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|------------------|-------------|---------------------------------------|
| 13.11.7          | 22          | Radiological Emergency Manager Duties |

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| + + 137                    | *MPF Field Team Kits (13.7.5, 13.9.1, 13.9.5, 13.9.8, 13.13.4, 13.14.4)                                  | PE30                    |
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COLUMBIA GENERATING STATION  
PLANT PROCEDURES MANUAL

|  |                           |          |
|--|---------------------------|----------|
| PROCEDURE NUMBER                       | APPROVED BY               | DATE     |
| *13.11.7                               | MPR for DWC - Revision 22 | 09/11/00 |
| VOLUME NAME                            |                           |          |
| EMERGENCY PLAN IMPLEMENTING PROCEDURES |                           |          |
| SECTION                                |                           |          |
| EMERGENCY OPERATIONS FACILITY          |                           |          |
| TITLE                                  |                           |          |
| RADIOLOGICAL EMERGENCY MANAGER DUTIES  |                           |          |

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## 1.0 PURPOSE

This procedure describes the emergency responsibilities and duties of the Emergency Operations Facility (EOF) Radiological Emergency Manager (REM), including oversight of: Environmental Field Team activities; dose projection activities; Protective Action Recommendation (PAR) coordination with the Emergency Director; coordinating any offsite monitoring and decontamination activities; Health Physics Center (HPC) activities; and coordination of offsite reentry and Ingestion Pathway activities with Washington State Department of Health (WADOH) personnel. As necessary, portions of the REM duties may be delegated to staff members.

Upon arrival of WADOH representatives and/or the U.S. Department of Energy, Richland Field Office (DOE/RL) representatives, certain REM duties will be administered according to the jurisdictional authority of each agency, with the REM ensuring full cooperation and support to all agencies.

## 2.0 REFERENCES

- 2.1 FSAR, Chapter 13.3, Emergency Plan, Sections 2 and 6
- 2.2 PPM 1.9.14, Onsite Medical Emergencies
- 2.3 PPM 13.2.1, Emergency Exposure Levels/Protective Actions Guides (PAGs)
- 2.4 PPM 13.2.2, Determining Protective Action Recommendations
- 2.5 PPM 13.5.3, Evacuation of Exclusion Area and/or Nearby Facilities
- 2.6 PPM 13.7.5, Offsite Assembly Area Operations
- 2.7 PPM 13.8.1, Emergency Dose Projection System Operations
- 2.8 PPM 13.9.1, Environmental Field Monitoring Operations
- 2.9 PPM 13.9.5, Environmental Sample Collection
- 2.10 PPM 13.9.8, River Evacuation Monitoring
- 2.11 PPM 13.13.3, Intermediate Phase MUDAC Operations
- 2.12 PPM 13.13.4, After Action Reporting
- 2.13 Emergency Response Log, 968-23895
- 2.14 Ten Mile EPZ Field Team Summary Map, 968-25130

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3.0 PROCEDURE

- 3.1 When notified of an Alert, Site Area Emergency or General Emergency, or if directed, report to the EOF and sign in on the EOF staffing board.
- 3.2 Obtain your procedure book from the wall rack and supply drawer from the EOF supply cabinet.
- 3.3 Notify the Site Support Manager and EOF Manager (or the TSC Manager if EOF Manager not yet present) of your availability.
- 3.4 Inform the EOF Manager when MUDAC is operational (dose assessment and field monitoring functions).

NOTE: At an Alert or higher emergency, a Security Officer will be dispatched to the EOF HPC to lock down the Plant Support Facility (PSF) and assist with EOF access control, and with evacuation assembly area accountability.

- 3.5 At Alert or higher, contact the RPM and request two HP Technicians be dispatched to the EOF for HPC activation.
  - Direct the HPC staff to set up HPC facilities and establish EOF habitability monitoring. Refer to Attachment 4.10.
  - Ensure appropriate radiological monitoring equipment is positioned (dose rate and air sampling) in the lower level south end PSF near the EOF and periodic dose rate and airborne surveys are performed as necessary.
- 3.6 Establish and maintain contact with the Radiation Protection Manager (RPM) in the TSC for a briefing on the status of the emergency, and to provide assistance in radiological assessment, mitigation activities, or dose assessments.
- 3.7 When dose assessment is fully functional, assume responsibility for offsite dose projections from the RPM in the TSC, or the STA in the Control Room.
- 3.8 In the event of a Protected Area evacuation, assist the RPM with coordinating Health Physics (HP) monitoring and decontamination services at the evacuation assembly area.
- 3.9 When radiological conditions require evacuation of the Columbia River, indicating the potential for contaminated boaters, or if requested, provide for radiological monitoring of Columbia River evacuees per PPM 13.9.8.

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- 3.10 If plant conditions indicate the possibility of an offsite release or a Site Area Emergency is declared, direct the Site Support Manager to call in an additional REM to assist in REM responsibilities.
- 3.11 If the determination is made to evacuate the Exclusion Area, determine if radiological hazards exist or are suspected. Determine evacuation routes and hazardous routes to avoid. Refer to PPM 13.5.3.
- 3.12 In the event of an Exclusion Area evacuation requiring personnel to report to Energy Northwest Office Complex (ENOC), dispatch an HPC staff member to set up the assembly area. Refer to PPM 13.7.5 for guidance regarding setup and operation of the assembly area.
- 3.13 If conditions indicate the need for road closure, evacuation, or other protective measures, coordinate the safe placement of Energy Northwest or local law enforcement agency roadblocks with the Security Manager.
- 3.14 When notified that personnel must pass through road blocks into radiological hazard areas, determine and implement necessary radiological monitoring and protective clothing requirements.

NOTE: The Energy Northwest administrative exposure hold point (2 rem TEDE) is automatically waived for Energy Northwest emergency workers at Alert or higher emergency classifications and increased to 5 rem TEDE.

NOTE: A radioactive release is in progress when any of the following conditions exist:

- Valid reading exists which exceeds PPM 13.1.1 Table 3 Column UE, OR
- Offsite dose calculations meet or exceeds PPM 13.1.1 Table 4 Column UE levels for TEDE or CDE thyroid, OR
- Field teams measure GE 100  $\mu$ rem/hr at 1.2 miles.

- 3.15 If a confirmed radioactive release is in progress, the following steps should be taken:
  - Determine the advisability of sheltering or evacuating any manned Exclusion Area facility, i.e., PSF, Laundry, Energy Northwest, Ashe Substation, River Pumphouse, and determine and direct implementation of radiological protective actions for EOF personnel, based on radiological conditions.
  - Refer to PPM 13.2.2, Section 4.3, Offsite PARs Based on Projected Doses, to determine offsite protective actions and act as the Protective Action Decision Group spokesperson in proposing PARs to the EOF Manager (Emergency Director).

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- Provide the Emergency Director with updated dose projection results. Information provided should include dose, dose rate, and the basis for the time used for the dose estimates.
  - Notify the Emergency Director and the State and County Technical Liaisons if dose rates exceed 250 mrem/hr thyroid, or air sample results exceed  $1.4E-7$   $\mu$ curies/cc iodine 131. Ensure that this information is marked on the CNF.
  - Consult with the Field Team Coordinator to ensure the following:
    - a. Dispatch field teams to traverse at designated distances (i.e., 1.2, 5, and 10 miles) and verify dose rate levels above 100  $\mu$ rem/hr.
    - b. Upon identification of a radioactive plume, commence air sampling activities.
    - c. Identify plume centerline and boundaries (i.e., 100  $\mu$ rem/hr).
- 3.16 Determine the need for a dose adjustment factor based on dose projection results or reports from field team members indicating a potential inhalation concern. The dose adjustment factor provides an internal component which should be multiplied by the dosimeter reading to give an estimate of total exposure.
- Using QEDPS, calculate a dose adjustment factor:
    - a. If the dose adjustment factor is 5 or greater, a dose adjustment factor of 5 should be implemented.
    - b. Provide the dose adjustment factor to the Field Team Coordinator for use in establishing field team exposure limits.

**NOTE:** Refer to PPM 13.2.1 for guidance on recommending administration of Potassium Iodide (KI) for emergency workers. Be aware that criteria for recommending KI for State, County and DOE personnel are different from those for Energy Northwest personnel.

- 3.17 Advise the Field Team Coordinator when protective actions need to be taken by field teams, such as KI.
- 3.18 Review Field Team summary and dose projection summary maps for the plume EPZ, and when applicable, the ingestion EPZ. Have copies transmitted to the JIC, County and State emergency centers.
- 3.19 Continually assess offsite radiological releases and determine the need to recommend to the Emergency Director to provide authorization to exceed Protective Action Guides (PAGs) for offsite emergency workers, in accordance with PPM 13.2.1, or

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general public Protective Action Recommendations (PARs) in accordance with PPM 13.2.2.

- 3.20 Brief all Energy Northwest and offsite MUDAC personnel of impending PAR declarations prior to issuing the PAR.
- 3.21 As necessary, complete radiological release-related portions of the CNF for PAR modifications.
- 3.22 Provide PAR updates to the EOF Information Coordinator for transmittal on the Information Coordinator's network.
- 3.23 Conduct periodic briefing sessions of the MUDAC staff on pertinent information from incoming hard copy communications and changes in emergency status.
- 3.24 Act as a conduit for information flow between MUDAC, HPC personnel, and the main EOF area, and provide input into EOF briefings on status and activities of dose assessment, field monitoring activities, EOF habitability, etc., per Attachment 4.8.
- 3.25 Distribute MUDAC generated hard copy dose projection information (map and data sheets) to State and County Emergency Operations Centers (EOCs), and retain a copy for MUDAC records.
- 3.26 When relief from the Health Physics Network (HPN) is requested by the RPM, select a communicator and direct that they maintain the EOF HPN line in accordance with Attachment 4.4. Consider calling in an additional Dose Projection Health Physicist to fill this position.
- 3.27 If the following conditions exist:
  - EOF general area radiation levels exceed 5 mrem/hr as indicated by the EOF radiation monitor, or;
  - EOF unidentified airborne radioactivity exceeds 0.3 DAC (0.3 DAC equates to approximately 750 cpm on a 40 ft<sup>3</sup> air sample in the field), then:
    - a. Immediately notify the EOF Manager and staff of the condition;
    - b. Direct surveillance of airborne activity be increased to once per hour and results reported to you;
    - c. Direct dose rates in the area be determined approximately every 15 minutes and results reported to you;
    - d. Direct that projected accumulated doses for the EOF personnel be evaluated and appropriate stay times be established;

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- e. Prohibit eating or drinking in the EOF until advised of resolution of the EOF airborne activity problem.
- 3.28 Dispatch a Health Physics Technician to the PSF penthouse to determine if the following conditions exist if the plume is over the PSF:
- PSF intake air activity exceeds 100 mrem/hr, or;
  - PSF return air activity exceeds 50 mrem/hr, then:
    - a. Immediately notify EOF Manager and staff of the condition.
    - b. Ensure EOF ventilation system is in proper operating mode per Attachment 4.10;
    - c. Request the Site Support Manager to notify Facilities to assist, if needed.
- 3.29 If necessary, direct the Site Support Manager to contact the Chemistry/Effluent Manager for support of field team sample analysis.
- 3.30 As required, direct appropriate staff to perform the following tasks per Attachment 4.5:
- Prepare, issue and collect direct reading dosimeters and TLDs for emergency response personnel.
  - Contact Nuclear and Engineering Support Staff training to determine if respirator training, medical qualifications, and fit testing for emergency support personnel, vendors, and contractors who must enter areas requiring respiratory protection is current.
- 3.31 If questioned by State or County officials, provide briefings that explain EOF radiological survey data and dose projection activities that determined Energy Northwest recommendations for protective actions.
- 3.32 If Washington State Radcon teams are not available, and establishment of an offsite survey or remote decontamination location is required to handle potentially contaminated personnel, make arrangements for the necessary personnel and equipment.
- 3.33 If injured or contaminated personnel require offsite medical attention, refer to PPM 1.9.14.

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- 3.34 If additional Energy Northwest personnel resources are needed for Environmental Field Teams, dose assessment or other EOF radiological duties, request the Site Support Manager obtain those resources.
- 3.35 Assist the Site Support Manager as necessary to establish second shift personnel for dose assessment area staff, environmental field teams and HPC staff.
- 3.36 If offsite radiological resources are needed, inform the EOF Manager.
- 3.37 Determine disposition of Environmental Field Team samples gathered pursuant to PPM 13.9.5:
- In consultation with representatives of DOH for samples outside the Hanford Reservation.
  - In consultation with representatives of DOE-RL for samples on the Hanford Reservation.
- 3.38 Upon notification of transfer of plant Post Accident Sample System (PASS) samples, brief HPC Staff on anticipated radiation levels and necessary protective measures.
- 3.39 Ensure that the Field Teams identifies the trailing edge of the radioactive plume to confirm that the release has ended.
- 3.40 When emergency activities have resulted in stabilizing the plant, and radiological conditions are progressing from the early phase to the intermediate phase, refer to Attachment 4.11 to transfer MUDAC leadership to the Washington State Department of Health (WADOH) Representative, and:
- Implementing PPM 13.13.3, Intermediate Phase MUDAC Operations.
  - Arranging additional support with the Site Support Manger to fulfill all responsibilities of MUDAC during this phase.
- 3.41 Estimate the total population exposure as a result of the radiological release. Consider total dose from EDPS, duration, and length of exposure. Refer to Attachment 4.9.
- 3.42 Coordinate use of Energy Northwest radiological equipment and manpower resources, authorized by the EOF Manager, to provide assistance to the state in establishing relocation centers, food control zones, or other reentry and recovery activities.
- 3.43 Refer all calls from media to the JIC.

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- 3.44 Upon shift change, turn over chronological logs and brief your relief on the current status of the emergency, radiological activities, and status of work being performed.
- 3.45 Upon shift change or termination of the emergency:
  - Prepare an individual After Action Report. Refer to PPM 13.13.4
  - Collect individual After Action Reports prepared by staff personnel.
  - Deliver all After Action Reports and accompanying sheets to the EOF Manager.

4.0 ATTACHMENTS

- 4.1 Checklist for Radiological Emergency Manager Duties
- 4.2 Dose Projection Health Physicist Duties
- 4.3 Comparison of Field Data with Dose Projections
- 4.4 Health Physics Network (HPN) Communicator Duties
- 4.5 Health Physics Center (HPC) Staff
- 4.6 Health Physics Center Staff Radiological Sample Tracking Instructions
- 4.7 Typical Setup for HP Center Receiving Area (PSF Ambulance Garage)
- 4.8 Radiological Emergency Manager Briefing Guidelines
- 4.9 Total Population Within the 10 Mile EPZ
- 4.10 EOF HVAC Automatic and Manual Operation
- 4.11 Dose Assessment Center Leadership Transfer Guide

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CHECKLIST FOR RADIOLOGICAL EMERGENCY MANAGER DUTIES

- A. Report to the EOF, sign in on the staffing board, obtain your procedure book and supply drawer.
- B. Notify the EOF Manager (or the TSC Manager if EOF Manager not yet present) of your availability.
- C. Inform the EOF Manager when MUDAC is operational.
- D. Contact the RPM and request two HP Technicians to setup HPC facilities and establish EOF habitability monitoring.
- E. At Alert or higher, contact the RPM and request two HP Technicians be dispatched to the EOF for Health Physics Center (HPC) activation.
  - .1 Direct the HPC staff to set up HPC facilities and establish EOF habitability monitoring. Refer to Attachment 4.10.
  - .2 Ensure appropriate radiological monitoring equipment is positioned (dose rate and air sampling) in the lower level south end PSF near the EOF and periodic dose rate and airborne surveys are performed as necessary.
- F. Establish and maintain contact with the RPM for a briefing on the status of the emergency, and to provide assistance in radiological assessment, mitigation activities, or dose assessment.
- G. When dose assessment is fully functional, assume responsibility for offsite dose projections from the TSC or Control Room.
- H. In the event of a Protected Area evacuation, assist the RPM with coordinating HP monitoring and decontamination services at the evacuation assembly area.
- I. In the event of an Exclusion Area evacuation requiring personnel to report to Energy Northwest Office Complex (ENOC), dispatch an HPC staff member to set up the assembly area. Refer to PPM 13.7.5 for guidance regarding setup and operation of the assembly area.
- J. When radiological conditions require evacuation of the Columbia River, indicating the potential for contaminated boaters, or, if requested, provide for radiological monitoring of Columbia River evacuees per 13.9.8.
- K. If plant conditions indicate the possibility of an offsite release or a site area emergency is declared, direct the Site Support Manager to call in an additional REM to assist in REM responsibilities.

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- L. If conditions indicate the need for road closure, evacuation, or other protective measures, coordinate the safe placement of Energy Northwest or local law enforcement agency roadblocks with the Security Manager.
- M. When notified that personnel must pass through road blocks into radiological hazard areas, determine and implement necessary radiological monitoring and protective clothing requirements.
- N. A radioactive release is in progress when any of the following conditions exist:
- Valid reading exists which exceeds PPM 13.1.1 Table 3 Column UE, OR
  - Offsite dose calculations meet or exceeds PPM 13.1.1 Table 4 Column UE levels for TEDE or CDE thyroid, OR
  - Field teams measure GE 100  $\mu$ rem/hr at 1.2 miles.
- O. If a confirmed radioactive release is in progress, the following steps should be taken:
- Determine the advisability of sheltering or evacuating any manned Exclusion Area facility, i.e., PSF, Laundry, Energy Northwest, Ashe Substation, River Pumphouse, and determine and direct implementation of radiological protective actions for EOF personnel, based on radiological conditions.
  - Refer to PPM 13.2.2, Section 4.3, Offsite PARs Based on Projected Doses, to determine offsite protective actions and act as the Protective Action Decision Group spokesperson in proposing PARs to the EOF Manager (Emergency Director).
  - Provide the Emergency Director with updated dose projection results. Information provided should include dose, dose rate, and the basis for the time used for the dose estimates.
  - Notify the Emergency Director and the State and County Technical Liaisons if dose rates exceed 250 mrem/hr thyroid, or air sample results exceed  $1.4E-7$   $\mu$ curies/cc iodine 131. Ensure that this information is marked on the CNF.
- P. Refer to PPM 13.2.2, Section 4.3, Offsite PARs Based on Projected Doses,, to determine offsite protective actions, and act as the Protective Action Decision Group spokesperson in proposing PARs to the EOF Manager (Emergency Director).
- Q. Provide the Emergency Director with updated dose projection results. Information provided should include dose, dose rate, and the basis for the time used for the dose estimates.
- R. Consult with the Field Team Coordinator to ensure the following:
- Dispatch field teams to traverse at designated distances (i.e., 1.2, 5, and 10 miles) and verify dose rate levels above 100 $\mu$ rem/hr.

Attachment 4.1

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- Upon identification of a radioactive plume, commence air sampling activities.
- Identify plume centerline and boundaries (i.e., 100  $\mu$ rem/hr).
- Determine the need for a dose adjustment factor based on dose projection results or reports from Field Team members indicating potential inhalation concern. The dose adjustment factor provides an internal component which should be multiplied by the dosimeter reading to give an estimate of total exposure.

S. Using QEDPS, calculate a dose adjustment factor:

- If the dose adjustment factor is 5 or greater, a dose adjustment factor of 5 should be implemented.
- Provide the dose adjustment factor to the Field Team Coordinator for use in establishing field team exposure limits.

**NOTE:** Refer to PPM 13.2.1 for guidance on recommending administration of Potassium Iodide (KI) for emergency workers. Be aware that criteria for recommending KI for State, County and DOE personnel are different from those for Energy Northwest personnel.

- T. Advise the Field Team Coordinator when protective actions need to be taken by field teams, such as KI.
- U. Review Field Team summary and dose projection summary maps for the plume EPZ, and when applicable, the ingestion EPZ. Have copies transmitted to the JIC, County and State emergency centers.
- V. Continually assess offsite radiological releases and determine the need to recommend to the Emergency Director to provide authorization to exceed Protective Action Guides (PAGs) for offsite emergency workers, in accordance with PPM 13.2.1, or general public Protective Action Recommendations (PARs) in accordance with PPM 13.2.2.
- W. Brief all Energy Northwest and offsite MUDAC personnel of impending PAR declarations prior to issuing the PAR.
- X. As necessary, complete radiological release-related portions of the CNF for PAR modifications.
- Y. Provide PAR updates to the EOF Information Coordinator for transmittal on the Information Coordinator's network.
- Z. Conduct periodic briefing sessions of the MUDAC staff on pertinent information from incoming hard copy communications and changes in emergency status.

Attachment 4.1

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- AA. Act as a conduit for information flow between MUDAC, HPC personnel, and the main EOF area, and provide input into EOF briefings on status and activities of dose assessment, field monitoring activities, EOF habitability, etc., per Attachment 4.8.
- AB. If necessary, direct the Site Support Manager to contact the Chemistry/Effluent Manager for support of field team sample analysis.
- AC. Distribute MUDAC generated hard copy dose projection information (map and data sheets) to State and County Emergency Operations Centers (EOCs), and retain a copy for MUDAC records.
- AD. When relief from the Health Physics Network (HPN) is requested by the RPM, select a communicator and direct that they maintain the EOF HPN line in accordance with Attachment 4.4. Consider calling in an additional Dose Projection Health Physicist to fill this position.
- AE. If the following conditions exist:
  - EOF general area radiation levels exceed 5 mrem/hr as indicated by the EOF radiation monitor, or;
  - EOF unidentified airborne radioactivity exceeds 0.3 DAC (0.3 DAC equates to approximately 750 ccpm on a 40 ft<sup>3</sup> air sample in the field),

Then:

- Immediately notify the EOF Manager and staff of the condition;
  - Direct surveillance of airborne activity be increased to once per hour and results reported to you;
  - Direct dose rates in the area be determined approximately every 15 minutes and results reported to you;
  - Direct that projected accumulated doses for the EOF personnel be evaluated and appropriate stay times be established;
  - Prohibit eating or drinking in the EOF until advised of resolution of the EOF airborne activity problem.
- AF. Dispatch a Health Physics Technician to the PSF penthouse to determine if the following conditions exist if the plume is over the PSF:
- PSF intake air activity exceeds 100 mrem/hr, or;

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- PSF return air activity exceeds 50 mrem/hr, then:
  - A. Immediately notify EOF Manager and staff of the condition.
  - B. Ensure EOF ventilation system is in proper operating mode per Attachment 4.10;
  - C. Request the Site Support Manager to notify Facilities to assist, if needed.
  
- AG. If the emergency worker dose limit of 5 rem is projected to be exceeded over the course of the event for the EOF staff, inform the EOF Manager so plans to evacuate the EOF and activate the Alternate EOF may be initiated.
  
- AH. As required, direct appropriate staff to perform the following tasks in accordance with Attachment 4.5:
  - Prepare, issue, and collect direct reading dosimeters and TLDs for emergency response personnel.
  - Contact Nuclear and Engineering Support Training to determine if respirator training, medical qualifications, and fit testing for emergency support personnel, vendors, and contractors who must enter areas requiring respiratory protection are current.
  
- AI. If questioned by State or County officials, provide briefings that explain EOF radiological survey data and dose projection activities that determined Energy Northwest recommendations for protective actions.
  
- AJ. If Washington State Radcon teams are not available, and establishment of an offsite survey or remote decontamination location is required to handle potentially contaminated personnel, make arrangements for the necessary personnel and equipment.
  
- AK. If injured or contaminated personnel require offsite medical attention, refer to PPM 1.9.14.
  
- AL. If additional Energy Northwest personnel resources are needed for Environmental Field Teams, dose assessment or other EOF radiological duties, request the Site Support Manager obtain those resources.
  
- AM. Assist the Site Support Manager as necessary to establish second shift personnel for dose assessment area staff, environmental field teams and HPC staff.
  
- AN. If offsite radiological resources are needed, inform the EOF Manager.

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- AO. Determine disposition of Environmental Field Team samples gathered pursuant to PPM 13.9.5:
- A. In consultation with representatives of DOH for samples outside the Hanford Reservation.
  - B. In consultation with representatives of DOE-RL for samples on the Hanford Reservation.
- AP. Upon notification of transfer of PASS samples, brief HPC staff on anticipated radiation levels and necessary protective measures.
- AQ. Ensure field team identifies the back edge of the radioactive plume to confirm the release has ended.
- AR. When emergency activities have resulted in stabilizing the plant, and radiological conditions are progressing from the early phase to the intermediate phase, refer to Attachment 4.11 to transfer MUDAC leadership to the Washington State Department of Health (WADOH) Representative, and:
- Implementing PPM 13.13.3, Intermediate Phase MUDAC Operations.
  - Arranging additional support with the Site Support Manager to fulfill all responsibilities of MUDAC during this phase.
- AS. Estimate the total population exposure as a result of the radiological release. Consider total dose from EDPS, duration and length of exposure. Refer to Attachment 4.9.
- AT. Coordinate the use of Energy Northwest radiological equipment and manpower resources, authorized by the EOF Manager, to provide assistance to the State in establishing relocation centers, food control zones, or other reentry and recovery activities.
- AU. Refer all calls from the media to the Joint Information Center.
- AV. Upon shift change, turn over chronological logs and brief your relief on the current status of the emergency, radiological activities, and status of work being performed.

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Duties of: Dose Projection Health Physicist

Assigned Location: Meteorology and Unified Dose Assessment Center (MUDAC)

Report to: Radiological Emergency Manager (REM)

Responsibilities:

1. Activate the Emergency Dose Projection System (EDPS) PCs, printers, the LAN and PDIS terminals. Keep the REM updated on the status of the systems and important information that could affect dose projections.
2. Activate the RSTAT summary display (a PDIS form display of TDAS signals from the STAR System) and determine if there are elevated readings from monitors that may indicate a release in progress. PDIS may be used to retrieve past TDAS readings. Contact the EOF PDIS Analyst to retrieve historical data.
3. Perform plume tracking and dose projection functions to keep the EOF staff informed of the plume projection. Maintain close contact with the Engineering Assessment group and Information Coordinator for the current plant condition.
4. Obtain the latest weather forecast (refer to the EDPS User's Manual) from the National Weather Service or PNNL Weather Forecaster, and ensure the Meteorological Information board is updated. Advise the REM and Field Team Coordinator of weather conditions which may affect plume direction, deposition, or dispersion.

NOTE: Phone numbers of the weather services are located in the Emergency Phone Directory in the Offsite Agency Section and PPM 13.8.1.

5. Review dose projection results and inform the REM of projections approaching EAL and PAR values.
6. Complete a dose projection for the REM's consideration.
  - a. Verify operability of SGTS based on flow rate or engineering input.
  - b. Follow the guidance in PPM 13.8.1 concerning default entries and estimates for the dose projection models.
  - c. Make dose estimates for at least the distances of 1.2 miles, 2 miles, 5 miles, and 10 miles.

NOTE: 1.2 miles is the distance used for the site boundary.

Attachment 4.2

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Duties of: Dose Projection Health Physicist (Contd.)

7. Coordinate and verify radiation conditions and equipment status with the Radiation Detection Systems Engineer.
8. Compare field team measurements to dose projection estimates using the guidance in Attachment 4.3, including terrain knowledge, weather conditions and sampling theory.
9. If there are significant, unexplainable differences between field samples and dose projections, consult with the REM regarding appropriate adjustments to be made.
10. Inform the Field Team Coordinator, REM, and staff of significant, verifiable changes in release rates, meteorology, or Emergency Worker Dose Factors.
11. As requested, provide completed Dose Projection Summary Maps for the REM to review.
12. Label and validate by signature, printed data or maps for distribution, and maintain a copy of all authorized projections and maps.
13. When the transition to ingestion phase has been completed, generate an EDPS dose projection map for the 500  $\mu\text{R}$  and 2  $\mu\text{R}$  isopleths. Refer to PPM 13.8.1, Attachment 5.1 for guidance on contour options.
14. During shift change, brief your relief on the current status of work in progress, and ensure that they understand the basis for the current dose projection and field team readings.
15. Prepare and deliver to the REM all After Action Reports, logs, authorized projections and analyses as requested.
16. Retain a copy of completed dose projection worksheets, display outputs or maps you generate and attach them to your After Action Report.
17. Assist the HPN Coordinator in obtaining answers to NRC queries.

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## COMPARISON OF FIELD DATA WITH DOSE PROJECTIONS

### 1. Exposure Rate Readings

- A. Using QEDPS, input field team air sample results or dose rate into the code and compare resultant TEDE values at various distances with TEDE values from a projection based on plant monitor readings.
- B. Compare exposure rate measurements reported by field teams to a projected External Dose Rate for the same downwind distance.
- C. Consider the following in making your comparison:
  - 1) The time that the field measurement was made vs. the time that the projected release would reach the downwind distance based on wind speed.
  - 2) If release rates change significantly, then consider the time it would take the lower or higher effluent concentrations to reach the field team measurement location based on wind speed.
  - 3) Changes in sampling time, wind speed, wind direction, and stability class will cause field team readings to differ from dose projections.

### 2. Iodine Concentrations

- A. Using QEDPS, input field team air sample results and compare resultant Thyroid CDE values at various distances with Thyroid CDE from a projection based on plant monitor readings.
  - 1) To convert field team air sample results to  $\mu\text{curies/cc}$ , select either the particulate or cartridge icon on the Windows Desktop. When the program is active, enter the field team results to calculate the necessary value.
  - 2) Compare the Thyroid CDE rate based on field team data to a projected Thyroid CDE rate for the same downwind distance.
- B. Consider the items from Step 1.C of this Attachment when making your comparison.

### Attachment 4.3

|                  |          |          |
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Duties of: Health Physics Network (HPN) Communicator

Assigned Location: Emergency Operations Facility (EOF)

Report to: Radiological Emergency Manager

Responsibilities:

1. Upon assignment obtain a briefing from the REM on the current status of the emergency and the known or anticipated radiological conditions and/or releases.
2. Activate the EOF extension of the HPN phone, following instructions attached to the HPN phone. Introduce yourself to the NRC communicator, and provide information on the current status of radiological conditions.
3. After assuming duties observe the requirements of 10CFR50.72(c)(3) by maintaining continuous communications when requested by the NRC. If you must leave the phone for any reason, find someone to maintain the phone in your absence, or obtain permission to leave the phone unattended.
4. Maintain a log of communications on Emergency Response Log, (Form 968-23895).
5. Contact the REM for assistance with resolving NRC information requests. Consult the REM when asked to make commitments you do not feel you are authorized to make.
6. As necessary, brief the REM on the status of HPN communications.
7. Ensure transmissions you relay are distinct and understood. Avoid the use of acronyms unless you are sure they are understood and ensure the correct letters of acronyms are understood by using phonetic spelling to clarify, i.e., "B" as in Bravo or "D" Delta.
8. Ensure data you transmit to the NRC represents factual information only. Do not provide speculative information or editorialize on data and do not engage in problem solving discussions.
9. Upon shift change, brief your relief on responsibilities, duties and the current status of HPN communications with the NRC.
10. Upon shift change or termination of the emergency:
  - a. Prepare an individual After Action Report. Refer to PPM 13.13.4.
  - b. Deliver After Action Report and logs to the REM.

Attachment 4.4

|                  |          |          |
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Duties of: Health Physics Center (HPC) Staff

Assigned Location: Health Physics Center Work Areas

Report to: Radiological Emergency Manager (REM)

Responsibilities:

**NOTE:** At an Alert or higher classification, Security provides an officer to lock down the Plant Support Facility (PSF); the officer then assists the HPC staff with access control through the HPC ambulance bay.

HPC Staff:

1. Prepare ambulance garage area and decontamination facility to receive samples and personnel. Ensure PA speaker controls are set to maximum levels. Refer to Attachment 4.7.
2. Prepare the radiological laboratory and Counting Room to receive and analyze environmental and in-plant samples.
3. Position a Continuous Air Monitor (CAM) in the lower level south end PSF near the EOF and ensure operability of the EOF area radiation monitor for EOF habitability monitoring.
4. Obtain protective clothing and respirators from an appropriate location if needed.
5. Report to the Radiological Emergency Manager when all assigned systems are in a state of readiness.
6. Obtain friskers and dose rate instruments, perform daily checks, then distribute to the Ambulance Bay area radiological laboratories.
7. Frequently monitor the operation of the area radiation and airborne monitors.
8. When directed, take and evaluate direct radiation and/or contamination surveys in areas of the Plant Support Facility (PSF, EOF).
9. Question Field Team members delivering samples on whether self-frisking has been performed by, or under the supervision of a qualified HP member, and if not, perform a frisk.
10. Obtain and analyze hi-volume air samples inside and outside of PSF as necessary.

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HPC Staff, (cont'd)

11. Perform decontamination of personnel as required and report results to the Radiological Emergency Manager.
12. Insure the use of appropriate radiological precautions and good practices by all individuals involved with handling of samples throughout the sampling and survey sequence.
13. Enter electronic dosimeter results in the Total Exposure System (TES) for personnel completing a shift, or as directed. Reset dosimeter to the fast entry mode.
14. Return reset electronic dosimeters to the EOF Field Team Cabinet.
15. Monitor radiation levels in any area where samples are stored and post area(s) as necessary, or move samples to a shielded area.
16. Maintain a record of your actions on an Emergency Response Log per PPM 13.13.4.
17. Upon shift change, brief your relief on responsibilities, duties and current status of work being performed.
18. Upon shift change, or termination of the emergency:
  - a. Prepare an individual After Action Report per PPM 13.13.4.
  - b. Deliver your After Action Report and Log(s) to the REM.

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**HEALTH PHYSICS CENTER STAFF**  
**RADIOLOGICAL SAMPLE TRACKING INSTRUCTIONS**

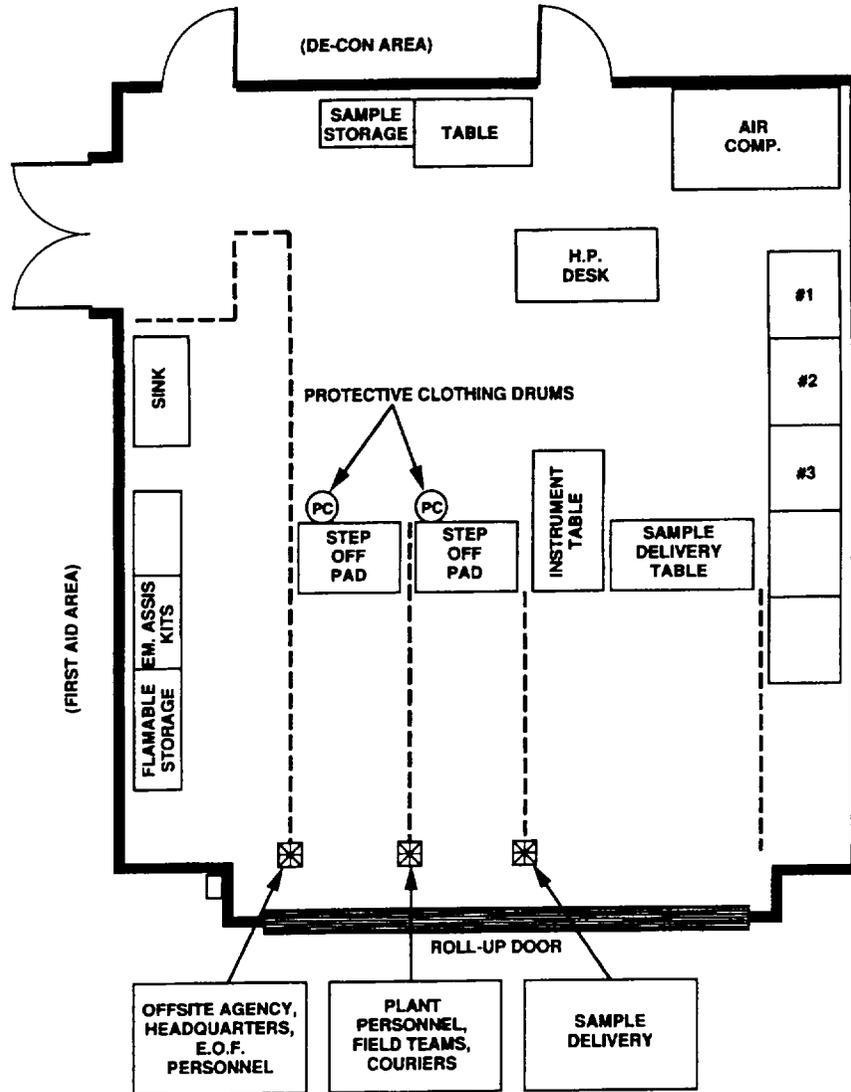
1. Receive, survey, sort and catalog samples as they are delivered by Environmental Field Teams.
2. Adhere to appropriate radiological precautions and good practices in the handling of samples throughout the sampling and survey sequence.
3. Question Field Team members delivering samples on whether self-frisking has been performed by, or under the supervision of a qualified HP member, and if not, perform a frisk.
4. For receipt and handling of PASS samples ensure that appropriate cautions are in place and that all personnel are properly dressed out for all aspects of survey and handling procedures.
5. Perform radiation and contamination surveys on all incoming samples. Rebag all samples which are contaminated on the outer surface. Sort and store samples based on radiation levels to control exposures in the ambulance bay.
6. Ensure sample identification data is on the outside of the sample bag and the date, time and survey results are on Sample Identification Form.
7. Place the sample in storage and note the storage location on the Sample Identification Form and enter the storage date and time on the Sample Receipt Log, page 2 of this attachment.
8. When analysis of a specific sample is requested, retrieve sample and the appropriate copies of the Sample ID Form.
9. Record the new location (lab where sample is being analyzed) on the Sample ID form and the date and time of transfer on the Sample Receipt Log.
10. Send the sample to the lab or other assigned destination with the accompanying white and canary pages.
11. Refile the pink page of the Sample Identification Form in the HP Center file.
12. When samples are returned to the storage area, retrieve Sample Identification Form from HP Center file.
13. Note storage location on the white, canary and pink pages and enter the new storage date and time on the Sample Receipt Log.
14. Return the canary and pink copies to the HP Center file and return the white copy with the sample back to storage.

Attachment 4.6  
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**TYPICAL SET-UP FOR PSF HEALTH PHYSICS CENTER RECEIVING AREA  
(PSF AMBULANCE GARAGE)**



**LEGEND:**

- 1. - - - INDICATES WHERE TO PLACE ROPE BARRIERS
- 2. ☒ INDICATES WHERE TO POST SIGNS

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Attachment 4.7

|                             |                |                  |
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## RADIOLOGICAL EMERGENCY MANAGER BRIEFING GUIDELINES

**NOTE:** Items listed here are suggested topics for routine update briefing. Items actually selected should be used based on existing or projected plant or radiological conditions.

Radiological Emergency Manager (REM) update items:

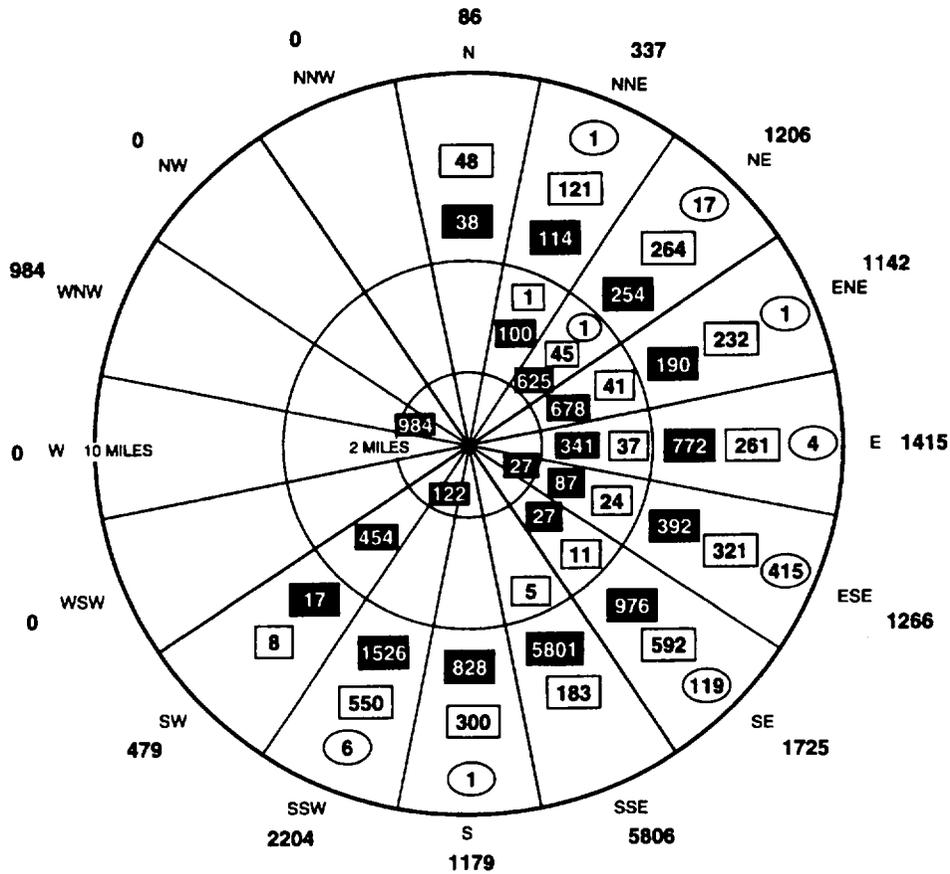
- a. Current release rate, recent trends, prognosis.
- b. Offsite dose projection results and most recent follow-up messages to offsite authorities.
- c. Energy Northwest (and offsite agency) field team survey results and their comparison to dose projection model results.
- d. Dose projection comparison with state or other agency results.
- e. Current and forecast meteorology on wind direction, shifts.
- f. Status of offsite protective action implementation.
- g. EOF habitability survey results and any protective actions or safe routes necessary for emergency workers outside the EOF.
- h. Problem areas needing resolution.
- i. NRC counterpart status report (if present).

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Attachment 4.8

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# TOTAL POPULATION WITHIN THE 10 MILE EPZ



**17,829** TOTAL SEGMENT POPULATION  
0 TO 10 MILES

| POPULATION TOTALS - <b>PERMANENT</b> |                 |             |                       |
|--------------------------------------|-----------------|-------------|-----------------------|
| RING MILES                           | RING POPULATION | TOTAL MILES | CUMULATIVE POPULATION |
| 0-2                                  | 0               | 0-2         | 0                     |
| 2-5                                  | 164             | 0-5         | 164                   |
| 5-10                                 | 2880            | 0-10        | 3044                  |

| POPULATION TOTALS - <b>TRANSIENT</b> |                 |             |                       |
|--------------------------------------|-----------------|-------------|-----------------------|
| RING MILES                           | RING POPULATION | TOTAL MILES | CUMULATIVE POPULATION |
| 0-2                                  | 1133            | 0-2         | 1133                  |
| 2-5                                  | 2312            | 0-5         | 3445                  |
| 5-10                                 | 10,775          | 0-10        | 14,220                |

| POPULATION TOTALS - <b>SPECIAL</b> |                 |             |                       |
|------------------------------------|-----------------|-------------|-----------------------|
| RING MILES                         | RING POPULATION | TOTAL MILES | CUMULATIVE POPULATION |
| 0-2                                | 0               | 0-2         | 0                     |
| 2-5                                | 1               | 0-5         | 1                     |
| 5-10                               | 564             | 0-10        | 565                   |

| POPULATION TOTALS |                 |             |                       |
|-------------------|-----------------|-------------|-----------------------|
| RING MILES        | RING POPULATION | TOTAL MILES | CUMULATIVE POPULATION |
| 0-2               | 1133            | 0-2         | 1133                  |
| 2-5               | 2477            | 0-5         | 3610                  |
| 5-10              | 14,219          | 0-10        | 17,829                |

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## Attachment 4.9

|                                    |                       |                         |
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## EOF HVAC AUTOMATIC AND MANUAL OPERATION

### MODE 1 - PSF Isolation

If outside air activity causes the intake air radiation monitor on AHU-1 to trip at 100 mR/hr, the HVAC panel in Room 121 will indicate as follows:

|            |         |        |         |        |         |
|------------|---------|--------|---------|--------|---------|
| AHU-1:     | lighted | AHU-2: | lighted | Misc.: | lighted |
| EOF ISOL.: | off     | AD4B:  | off     | SF3:   | lighted |

This configuration isolates the PSF and recirculates first floor air through HEPA filters.

### MODE 2 - EOF Isolation

If return air activity causes the return air radiation monitor on AHU-1 to trip at 50 mR/hr, the HVAC panel in Room 121 will indicate as follows:

|            |         |        |          |        |         |
|------------|---------|--------|----------|--------|---------|
| AHU-1:     | lighted | AHU-2: | lighted  | Misc.: | lighted |
| EOF ISOL.: | lighted | AD4B:  | lighted* | SF3:   | off     |
|            |         |        | off**    |        |         |

In this configuration, the EOF is sealed off from the rest of the PSF. Fan SF-3 recirculates EOF air through HEPA filters.

\* Chem Lab exhaust hood is OFF.

\*\* Chem Lab exhaust hood is ON.

### MODE 3 - EOF Stagnation

If the SF-3 return air radiation monitor trips at 50 mR/hr, SF-3 will stop and the EOF will remain isolated as in Mode 2. The SF-3 light on the Room 121 panel will be ON.

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EOF HVAC AUTOMATIC AND MANUAL OPERATION (Contd.)

MANUAL OPERATION

**CAUTION:** Due to the potential for airborne contamination and area radiation, HP surveys of the following areas should be performed prior to entry.

Modes 1 & 2:

Obtain EOF HVAC key (1 F 8) from EOF key locker. Enter stairwell on 2nd floor east side by Auditorium entrance.

At top of stairs, continue left 180°, facing east wall. Above handrail at your left are two radiation indicators. Above the indicators, the gray box contains the switches for Modes 1 and 2.

Mode 3:

Enter SF-3 fan room, room 123. Radiation indicator is inside large gray cabinet on north wall next to door facing Room 121. Disconnect switch for SF-3 is around other side of fan from radiation indicator, on north wall. Throw this switch to OFF to stop SF-3.

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## DOSE ASSESSMENT CENTER LEADERSHIP TRANSFER GUIDE

Transfer of MUDAC leadership from Energy Northwest to the State of Washington occurs following conclusion of the Plume phase. The transfer signals the beginning of the ingestion pathway or intermediate phase.

Prior to the transfer, the following conditions should be met:

1. Plant conditions are stable
2. The immediate emergency has been mitigated
3. No further threat of a radioactive release exists that could exceed Protective Action Guidelines (PAGs) to the public
4. The plume has dispersed and no longer threatens to exceed PAGs.

The following documentation should be provided to the Washington State Health Liaison during the transfer:

1. Classification Notification Forms (CNFs) identifying PARs and notifications on Potassium Iodide (KI)
2. Emergency dose projection results
  - Include both the data sheet and map projections
3. Airspace closure requests

Conduct a briefing with the Washington State Health Liaison addressing the following:

1. Status and duration of the release \_\_\_\_\_
2. Air sample results \_\_\_\_\_
3. Meteorological conditions, including wind speed \_\_\_\_\_  
Direction: \_\_\_\_\_ Stability: \_\_\_\_\_
4. Current field team deployment: \_\_\_\_\_
5. Offsite Protective Action Decisions (evacuations, etc.) \_\_\_\_\_

Attachment 4.11

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