



444 South 16th Street Mall  
Omaha NE 68102-2247

August 6, 2003  
LIC-03-0111

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Reference: Docket No. 50-285

**SUBJECT: Transmittal of Changes to Emergency Plan Implementing Procedures (EPIP)**

In accordance with 10 CFR 50.54(q), 10 CFR 50, Appendix E, Section V, and 10 CFR 50.4(b)(5), please find EPIP and EPF change packages enclosed for the Document Control Desk (holder of Copy 165) and the NRC Region IV Plant Support Branch Secretary (holder of Copies 154 and 155).

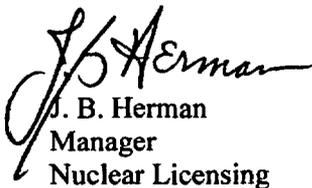
The document update instructions and summary of changes are included on the Confirmation of Transmittal form (Form EP-1) attached to each controlled copy change package. Please return the Confirmation of Transmittal forms by September 26, 2003.

The revised documents included in the enclosed package are:

EPIP Index page 1 of 3 issued 07/29/03  
EPIP EOF-3 R19 issued 07/29/03  
EPIP-TSC-2 R4 issued 07/29/03  
FC-EPF index page 1 of 3 issued 07/29/03  
FC-EPF-4 R3 issued 07/29/03  
FC-EFP-14 R12 issued 07/29/03

If you have any questions regarding the enclosed changes, please contact Mr. Carl Simmons at (402) 533-6430.

Sincerely,

  
J. B. Herman  
Manager  
Nuclear Licensing

RLP/ckf

Enclosures

c: NRC Region IV Plant Support Branch Secretary (2 sets)  
Alan Wang, NRC Project Manager (w/o enclosures)  
J. G. Kramer, NRC Senior Resident Inspector (w/o enclosures)  
Emergency Planning Department (w/o enclosures)

AD45

OMAHA PUBLIC POWER DISTRICT

Confirmation of Transmittal for  
Emergency Planning Documents/Information

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<input type="checkbox"/> Radiological Emergency Response Plan (RERP)	<input checked="" type="checkbox"/> Emergency Plan Implementing Procedures (EPIP)	<input checked="" type="checkbox"/> Emergency Planning Forms (EPF)
<input type="checkbox"/> Emergency Planning Department Manual (EPDM)	<input type="checkbox"/> Other Emergency Planning Document(s)/ Information	

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Transmitted to:

Name: Document Control Desk Copy No: 165 Date: \_\_\_\_\_  
Division of Reactor Safety Copy No: 154  
Attn: Senior Emergency Preparedness Inspector  
Division of Reactor Safety Copy No: 155  
Attn: Senior Emergency Preparedness Inspector

The following document(s) / information are forwarded for your manual:

REMOVE SECTION

EPIP Index page 1 of 3 issued 07/17/03  
EPIP-EOF-3 R18 issued 11/12/02  
EPIP-TSC-2 R3 issued 01/23/03  
FC-EPF index page 1 of 3 issued 03/20/03  
FC-EPF-4 R2 issued 12/13/94  
FC-EPF-14 R11 issued 03/20/03

INSERT SECTION

EPIP Index page 1 of 3 issued 07/29/03  
EPIP EOF-3 R19 issued 07/29/03  
EPIP-TSC-2 R4 issued 07/29/03  
FC-EPF index page 1 of 3 issued 07/29/03  
FC-EPF-4 R3 issued 07/29/03  
FC-EFP-14 R12 issued 07/29/03

**Summary of Changes:**

EPIP-EOF-3 was revised to clarify the guidance on the proper air sample airflow needed for an air sample (Step 3.4). EPIP-TSC-2 was revised to add instructions to establish a command post near the Security ACP and to add guidance on preparing for the loss of Spent Fuel Pool Cooling. FC-EPF-4 and FC-EPF-14 were revised to remove PID numbers and replace with TLD numbers. (PID numbers are no longer used.)

  
\_\_\_\_\_  
Supervisor - Emergency Planning

I hereby acknowledge receipt of the above documents/information and have included them in my assigned manuals.

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

Please sign above and return by 09/26/03 to:

Beth Nagel  
Fort Calhoun Station, FC-2-1  
Omaha Public Power District  
444 South 16<sup>th</sup> Street Mall  
Omaha, NE 68102-2247

**NOTE:** If the document(s)/information contained in this transmittal is no longer requested or needed by the recipient, or has been transferred to another individual, please fill out the information below.

Document(s)/Information No Longer Requested/Needed

Document(s)/Information Transferred to:

Name: \_\_\_\_\_ Mailing Address: \_\_\_\_\_

Document	Document Title	Revision/Date
EPIP-OSC-1	Emergency Classification	R35 05-02-02
EPIP-OSC-2	Command and Control Position Actions/Notifications	R42 05-28-03a
EPIP-OSC-9	Emergency Team Briefings	R7 12-09-99
EPIP-OSC-15	Communicator Actions	R22 10-24-00a
EPIP-OSC-21	Activation of the Operations Support Center	R12 10-29-02a
EPIP-TSC-1	Activation of the Technical Support Center	R24 06-19-03
EPIP-TSC-2	Catastrophic Flooding Preparations (R0 03-22-95) DELETED (05-09-95) REINSTATED	R4 07-29-03
EPIP-TSC-8	Core Damage Assessment	R14 01-19-01
EPIP-EOF-1	Activation of the Emergency Operations Facility	R13 10-29-02
EPIP-EOF-3	Offsite Monitoring	R19 07-29-03
EPIP-EOF-6	Dose Assessment	R32 01-23-02a
EPIP-EOF-7	Protective Action Guidelines	R14 04-15-03
EPIP-EOF-10	Warehouse Personnel Decontamination Station Operation	R10 01-13-00a
EPIP-EOF-11	Dosimetry Records, Exposure Extensions and Habitability	R20 07-02-03

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Fort Calhoun Station  
Unit No. 1

**EPIP-EOF-3**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: OFFSITE MONITORING**

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**FC-68 Number: EC 32042**

**Reason for Change: Step 3.4, clarify the guidance on the proper air sample airflow needed for an air sample.**

**Requestor: Mark Reller**

**Preparer: Mark Reller**

OFFSITE MONITORING

NON-SAFETY RELATED

1. PURPOSE

- 1.1 This procedure provides guidance to field teams on performing offsite radiological monitoring.

2. REFERENCES/COMMITMENT DOCUMENTS

2.1 Ongoing Commitments

- AR 30448

2.2 RP-418, Operation of the Eberline ESP-2 Digital Meter

2.3 RP-420, Operation of Ludlum and Eberline Count Ratemeters Using External Pancake GM Probes

2.4 RP-439, Operation of the Dose Rate Meter

2.5 RP-434, Operation of the Radeco Model H-810 Air Totalizer

2.6 RP-203, Air Sample Collection and Analysis

2.7 FC-EPF-2, Offsite Monitoring Log

2.8 FC-EPF-8, Sample Worksheet

3. DEFINITIONS

None

4. PREREQUISITES

None

5. PROCEDURE

- 5.1 The TSC Field Team Technician will use Attachment 6.1 when preparing for departure.

- 5.2 The TSC Field Team Technician will use Attachment 6.2 when performing a plume search.

- 5.3 The TSC Field Team Technician will use Attachment 6.3 for performing surveys.
- 5.4 The TSC Field Team Technician will use Attachment 6.4 for counting samples.
- 5.5 The TSC Field Team Technician will use Attachment 6.5 for follow-up actions.

6. ATTACHMENTS

- 6.1 Preparing for Departure
- 6.2 Plume Search
- 6.3 Performing Surveys
- 6.4 Counting Samples
- 6.5 Follow-up Actions

Attachment 6.1 - Preparing for Departure

(✓) INITIALS

1. Upon arrival at the TSC report to the TSC Protective Measures coordinator for:

1.1 A briefing of current conditions:

- Emergency Classification Level \_\_\_\_\_
- Initiating conditions \_\_\_\_\_
- Prognosis \_\_\_\_\_

1.2 A briefing on weather data:

- Wind Speed \_\_\_\_\_
- Wind direction \_\_\_\_\_
- Stability class \_\_\_\_\_
- Affected sectors \_\_\_\_\_

1.3 Dose Assessments (if being performed)

- PARs \_\_\_\_\_
- Action taken by states \_\_\_\_\_

1.4 Special precautions or strategy to be used in field. \_\_\_\_\_

1.5 Field team assignments \_\_\_\_\_

2. Proceed to the Security Building Emergency Gear locker and obtain:

- Vehicle keys \_\_\_\_\_
- Survey and monitoring instruments \_\_\_\_\_
- Potassium Iodide tablets (3 bottles) \_\_\_\_\_
- Self reading dosimeters \_\_\_\_\_

3. Verify radio operability:

**NOTE:** Push the talk button to talk, release the button to listen.

- Turn on radio \_\_\_\_\_
- Select desired sub-fleet number (normally SF4) \_\_\_\_\_
- Contact EOF (TSC as backup) for a radio check \_\_\_\_\_

Attachment 6.1 - Preparing for Departure

(✓) INITIALS

4. Record the following information on the FC-EPF-2 form:

- Field Team color (red or blue)
- Serial numbers of survey instruments
- Calibration due dates of survey instruments
- Names of Field Team members
- Initial readings of Field Team members dosimetry

\_\_\_\_\_

5. Prior to departure receive instructions from the EOF Field Team Specialist on:

- Current plant conditions
- Projected plume pathway
- Targeted sample location
- Preferred route to sample location
- Personal protective actions required (use ALARA principals)

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

6. When directed proceed to the sample location using the Monitor Book Map for directions.

Attachment 6.2 - Plume Search

**NOTE:** Ensure dose rate instrument is kept in the on position on the lowest possible scale.

**NOTE:** Always follow ALARA principles when performing your duties.

1. Plume search when enroute to the projected plume pathway:

1.1 Periodically monitor background.

1.2 Report and record any increase in background to the EOF Field Team Specialist include:

- Maximum dose rate location
- Any other conditions of note

1.3 Follow the instructions of the Field Team Specialist.

2. Plume search when in the plume or the projected plume pathway:

2.1 Continually monitor background

2.2 Report and record any increase in background to the EOF Field Team Specialist include:

- Maximum dose rate
- Lowest dose rate
- Location
- Changes in meteorological conditions
- Any other conditions of note

3. Consult with the EOF Field Team Specialist to determine the location in which to perform surveys.

Attachment 6.3 - Performing Surveys

(✓) INITIALS

1. General instructions:

- 1.1 Ensure that EOF Field Team Specialist is aware of your location.
- 1.2 Always use ALARA principles.
- 1.3 When stopped use roof mounted yellow light.
- 1.4 Always park in a safe and secure location.
- 1.5 Exercise care when handling sample to prevent cross-contamination.
- 1.6 Be aware of the need for protective clothing.
- 1.7 If radio communication is lost for any reason contact Field Team Specialist by commercial telephone.
- 1.8 Dosimetry should be read at each sample location as a minimum, record results on FC-EPF-2.

2. Beta/Gamma Surveys

**NOTE:** Determine beta and gamma radiation levels using the ion chamber instrument. The ESP-2 with HP270 probe may be used as a backup.

**NOTE:** In a noble gas field, an ion chamber instrument can become internally contaminated and provide erroneous readings.

- 2.1 In an open area, avoiding trees and other obstructions:
  - 2.1.1 Monitor for beta and gamma radiation at ground level.
  - 2.1.2 Monitor for beta and gamma radiation at waist level.
  - 2.1.3 Record readings on FC-EPF-2.

Attachment 6.3 - Performing Surveys

(✓) INITIALS

3. Air Sampling [AR 30448]

3.1 Load the air sampler with both a particulate filter and a charcoal cartridge.

3.1.1 Note the direction of the air flow on the cartridge using the arrow for guidance.

3.1.2 Note the collection side of the particulate filter with an ink mark.

3.1.3 Ensure the gaskets are in place and the particulate filter is properly positioned to prevent air to bypass the filter.

**NOTE:** Perform air sampling in an open area away from trees, buildings and other obstructions.

**NOTE:** Do not place air sampler on the ground or in any other place where it may vacuum surface contamination.

3.2 If power is to be supplied from the vehicle inverter:

3.2.1 Put the power supply switch in "generator" or "inverter" position. \_\_\_\_\_

3.2.2 Turn on the inverter switch (located on the inverter). \_\_\_\_\_

3.3 If power is to be supplied from an outside power source:

3.3.1 Ensure power supply switch is on outside power. \_\_\_\_\_

3.3.2 Plug van into the power source. \_\_\_\_\_

3.4 Plug Sampler in and operate in accordance with

- RP-434
- Perform air sampling gathering a sample volume of 4 ft<sup>3</sup>

3.5 Bag the particulate and iodine samples separately and fill out and attach the supplied label.

Attachment 6.3 - Performing Surveys

(✓) INITIALS

4. Smear Collection:

4.1 Obtain and clearly number the desired amount of smears:

4.1.1 Smear surfaces as desired using a standard 100 cm<sup>2</sup>  
(approximate) smear area.

4.1.2 Bag the smears and fill out and attach the supplied label.

Attachment 6.4 - Counting Samples

1. Sample Counting

1.1 Upon completion of sample collection:

**NOTE:** If instrument backgrounds remain high after leaving the plume area try decontaminating the probes.

1.1.1 Move to a low background area (<300 cpm) to count samples.

1.1.2 Re-establish a background for all instruments.

1.2 Count and calculate samples, using FC-EPF-8 for guidance:

**NOTE:** Use care not to cross contaminate samples.

1.2.1 Count the charcoal cartridge for gross iodine activity.

1.2.2 Count the paper filters for gross particulate activity.

1.2.3 Count smears for activity in DPM/100 cm<sup>2</sup>.

1.2.4 Log iodine and particulate air sample results and the highest smear results on FC-EPF-2.

1.2.5 Return all samples to their original labeled bags.

1.2.6 Seal bags and place in designated storage bin.

1.3 Report results to the EOF Field Team Specialist or TSC Protective Measures Coordinator.

Attachment 6.5 - Follow-up Actions

(✓) INITIALS

1. If directed to return to site or the EOF:
  - 1.1 Obtain appropriate direction to the selected site. \_\_\_\_\_
  - 1.2 Assume that you and the vehicle are contaminated. \_\_\_\_\_
  - 1.3 Secure vehicle by:
    - Turning off the power \_\_\_\_\_
    - Turn off the power inverter \_\_\_\_\_
    - If possible plug vehicle tank heater into AC power supply \_\_\_\_\_
  - 1.4 Ensure vehicle and all personnel are monitored for contamination and deconned as necessary. \_\_\_\_\_
  - 1.5 Prepare a list of supplies that are needed to return the vehicle to ready state. \_\_\_\_\_
  - 1.6 Deliver all samples, forms and logs to the Field Team Specialist at the EOF or the OSC RP Coordinator at the site. \_\_\_\_\_

Fort Calhoun Station  
Unit No. 1

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**EPIP-TSC-2**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: CATASTROPHIC FLOODING PREPARATIONS**

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**FC-68 Number: EC 32107**

**Reason for Change: Add instructions to establish a command post near the Security ACP.  
Add guidance on preparing for the loss of Spent Fuel Pool Cooling.**

**Requestor: L. Kusek**

**Preparer: M. Reller**

## CATASTROPHIC FLOODING PREPARATIONS

### 1. PURPOSE

- 1.1 This procedure provides guidance and information to protect and align plant systems and resources, and to maintain decay heat removal in the event of an upstream dam burst or other causes of catastrophic flooding. As a result of a Missouri River Dam failure, a worst case flooding level as high as 1029 feet could be expected. Such an event would provide approximately 62 hours warning to prepare for the impending flooding. This guidance, therefore, will be appropriate if all normal means of decay heat removal become, or are expected to become, inoperable. This procedure in part could also be used to mitigate seismic, tornado, fire, and other events beyond the AOPs, i.e. beyond catastrophic design basis by using this procedure to fill the EFWST.
- 1.2 The TSC organization has lead responsibility for use of this EPIP. It is intended that implementation be a cooperative effort between the Control Room, Technical Support Center (TSC) and other emergency response facilities and resources.

### 2. PREREQUISITES

- 2.1 Notification by the Corps of Engineers or other reliable source of an upstream dam failure or the expectation of flooding above Elevation 1009 feet that would breach flood gates and sandbags and jeopardize the plant and equipment.
- 2.2 The plant has been shutdown, or is being shutdown per appropriate operating procedures.

### 3. REFERENCES/COMMITMENT DOCUMENTS

- 3.1 Fort Calhoun PRA IPEEE to the NRC, dated Dec 31, 1993
- 3.2 OP-4, Load Change and Normal Power Operation
- 3.3 OP-3A, Plant Shutdown
- 3.4 AOP-01, Acts of Nature, Section 1 - Flood
- 3.5 AOP-05, Emergency Shutdown
- 3.6 GM-RR-AE-1002, Flood Control Preparedness for Sandbagging
- 3.7 PE-RR-AE-1001, Floodgate Installation and Removal
- 3.8 PE-RR-AE-1002, Installation of Portable Steam Generator Makeup Pumps

4. DEFINITIONS

4.1 Catastrophic Flooding - flooding which is expected to rise above elevation 1009 feet.

5. PROCEDURE

**NOTE:** Use Attachment 6.1, Catastrophic Flood Preparation Checklist, to track progress of this procedure.

**NOTE:** The National Weather Service provides flooding forecasts in feet above a gauge datum near Blair (BLAN1). A gauge datum of 0.0 corresponds to an elevation of 977.58 feet.

5.1 Determine the best alignment of the electrical distribution systems to supply electrical power from the diesel generators in expectation that offsite power may be lost.

- The 161 KV switchyard building will begin flooding at elevation 1005'6".
- The west 345 KV switchyard building will begin flooding at elevation 1005'9".
- The east 345 KV switchyard building will begin flooding at elevation 1007'6".
- The air louver openings for Diesel Generator 1 will be covered at a flood elevation of 1020'6".

5.2 Request that the Control Room maintain pressurizer level at "no load" level after the plant is shut down to provide an adequate steam space for a potential Reactor Coolant System (RCS) temperature increase.

5.3 Request that the Control Room raise Steam Generator level to 100% Narrow Range in anticipation of loss of all Feedwater.

5.4 Request that the Site Director/Shift Manager authorize the installation of portable steam generator makeup pumps per PE-RR-AE-1002, Installation of Portable Steam Generator Makeup Pumps. The number of pumps required will depend upon the anticipated decay heat load. The required flow rate is equal to 110 gpm per percent full power (gpm/%).

5.5 When flooding of equipment required for shutdown cooling is imminent, ensure steam generators are available, secure shutdown cooling, and close all valves communicating directly with the RCS (e.g., HCV-348). (Suggest that HCV-348 be closed two days after shutdown to reduce the possibility of an interfacing system LOCA.)

5.6 Continue decay heat removal by feeding and steaming at least one steam generator.

**NOTE:** The following action will minimize the damage done by flooding and reduce the effort required to restore equipment, post-flood.

- 5.7 Install plant floodgates per PE-RR-AE-1001.
- 5.8 Perform sandbagging per GM-RR-AE-1002, Attachments 9.5 and 9.6 if desired.
- 5.9 Sealup outside openings in the south wall of the switchgear room.
- 5.10 Install hose extensions to the Fuel Oil storage tank vent stacks per GM-RR-AE-1002. (✓)
  - FO-1, Diesel Generator —
  - FO-10, Auxiliary Boiler and FW-54 —
  - FO-27, Diesel Fire Pump —
- 5.11 Prepare for Loss of Spent Fuel Pool Cooling
  - 5.11.1 Equalize level between the Transfer Canal and Spent Fuel Pool.
  - 5.11.2 Remove the gate.
  - 5.11.3 Fill the Spent Fuel Pool and Transfer Canal.
  - 5.11.4 Initiate plans for Spent Fuel Pool makeup, or restoration of Spent Fuel Pool Cooling, once flood waters have receded.
- 5.12 If loss of Auxiliary Feedwater is imminent, perform the following steps:

**NOTE:** A total of 220,000 gallons of water will be required to remove decay heat for 3.5 days after flooding occurs at the site.

  - 5.12.1 Before the EFWST has lost its water inventory fill the EFWST with river water via a portable pump and then begin feeding one of the steam generators with a portable makeup pump. Reference PE-RR-AE-1002.
  - 5.12.2 Manually open one or more Main Steam Safety Valves (MSSVs) to provide a steaming path. It is important to maintain the steam pressure as close as possible to atmospheric due to limited capability of the portable pumps.
- 5.13 Additional alternate protective actions may be taken as described in Attachment 6.2.

## 6. ATTACHMENTS

- 6.1 Catastrophic Flood Preparation Checklist
- 6.2 Alternate Actions (Optional)

Attachment 6.1 - Catastrophic Flood Preparation Checklist

(✓)

1. Upon notification of an upstream dam break, or an expected flood elevation greater than 1009 feet verify with the U.S. Army Corps of Engineers and get an estimated time of arrival of flood waters at the Fort Calhoun Station. \_\_\_\_\_
2. Shutdown the plant as directed by AOP-01 prior to the impending flood, cool down and initiate shutdown cooling actions. \_\_\_\_\_
3. Adjust pressurizer level to provide an "adequate" steam space for potential temperature increases. \_\_\_\_\_
4. Prepare the portable pumps so that they are available to feed the Steam Generators after the flood crest arrives, per PE-RR-AE-1002. Stage a supply of fuel for the pumps on the Turbine Building deck, elevation 1036 feet, or in Room 81. \_\_\_\_\_
5. Prepare the electrical distribution system for a controlled loss of the 161 KV and 345 KV power supplies, and subsequent transfer to the Emergency Diesel Generators. \_\_\_\_\_
6. Prepare for a controlled loss of the 13.8 KV power supply to site facilities when flood waters reach grade level. \_\_\_\_\_
7. Direct the TSC Security Coordinator to establish contingencies for loss of the Security System. \_\_\_\_\_
8. Normal means of communication will be lost due to flood waters. Establish alternate means of communication, i.e., radios, cell phones, and portable generators (if desired), with Operations, Security, and Maintenance personnel who will remain in plant facilities prior to and throughout the flood. \_\_\_\_\_
9. Establish an Onsite Command Post near the Security Access Control Point at the top of the hill. \_\_\_\_\_
10. Coordinate the stockpiling of food and water for personnel who will remain in the plant throughout the flood. \_\_\_\_\_
11. Coordinate the removal of all valued records and equipment possible that will not be protected from the flood waters. \_\_\_\_\_

(✓)

12. Since power will not be available for forced ventilation in Room 81 or the Turbine Building, steps must be taken to preclude the buildup of carbon monoxide in these areas. Such steps could include ducting the exhaust to the outdoors or providing adequate fresh air ventilation. That could mean removing the blowout panels in Room 81 and propping open all available doors to provide ventilation through the room. The Turbine Building windows may need to be removed to allow natural air flow through that building. \_\_\_\_\_
13. Prepare for the eventual loss of power from the Emergency Diesel Generators when floodwaters begin entering the switchgear rooms and/or the diesel rooms (elevation 1011'). \_\_\_\_\_
14. Prepare for the eventual loss of Spent Fuel Pool Cooling. \_\_\_\_\_
15. Evacuate all nonessential personnel from the plant facilities by four hours prior to the flood arrival. \_\_\_\_\_
16. Raise Steam Generator levels to 100% narrow range in anticipation of loss of all Feedwater. \_\_\_\_\_
17. Isolate the Containment. \_\_\_\_\_
18. Manually OPEN MSSVs as necessary to control Steam Generator pressure. \_\_\_\_\_
19. After all Feedwater is lost, begin feeding the Steam Generators with the gasoline powered portable pumps, and continue steaming Steam Generators with the MSSVs to remove decay heat. \_\_\_\_\_
20. Maintain steam generator inventory by filling to the onset of water relief, then stopping feeding for eleven hours to maintain 50% steam generator (S/G) inventory or eighteen hours to maintain 20% S/G inventory. Repeat the process. (If the S/Gs were full at the time, dryout would occur after twenty-two hours and severe core damage would occur after ten additional hours). A total of 220,000 gallons of water is needed to remove decay heat for 3.5 days after the flood arrives at the site. \_\_\_\_\_
21. Some leakage will occur from the RCS during the flood. Once the flood recedes, arrange for RCS makeup with a pump capable of pumping at about 200 psi. \_\_\_\_\_
22. Once the flood recedes, arrange for Steam Generator makeup capability since the gasoline powered pumps may not have enough lift to pull water from the river. \_\_\_\_\_

Attachment 6.2 - Alternate Actions (Optional)

1. An alternate method of protecting valuable equipment would be to "moth ball" it by applying a coating of grease, by spraying with paraffin or plastic, or by enclosure in a waterproof polyethylene or vinyl film. Equipment so protected can be submerged for considerable periods and later put back in operation with a minimum of expense compared to the cost of restoring unprotected equipment.
2. Otherwise, the motors, other vital electrical relay components, and mechanical equipment should be removed and stored above the flood level. The goal of flood proofing is loss reduction, however it is accomplished.
3. Sewers that are to be valved off should be cast iron, steel, or reinforced concrete. Storage tanks should be anchored and weighted down, to prevent flotation. Fuses and circuit breakers should be clearly marked and accessible so power can be secured to affected components if flooding begins. This will protect against fires and the loss of life due to electrical shocks.
4. Windows and vents just above and below the projected water surface should be sealed to prevent the entry of flood waters. They may also need to be reinforced.
5. The feasibility of flood proofing substantially constructed buildings shows that, in the course of time, the benefits in flood damage avoided outweighs the initial cost of flood proofing by approximately 5 to 1.

Document	Document Title	Revision/Date
FC-EPF-1	Alert Notification System Accidental Activation Report Form	R7 11-29-01
FC-EPF-2	Offsite Monitoring Log	R3 03-15-01
FC-EPF-3	Administration of Potassium Iodide Tablets	R1 11-07-00
FC-EPF-4 NCR	Radiological Emergency Team Briefing Checklist	R3 07-29-03
FC-EPF-5	Emergency Worker Extension	R5 02-14-03
FC-EPF-6	Estimated Exposure Worksheet	R4 11-07-00
FC-EPF-7	Estimated Exposure Log	R2 04-01-98
FC-EPF-8	Sample Worksheet	R6 07-23-02
FC-EPF-9	OSC 24-Hour Staffing Schedule	R14 01-16-03
FC-EPF-10	CR/TSC 24-Hour Staffing Schedule	R16 01-16-03
FC-EPF-11	EOF 24-Hour Staffing Schedule	R12 01-16-03
FC-EPF-12	MRC 24 Hour Staffing Schedule	R3 02-14-02
FC-EPF-13	Emergency Response Organization Log Sheet	R0 01-17-91
FC-EPF-14	Emergency Response Organization Assignment Form	R12 07-29-03

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Radiological Emergency Team Briefing Checklist				
Task:				
Team Leader: _____/TLD _____	Name/TLD	Name/TLD	Name/TLD	
Ensure each member has sufficient available dose to complete task.				
Plant Conditions: <input type="checkbox"/> NOUE <input type="checkbox"/> Alert <input type="checkbox"/> Site Area <input type="checkbox"/> General Emergency				
Highest Expected Values:	Actual <sup>1</sup>	Estimate <sup>1</sup>	Unknown	N/A
Dose Rates (Rem/Hr.)				
Contamination (dpm/100cm <sup>2</sup> )				
Airborne (µCi/cc): _____				
<sup>1</sup> Source of Information:				
Dosimetry: <input type="checkbox"/> TLD <input type="checkbox"/> EAD <input type="checkbox"/> Other				
Maximum Dose Rate:	Rem/Hr	RWP#	Rev.	
Protective Equipment: These requirements are not binding if different from RWP's, unless needed for other than radiological hazard.				
<input type="checkbox"/> Lab Coat	<input type="checkbox"/> Cotton Liners	<input type="checkbox"/> Booties _____	<input type="checkbox"/> Skull Cap	
<input type="checkbox"/> Coveralls	<input type="checkbox"/> Surgeon Gloves	<input type="checkbox"/> Shoe Covers	<input type="checkbox"/> Hood	
<input type="checkbox"/> Paper Suit	<input type="checkbox"/> Rubber Gloves	<input type="checkbox"/> Rubber Boots	<input type="checkbox"/> Flight Cap	
<input type="checkbox"/> Plastic Suit	<input type="checkbox"/> _____	<input type="checkbox"/> Respirator type:		
Tools & Equipment:				
Special Instructions:				
Travel Route:				
Communications: <input type="checkbox"/> Radio <input type="checkbox"/> Gaitronics <input type="checkbox"/> Phone <input type="checkbox"/> Other				
Briefing Conducted by:			Date/Time	/
Date/Time Dispatched:				

Radiological Emergency Team Debriefing Report			
Task:			
Team:	Name/TLD/Dose	Name/TLD/Dose	Name/TLD/Dose
Leader/TLD/Dose			
Observed Safety/Radiological Hazards:			
Actual Radiation, Contamination & Airborne Levels Found (attach Survey):			
Problems Encountered & General Observations:			
Work Accomplished/Remaining:			
Debriefing Conducted by:		Date/Time:	/

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EMERGENCY RESPONSE ORGANIZATION ASSIGNMENT FORM

<b>Section 1: Type of Change</b>	
<input type="checkbox"/> New Assignment: (Position/Title)	
<input type="checkbox"/> Delete From: (Position/Title)	
<input type="checkbox"/> Other Changes: (Position/Title)	Reason:
<b>Section 2: Employee Data/Concurrence</b>	
Full Name (include middle initial):	Employee No:
Department Name/Number:	TLD No:
Employee Signature:	Print:
Department Head Signature:	Print:
Responsible MGMT. Contact (Per NAI-10):	Print:
<b>Forward to the Supervisor - Emergency Planning</b>	
<b>Section 3: Initial Assignment</b>	
<input type="checkbox"/> N/A Supervisor-EP Approval:	Date:
ERO Roster Updated By:	Date:
Team Color: <input type="checkbox"/> Red <input type="checkbox"/> White <input type="checkbox"/> Blue	
<b>Section 4: Qualification Requirements Verification</b>	
<b>NOTE:</b> A member of the EP Group will review with the assignee the steps and requirements needed to be taken to qualify for their assigned position.	
EP Reviewer:	Date: Target Completion Date:
<input type="checkbox"/> N/A Emergency Preparedness Training Completed on:	<input type="checkbox"/> 90 day training requirement
Verified in PQD on:	<input type="checkbox"/> 6 month training requirement
<input type="checkbox"/> N/A TLD Issued on:	
<input type="checkbox"/> N/A SCBA Qualification Completed on:	
<input type="checkbox"/> N/A FCS Site Access Badge Issued:	<input type="checkbox"/> YES <input type="checkbox"/> NO TLD Number:
Fitness For Duty Program Initiated:	<input type="checkbox"/> YES <input type="checkbox"/> NO
Supervisor's CBOP Training Completed:	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>Section 5: Final Approval</b>	
The Above Change(s)	
Approved by Supervisor-Emergency Planning:	Date:
<b>Section 6: Final Status Update</b>	
<input type="checkbox"/> N/A ERO Roster Updated to Status 1 (Individual has been instructed to obtain an ERO ID card) or status 2 by (Circle one):	
Emergency Planning REP:	Date:
<input type="checkbox"/> N/A Employee deleted from ERO Roster (instruct individual to turn in ERO ID card) by:	
Emergency Planning REP:	Date:
Reason for Deletion:	