

OMAHA PUBLIC POWER DISTRICT

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- Radiological Emergency Response Plan (RERP)       Emergency Plan Implementing Procedures (EPIP)       Emergency Planning Forms (EPF)
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REMOVE SECTION

EPIP Index Page 1 dated 10/13/99  
EPIP-EOF-3 R15 issued 04/02/97

INSERT SECTION

EPIP Index Page 1 dated 10/26/99  
EPIP-EOF-3 R16 dated 10/26/99

**Summary of Changes:**

Reformat per Writer Guide.



Supervisor - Emergency Planning

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

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**EMERGENCY PLAN IMPLEMENTING PROCEDURE INDEX**

<u>PROCEDURE NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
EPIP-OSC-1	Emergency Classification	R32 07-29-99
EPIP-OSC-2	Command and Control Position Actions/Notifications	R34 10-07-98a
EPIP-OSC-9	Emergency Team Briefings	R6 03-11-97
EPIP-OSC-15	Communicator Actions	R18 12-02-97a
EPIP-OSC-20	Site Population Exposure Estimates	R6 11-10-95
EPIP-OSC-21	Activation of the Operations Support Center	R8 09-30-97
EPIP-TSC-1	Activation of the Technical Support Center	R20 10-08-99
EPIP-TSC-2	Catastrophic Flooding Preparations	(R0 03-22-95) DELETED 05-09- 95
	<b>REINSTATED</b>	R2 02-06-96
EPIP-TSC-8	Core Damage Assessment	R11 02-25-97a
EPIP-EOF-1	Activation of the Emergency Operations Facility	R11 09-23-99a
EPIP-EOF-3	Offsite Monitoring	R16 10-26-99
EPIP-EOF-6	Dose Assessment	R27 03-11-97a
EPIP-EOF-7	Protective Action Guidelines	R12 09-01-94
EPIP-EOF-10	Warehouse Personnel Decontamination Station Operation	R9 11-01-90a
EPIP-EOF-11	Dosimetry Records, Exposure Extensions and Habitability	R18 09-18-97b
EPIP-EOF-19	Recovery Actions	R7 09-30-98
EPIP-EOF-21	Potassium Iodide Issuance	R3 09-18-97
EPIP-EOF-23	Emergency Response Message System	R5 10-12-99

Fort Calhoun Station  
Unit No. 1

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**EPIP-EOF-3**

**EMERGENCY PLAN IMPLEMENTING PROCEDURE**

**Title: OFFSITE MONITORING**

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FC-68 Number: DCR 10896

Reason for Change: Reformat per Writers Guide.

Initiator: Doug Levine

Preparer: Mark Reller

## OFFSITE MONITORING

### Not Safety Related

#### 1. PURPOSE

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

#### 2. REFERENCES/COMMITMENT DOCUMENTS

- 2.1 RP-418, Operation of the Eberline ESP-1 or ESP-2 Digital Meter
- 2.2 RP-420, Operation of Ludlum and Eberline Count Ratemeters Using External Pancake GM Probes
- 2.3 RP-439, Operation of the Dose Rate Meter
- 2.4 RP-434, Operation of the Radeco Model H-810 Air Totalizer
- 2.5 RP-203, Air Sample Collection and Analysis
- 2.6 FC-EPF-2, Offsite Monitoring Log
- 2.7 FC-EPF-8, Sample Worksheet

#### 3. DEFINITIONS

NONE

#### 4. PREREQUISITES

NONE

#### 5. PROCEDURE

##### 5.1 General Field Team Instructions

- 5.1.1 Inform the Field Team Specialist of team location, dose rate surveys, air sample results, and any vehicle or equipment malfunctions.
- 5.1.2 Use ALARA principles in taking samples.
- 5.1.3 When stopping, use the roof-mounted yellow lights, and pull off the road to a safe distance.

- 5.1.4 Exercise care when handling samples to prevent cross-contamination.
- 5.1.5 Be aware of the need for respiratory protection and/or anti-contamination clothing.
- 5.1.6 Operate radiological monitoring equipment in accordance with applicable operating procedures for the equipment (see Section 2).
- 5.1.7 IF radio communications are lost for any reason, THEN contact the Field Team Specialist via another Field Team or commercial telephone.
- 5.1.8 Dosimetry will be assigned by RP Supervision prior to team dispatch. Dosimeters should be read at each sample location or as directed, and the results recorded on EPF-2.

5.2 Equipment and Vehicle Check

5.2.1 Proceed to the Security Building Emergency Gear Locker and obtain:

- Vehicle keys (key numbers correspond to the vehicle numbers)
- Survey and monitoring instruments
- Potassium Iodide Tablets (3 bottles)

5.2.2 At the vehicle, ensure all electrical power cords plugged into the front of the vehicle are unplugged, and perform a quick visual check of the vehicle.

**NOTE:** Do not depress accelerator pedal prior to starting the vehicle as the engine is fuel injected.

**NOTE:** Do not attempt to race engine to trip choke off as a computer controls engine speed during warm-up.

5.2.3 Start the van.

5.2.4 Check the air sampler, calculator, and survey meters for operability. Survey meter operability check includes checking the following: batteries, instrument calibration and response test labels, meter integrity and meter response using the provided button source.

5.2.5 Verify radio operability by contacting the TSC or EOF for a radio function check.

- A. Depress "power" button to power on the radio.
- B. Select desired subfleet, normally "SF4" using the "mode" control.
- C. Turn volume control up to desired level using the "volume" control.

**NOTE:** Handset "push-to-talk" button must be released to listen.

- D. Contact TSC or EOF using "push to talk" button.
- E. Switch to other subfleets only as directed by the Field Team Specialist.

5.2.6 Notify the Field Team Specialist if any equipment is missing or faulty.

5.2.7 Record the following information on EPF-2:

- A. Team color (Blue or Red);
- B. Serial numbers of survey instruments;
- C. Names of Field Team members;
- D. Initial readings of the team members' pocket dosimeters.

### 5.3 Team Departure

- 5.3.1 Receive a briefing from the Field Team Specialist on sample location, route, and personal protective actions, if needed.
- 5.3.2 When directed, proceed to the designated sample location using the monitor map book for directions.

#### 5.4 Plume Search

- 5.4.1 Turn on a dose rate meter, periodically monitor and maintain it in operation while in transit to identify trends.
- 5.4.2 If there is an increase in radiation level (i.e. greater than twice background), then report the readings to the Field Team Specialist immediately.
  - A. Note the location of the change. Continue plume search as directed by Field Team Specialist.
  - B. Note the locations of the highest and lowest level readings.
  - C. Recommend to the Field Team Specialist a sample location that represents the center of the dose plateau across the plume or the highest reading across the plume.
- 5.4.3 Note any apparent changes in meteorological conditions (such as wind direction, wind speed, and precipitation) and report them to the Field Team Specialist.
- 5.4.4 Report to the selected sample location(s) to perform surveys as directed by the Field Team Specialist.

#### 5.5 Gamma/Beta Surveys

**NOTE:** Determine gamma and beta radiation levels using the ion chamber instrument. For backup reasons, the ESP-2 with the HP-270 detector may be used.

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

- 5.5.1 Monitor for both gamma and beta radiation at ground level. Ensure that trees and other obstructions are avoided to give the most accurate data. Record the readings on EPF-2.
- 5.5.2 Monitor for both gamma and beta radiation at waist level. Record the readings on EPF-2.

## 5.6 Air Sampling

- 5.6.1 Load the air sampler with both a particulate filter and a charcoal cartridge.
- A. Note the direction of air flow on the cartridge using the arrow, and insert cartridge into sample head properly.
  - B. Note the collection side of the particulate filter with an ink mark.
  - C. Ensure any gaskets are in place and the particulate filter is properly positioned to prevent sampled air to bypass the particulate filter.

**NOTE:** The air sample should be taken in an open area away from trees, buildings, and other obstructions.

- 5.6.2 Hold the air sampler or place it in a stable position. Do not place the sampler on the ground.

- 5.6.3 Perform air sampling as follows:

- A. Ensure the power supply switch is in "generator" or "inverter" position if power is to be supplied from vehicle inverter.
- B. Turn on inverter switch (located on the inverter).
- C. Ensure the power supply switch is in "outside power" position if power is to be supplied from outside power source. Van must be plugged into the power source if this method is used.
- D. Plug in sampler and operate in accordance with operating procedures, (RP-431 OR RP-434).
- E. Perform air sampling as per RP-203.

- 5.6.4 Bag the air particulate and iodine samples separately. Clearly label each sample with the following information:

- A. Date
- B. Time On/Off
- C. Location
- D. Flow Rate



- 5.6.4 E. Sample Volume
- F. Name of Person Collecting Sample
- G. Radioactive Material

5.7 Air Sample Counting

- 5.7.1 After taking the requested surveys and/or samples, move to a low background area (i.e. less than or equal to twice background) to analyze the samples.
- 5.7.2 Count the charcoal cartridge for I-131 activity and particulate filter for gross particulate activity. Use EPF-8, for specific instruction on counting samples, and for calculating results.
- 5.7.3 Log the sample results on EPF-2.
- 5.7.4 Return the air particulate and iodine samples to their labeled bags. Seal the bags and place them in the designated storage bin in the vehicle.

5.8 Smear Collection

- 5.8.1 Obtain the desired number of smears for the survey.
- 5.8.2 Smear surfaces as desired using the standard 100 cm<sup>2</sup> (approximate) smear area.
- 5.8.3 Bag and label the smears with the following information:
  - A. Date/Time
  - B. Location
  - C. Name of person collecting smear
  - D. Radioactive Material

5.9 Smear Counting

- 5.9.1 After taking the requested surveys and samples, move to a low background area (i.e., less than 300 cpm) to analyze the smears.
- 5.9.2 Count the smears for activity in DPM/100cm<sup>2</sup>. Use EPF-8, for specific instruction on counting samples, and for calculating results.

5.9.3 Log the highest smear results on EPF-2.

5.9.4 Return the smears to their labeled bags. Seal the bags and place them in the designated storage bin in the vehicle.

#### 5.10 Follow-up Actions

5.10.1 Perform additional surveys as directed in the vicinity of the same sample location. Log results on the additional spaces of the same EPF-2.

5.10.2 When directed to report to another monitor location, repeat applicable portions of Steps 5.4 through 5.10, using a new EPF-2 for each location.

5.10.3 If directed to return to the site or the EOF, obtain appropriate directions and location to proceed to. ASSUME vehicle is contaminated.

5.10.4 When securing vehicle, turn off power inverter, radios, lights and other accessories as necessary.

5.10.5 Request the RP Coordinator (in the OSC) to have appropriate personnel and equipment standing by for return surveys.

5.10.6 Upon return to the site (or EOF), survey all team members, the vehicle, and the equipment for contamination. If contamination is found, notify the Radiation Protection Coordinator via the Field Team Specialist.

5.10.7 Deliver all samples and logs to the Field Team Specialist.

#### 6. ATTACHMENTS

NONE