assessment Technician (Control Room) when the EOF is manned and ready.

4 INITIATING CONDITIONS

This procedure should be implemented upon declaration of an emergency, which involves or may involve a release of radioactive material to the environment.

5 PROCEDURE

5.1 RUNNING MAGNEM

5.1.1 Log on to the LAN, if available.

5.1.2 Click on MAGNEM, which is in the Windows "START" menu or located on the Desktop.

5.2 DATA COLLECTION FOR MAGNEM INPUT

5.2.1 When the Callaway LAN is available, data will be automatically transferred from the Plant Computer to the appropriate data entry fields for all parameters that have a "manual" override option.

5.2.1.1 To manually enter data into any of these automatic fields, select the "Manual Over-ride" box. The box changes from white to red indicating manual over-ride of data entry is in effect for that field.

5.2.1.2 If the Plant Computer is not available or manual data for all fields must be used, select "MANUAL OVER-RIDE" from the pull-down menu. Select All Manual. This will override all automatic fields and allow manual data only. Data collection for manual entry is described in the following steps.

- 5.2.2 Using the plant computer system, display the PC Dose assessment data input screen using the Turn-On-Code P C D, or from the RRIS menu screen, select PC Dose.
- 5.2.3 Transcribe data from the PCD screen to the appropriate data field in MAGNEM. The PCD screen print option or Attachment 1, Dose Assessment Data Input sheet, may be used to aid in transcribing data.
- 5.2.3.1 For items not on the Plant Computer System, obtain data from the Chemistry Coordinator, Control Room, Engineering Staff, Field Monitoring Team Leader, or Field Monitoring Team Communicator, as appropriate.
- 5.2.4 Follow the program prompts after entering data.
- 5.2.5 If the plant computer is inoperable, dispatch a Rad/Chem Technician to the Control Room to provide effluent monitor data, and to the Plant Computer Room or EOF to provide meteorological data. If meteorological information is not available on-site, obtain wind direction and wind speed, including units, for Columbia, Missouri. The number for obtaining weather information is located in the Federal Emergency Organization section for off-site emergency telephone numbers in the Emergency Telephone Directory.
- 5.2.5.1 If stability class values are not available onsite, use an "D" stability class.
- 5.2.6 Obtain weather forecast data initially and every four hours.
- 5.3 MAGNEM SUMMARY SCREEN DISPLAY
- 5.3.1 The Summary Screen may be displayed upon entering all required information. Verify all input data is correct and select the option to "Calculate doses".
- 5.3.2 Inform the Recovery Manager or the Protective Measures Coordinator, if present in the EOF, or the Emergency Coordinator of any changes relevant to the Emergency Action Levels (EALs) or Protective Action Recommendations (PARs).

6 FINAL CONDITIONS

- 6.1 The emergency has been closed out or the recovery phase has been declared.
- 6.2 Complete all necessary records and forms according to this procedure and send them to Emergency Preparedness.

7 REFERENCES

- 7.1 **EIP-ZZ-00212**, Protective Action Recommendations
- 7.2 **COMN 20363**
- 7.3 **FSAR SA TABLE 2.3-55**

8 RECORDS

NOTE:

All Facility Logs, SENTRY and MAGNEM screen prints, office memos, notes, etc. should be attached to the Coordinator Checklist and turned in to the Logistics Support Coordinator and/or Emergency Preparedness.

PC DOSE ASSESSMENT DATA INPUT				COLOR LEGEND	
RELEASE RATE DATA				RR	PCDU
① UNIT VENT NOBLE GAS				PCDRS	
uCi/cc	GT-RE-21B	MONITOR		GOOD DATA BAD DATA HI ALARM HI/HI ALARM	
uCi/cc	GT-RE-21B	MONITOR 15 MIN ROLL AVG			
uCi/sec	GT-RE-21B	RELEASE RATE 15 MIN AVG			
CTMT ATMOSPHERE					
uCi/cc	GT-RE-31	GAS MONITOR			
uCi/cc	GT-RE-32	GAS MONITOR			
CHARMS					
R/hr	GT-RE-59	CHARMS EAL			
R/hr	GT-RE-60	CHARMS EAL			
RADWASTE VENT NOBLE GAS					
uCi/cc	GH-RE-10B	MONITOR			
uCi/cc	GH-RE-10B	MONITOR 15 MIN ROLL AVG.			
uCi/sec	GH-RE-10B	RELEASE RATE 15 MIN AVG			
② PORV MONITORS					
mr/hr	AB-RE-111	"A" S/G			
uCi/cc	AB-RE-111	"A" S/G 15 MIN AVG			
mr/hr	AB-RE-112	"B" S/G			
uCi/cc	AB-RE-112	"B" S/G 15 MIN AVG			
mr/hr	AB-RE-113	"C" S/G			
uCi/cc	AB-RE-113	"C" S/G 15 MIN AVG			
mr/hr	AB-RE-114	"D" S/G			
uCi/cc	AB-RE-114	"D" S/G 15 MIN AVG			
③ AUX FEEDWATER TURBINE DISCHARGE					
mr/hr	FC-RE-385	MONITOR			
uCi/cc	FC-RE-385	MONITOR 15 MIN. AVG.			
RADWASTE VENT FLOW STATUS					
④ STEAM FLOWRATES 15 MIN AVG lb/hr					
PORV	SAFETIES	TOTAL FLOW			
			"A" S/G		
			"B" S/G		
			"C" S/G		
			"D" S/G		
N/A	N/A		⑤ AUX FW TURBINE DISCHARGE		
MET DATA					
⑥ WIND SPEED 15 MIN AVG					
MPH	PRIMARY	10 METER			
MPH	SECONDARY	10 METER			
MPH	PRIMARY	60 METER			
MPH	PRIMARY	90 METER			
⑦ WIND DIRECTION (FROM) 15 MIN AVG					
DEG	PRIMARY	10 METER			
DEG	SECONDARY	10 METER			
DEG	PRIMARY	60 METER			
DEG	PRIMARY	90 METER			
⑧ STABILITY CLASS					
(A-G)	PRIMARY				
(A-G)	SECONDARY				
⑨ TEMPERATURE DIFFERENTIAL 15 MIN AVG					
DEG	PRIMARY	90M - 10M			
DEG	PRIMARY	60M - 10M			
⑩ SIGMA THETA 15 MIN AVG					
DEG	PRIMARY	10 METER			
DEG	SECONDARY	10 METER			
DEG	PRIMARY	60 METER			
DEG	PRIMARY	90 METER			
UNIT VENT FLOW STATUS					
CURRENT	FLOWRATE				
STATUS	15 MIN AVG (CFM)				
				18,975 MAIN STEAM ENCLOSURE	
				1,100 CONDENSER AIR REMOVAL	
				6,930 HPAC	
				9,900 FUEL BLDG EMERG EXHAUST FAN A	
				9,900 FUEL BLDG EMERG EXHAUST FAN B	
				25,000 AUX/FUEL BLD NORM EXH SLOW	
				35,200 AUX/FUEL BLD NORM EXH FAST	
				22,000 CONTAINMENT SHUTDOWN PURGE	
				5,000 CONTAINMENT MINI-PURGE	
				⑪ TOTAL FLOW RATE 15 MIN AVG	
				⑫	

- ①
 - a. Obtain these values from the Plant Computer PC Dose Assessment Data Input Screen. If the values are bad or not available, dispatch a technician to the control room to obtain data from the RM-11 system.
 - b. Use 15 minute average release rate monitor values. Values are either instantaneous values, 15 minute rolling average, or 15 minute average. 15 minute average parameters are labeled as such.
 - c. Instantaneous value comes from GTR0021B.
 - d. 15 minute rolling average comes from GTR0021G
 - e. Release Rate 15 min avg. come from Fan Flow x GTR0021G
- ②③ Steam Generator PORV and Auxiliary Feed Pump Turbine Discharge Monitors.

AB-RE-111, 112, 113, and 114 are not calibrated for readings less than 1 mr/hr (instantaneous) or 4.06 E-2 $\mu\text{Ci/cc}$ (15 min. Avg.).

FC-RE-385 is not calibrated for readings less than 1 mr/hr (instantaneous) or 5.51 E-2 (15 min. Avg.).

If these monitor values are above the lower calibration range, use 15 minute average concentrations. However, if the release has just started and the PCS has not updated with 15 minutes of release data, you should use the instantaneous (mr/hr) values.
- ④ Total the steam flow rates from both the safeties and the PORVs.
- ⑤ For a release via the Aux Feedwater Turbine discharge, use this flow rate.
- ⑥ Wind speed should be obtained in the order given. Backup wind speed is available from the BOP computer room.
- ⑦ Wind direction should be obtained in the order given. Backup data are available in the BOP Computer Room.
- ⑧ Use the stability class in the order given.
- ⑨ Use the temperature differential in the order given. Backup data are available in the BOP Computer Room.
- ⑩ Use the Sigma Theta values if the temperature differential values are not available and in the order given.
- ⑪ If ⑫ is not available from the plant computer screen, determine operating fan status from the Technical Assessment Coordinator, Technical Support Coordinator, or from the Control Room and total the values to obtain the Unit Vent flow rate.
- ⑫ Total unit vent flow is provided on the plant computer system.