

OFFSITE PROTECTIVE ACTIONS

OFFSITE PROTECTIVE ACTIONS

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OFFSITE PROTECTIVE ACTIONS**A. PURPOSE**

This procedure provides guidance to the Emergency Director/Emergency Recovery Manager for the recommending of offsite protective actions to State and/or County emergency services groups. The Beaver Valley Power Station is required to make recommendations for protective actions as part of the initial notification or follow-up process if the nature and magnitude of the actual or potential radioactivity release warrants protective actions for the public.

B. REFERENCES

- 1.0 Beaver Valley Power Station Emergency Preparedness Plan and Implementing Procedures.
- 2.0 USEPA 520/8-75-001 (and subsequent revisions) "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents".
- 3.0 USEPA 570/9-75-003 "National Interim Primary Drinking Water Regulations".
- 4.0 County and State Emergency Plans.
- 5.0 Title 10 Code of Federal Regulations Part 50, Appendix E.
- 6.0 NUREG-0654/FEMA-REP-1 Draft Supplement 3 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."
- 7.0 NRC Response Technical Manual - 92 Vol. 1, Rev. 2.
- 8.0 EPA Manual of Protective Action Guides and Protective Actions For Nuclear Incidents (EPA 400-R-92-001).
- 9.0 CR# 981499
CR# 00-2221
CR# 00-2343

OFFSITE PROTECTIVE ACTIONS**C. RESPONSIBILITIES**

- 1.0 The Emergency Director and the Emergency Recovery Manager are the only individuals authorized to recommend offsite protective actions on behalf of Beaver Valley Power Station (BVPS).
- 2.0 In the event protective action decisions are necessary prior to the activation of the Technical Support Center, the on-duty Nuclear Shift Supervisor, in his role as Emergency Director, will determine a Protective Action Recommendation, using Attachment 1 of this procedure, considering plant systems status information from shift personnel and dose projection information from the Radiation Technician (or Health Physics Supervision).
- 3.0 When the Technical Support Center is activated, responsibility for protective action recommendations shifts from the Nuclear Shift Supervisor to the Technical Support Center Emergency Director.
- 4.0 When the Emergency Operations Facility is activated, responsibility for protective action recommendations shifts to the Emergency Recovery Manager with input from the Emergency Director.
- 5.0 The development of a BVPS Protective Action Recommendation requires input from different individuals within the emergency response organization. The Emergency Director/Emergency Recovery Manager may solicit input from the personnel identified below, and/or, from appropriate representatives of the three State governments and the NRC in arriving at his decision. Once the Emergency Director/Emergency Recovery Manager has decided upon a recommendation, it may be relayed to the offsite agencies by designated BVPS emergency response personnel.
- 6.0 When the TSC (and/or EOF) is activated, designated EA & DP personnel will perform radiological assessments, will evaluate the need for offsite protective actions based on these assessments, and will provide appropriate recommendations to the Emergency Director/Emergency Recovery Manager for consideration. EA & DP personnel will use the EPP/IP 2 series for these determinations.

OFFSITE PROTECTIVE ACTIONS

D. ACTION LEVELS/PRECAUTIONS

1.0 PROTECTIVE ACTION GUIDES -- AIRBORNE RELEASES

NOTE:

If there are simultaneous accidents at BV-1 and BV-2 resulting in release(s) to the environment, dose projections will be required for both units. When determining the utilities' Protective Action Recommendations (PAR) under this condition, the PAR must be determined on the basis of the total dose from both units.

- 1.1 The Protective Action Recommendation is based on Attachment 1.
- 1.2 Based on dose assessments, no protective action should be recommended for incidents involving actual or potential airborne releases of radioactive material which are projected to result in doses to members of the general public that are less than 1 rem to the whole body (TEDE) or 5 rem to the child thyroid (CDE).

HOWEVER, a Protective Action Recommendation may be required due to plant conditions.

NOTE:

Per NUREG 0654, Supplement 3, the purpose of Sheltering is to advise the remainder of the 10-mile EPZ to go indoors to monitor Emergency Alert System (EAS) broadcasts.

- 1.3 Sheltering or evacuation of members of the general public within the affected area shall be recommended for incidents involving actual or potential airborne releases of radioactive material which are projected to result in doses to members of the general public, greater than or equal to 1 rem to the whole body (TEDE) or 5 rem to the child thyroid (CDE).
- 1.4 Attachment 1 (Offsite Protective Action Recommendation Flowchart) is used to determine a Protective Action Recommendation due to the declaration of a General Emergency. The Protective Action Recommendation is based on an analysis of the fission product barriers via the Critical Safety Functions and/or dose projections.

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1.5 Protective action decisions are primarily based on plant systems status assessments, and secondarily based on dose projections. As time and personnel availability permit, these two types of assessments may be performed simultaneously, and the results of both included in the protective action decision. Any upgrade to the protective action recommendation will be based on dose projections/assessments.

1.5.1 If dose assessments have been completed by the time that this decision is made and a larger affected area is indicated, then the larger recommendation shall be made. Do not delay recommendation to await dose projection results.

NOTE:

The BVPS Emergency Response Organization makes every attempt to relay the utilities Protective Action Recommendation as quickly as possible. The Initial Notification Conference (INC) Call is the primary means of relaying the recommendation for onshift and TSC/EOF personnel.

The Gold Executive Conference (GEC) is the primary means for TSC/EOF personnel to discuss the recommendation with State and County management. This method provides an immediate way to discuss the Protective Action Recommendation, and ensure that the appropriate State and County Agencies understand the recommendation. The States and Counties also receive the recommendation via commercial phone line as described in Step E.1.6 or E.2.7. This step ensures documentation is properly completed and the GEC serves as a redundant notification.

2.0 PROTECTIVE ACTION GUIDES -- WATERBORNE RELEASES

2.1 Recommendations shall be made to downstream water treatment plants (per EPP/IP 1.1, Attachment 2) to secure taking water from the Ohio River for liquid releases projected to exceed the concentration of radionuclide that will cause a dose commitment to any organ of 48 mrem. This is equivalent to 12 times the EPA Primary Drinking Water Standard, as measured at the water treatment plant discharge (to the public distribution system). This is determined in accordance with EPP/IP 2.7, "Liquid Release Estimate" or EPP/IP 2.7.1, "Liquid Release Estimate - Computer Method".

OFFSITE PROTECTIVE ACTIONS

3.0 IDENTIFICATION OF AFFECTED AREAS

NOTE:

From MIDAS capable computer or Met. Shelter. (150' wind direction is used in lieu of ground level wind direction to avoid interference from terrain adjacent to meteorological tower.)

- 3.1 The downwind wedge is determined using the 150' and 500' wind directions, from an ARERAS capable computer or from other sources as described in EPP/IP 2.6.5.
- 3.1.1 Using the 150' and 500' elevation wind directions, identify the downwind sectors using the Downwind Wedge Determination chart on Attachment 1.
- 3.1.2 The downwind wedge is all of the sectors identified in Step 3.1.1, including any sectors bracketed by the identified sectors (i.e., upper and lower wedges do not overlap) or if the outer edge of a wedge bisects a sector, include the entire sector.
- 3.2 The affected area will resemble a keyhole consisting of a circle with a 90 degree (or larger) wedge shaped sector attached in the downwind direction or depending on meteorological conditions, a circle with no downwind wedge. A downwind wedge determination chart is provided on Attachment 1.
- 3.3 When using dose projections as a basis for recommending offsite protective actions, projected doses calculated:
- at the EAB apply to the 0-2 mile radial circle;
 - at 2 miles apply to the 2-5 mile downwind wedge or radial circle and;
 - at 5 miles apply to the 5-10 mile downwind wedge or radial circle.

OFFSITE PROTECTIVE ACTIONS

E. PROCEDURE1.0 TSC/EOF NOT ACTIVATED -- ACTIONS BY EMERGENCY DIRECTOR FOR AIRBORNE RELEASE**NOTE:**

Upon declaration of a General Emergency, a Protective Action Recommendation must be provided to the State/County Agencies within 15 minutes of the declaration. This information must also be provided on the Initial Notification Form. The steps which follow are performed by the Emergency Director or by his designees. Recommendations by designees will be reviewed and approved by the Emergency Director.

- 1.1 Enter Attachment 1 with information obtained from shift personnel.
- 1.2 Determine from meteorological parameters, the wind direction and wind speed.
- 1.3 Assess plant parameters to identify or estimate how long the release will continue. If the release has not started yet, estimate when the release will start and how long it will continue, if possible.
 - 1.3.1 Release duration due to LOCA's in Containment of <1 hour can be assumed if all ESF's are operable (i.e.: One Full Train of Containment sprays, etc.).

NOTE:

If dose projections are not immediately available, provide the minimum Protective Action Recommendation per Attachment 1, and go to Step 1.6.

- 1.4 Obtain dose projection data from the Radiation Technician or Health Physics Supervision determined in accordance with EPP/IP 2.6, "Environmental Assessment and Dose Projection Controlling Procedure" and its supporting procedures. Do not delay recommending protective actions to wait for offsite monitoring team results. The projected dose for the Exclusion Area Boundary (EAB) should be calculated first, and as necessary, for other distances.
- 1.5 Upgrade the initial protective action recommendation based on dose projections as necessary (refer to Step E.4.0).

OFFSITE PROTECTIVE ACTIONS

- 1.6 Direct the Onshift Communications and Records Coordinator (or other shift personnel) to document the recommendation on the Initial Notification Form and to make recommendations to the appropriate onsite personnel and/or offsite authorities in accordance with EPP/IP 1.1, "Notifications".

2.0 TSC/EOF ACTIVATED -- ACTION BY EMERGENCY DIRECTOR/EMERGENCY RECOVERY MANAGER FOR AIRBORNE RELEASE

NOTE:

Upon declaration of a General Emergency, a Protective Action Recommendation must be provided to the State/County Agencies within 15 minutes of the declaration. This information must also be provided on the Initial Notification Form. The steps which follow are performed by the Emergency Director until such time as the EOF is activated, after which, the steps are performed by the Emergency Recovery Manager or by their designees. Recommendations by designees will be reviewed and approved by the Emergency Director/Emergency Recovery Manager (ED/ERM).

- 2.1 Instruct the Assistant to the Emergency Recovery Manager to activate the Gold Executive Conference (GEC) Attachment 2, and inform the ED/ERM when it is activated.
- 2.2 TSC personnel will evaluate plant systems status, and provide information to the Emergency Director. The Emergency Director (Emergency Recovery Manager when activated) will develop Protective Action Recommendations considering plant systems status, meteorological conditions and dose assessments in conjunction with Attachment 1.

NOTE:

If dose projections are not immediately available, provide the minimum Protective Action Recommendation per Attachment 1, and go to Step 1.6.

- 2.3 Direct EA & DP personnel to perform radiological assessments and determine forecast meteorological conditions in conjunction with appropriate EPP/IP 2 Series procedures. EA & DP personnel are expected to evaluate potential ground contamination from plume fallout and to make appropriate recommendations for reducing exposure from this source. (Refer to EPP/IP 2.6.10, "Ground Contamination Assessment and Protective Actions).
- 2.4 Review the recommendations developed by the TSC and EA & DP personnel.

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- 2.5 As time permits, the ED/ERM should discuss the Company recommendation with the three State agencies and with the NRC with the objective of obtaining a consensus recommendation, if possible. These discussions may occur in the EOF or by teleconferences (via the GEC or other communication links, if necessary). In the absence of an agreement, the recommendation shall be based on the BVPS staff's best evaluation of the plant conditions or dose assessment information.
- 2.6 If the minimum recommendation is being provided, go to Step 2.7. If dose projections indicate upgrading the recommendation, refer to Step E.4.0, if not continue.
- 2.7 Direct the Communications and Records Coordinator to document the recommendation on the Initial Notification Form and to make recommendations to the appropriate onsite personnel and/or offsite authorities in accordance with EPP/IP 1.1, "Notifications".
- 2.8 Notify FirstEnergy Corporate Communications personnel of the recommendation, but direct them not to include the content of the Company's recommendation in any news announcements. Such announcements should only indicate that BVPS has made a recommendation to offsite authorities and that these agencies are considering the recommendation. This prohibition is intended to prevent confusion that might result if the action implemented differs from that recommended by BVPS.

3.0 WATERBORNE RELEASE

- 3.1 Obtain data in accordance with EPP/IP 2.7, "Liquid Release Estimate" or EPP/IP 2.7.1, "Liquid Release Estimate - Computer Method".
- 3.2 Per dose projections, for liquid releases corresponding to > 12 times EPA MPC, notify the Midland Water Treatment Plant (per EPP/IP 1.1, Attachment 2) and recommend the Plant stop taking water from the Ohio River until notified by the DEP/BRP.
- 3.3 If actual sample analyses at Midland indicates activity in excess of EPA limits, additional sampling should be performed at East Liverpool, Ohio, and Chester, WV and a similar recommendation made for these Plants. The Ohio EPA will determine when East Liverpool can resume taking water from the Ohio River, and the WV Bureau of Public Health will determine when Chester can resume taking water from the Ohio River.
- 3.4 Notify additional offsite authorities including the Coast Guard and the US Corp. of Engineers per EPP/IP 1.1, Attachment 2.

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4.0 UPGRADING PROTECTIVE ACTION RECOMMENDATIONS

NOTE:

The initial Protective Action Recommendation is based on operational assessments. Any upgrades to the Recommendation will be based on dose projections exceeding the EPA PAG's at greater than 2 miles, or meteorological conditions.

- 4.1 Dose assessments should be performed in conjunction with operational assessments, if possible.
- 4.2 A Protective Action Recommendation developed without dose assessment input (Attachment 1) is the minimum initial recommendation and shall be instituted immediately, unless:
- available dose projections indicate a more restrictive Protective Action Recommendation (e.g.: dose projection at 2 miles exceeds the EPA PAG's) or,
 - the release has not started, the start time is not known AND the meteorological forecast for a consistent wind direction is not known. In this case the determination of a "downwind wedge" is meaningless since the wind direction may change prior to the release. (Example: For the evacuate 2 mile, 360° and 5 mile downwind wedge for this condition, a Protective Action Recommendation of 0-5 mile evacuation, 360 degrees would be required.). Refer to Attachment 1.
- 4.3 In the event that EA&DP dose projections indicate an upgrade of the Protective Action Recommendation from Attachment 1 (i.e.: dose projections at 2 miles exceed the EPA PAG's, etc.), the Emergency Director (Emergency Recovery Manager, if activated) **SHALL:**
- 4.3.1 Discuss the upgraded Protective Action Recommendation, and its dose projection basis, with the three State agencies and with the NRC with the objective of obtaining a consensus recommendation, if possible.
- 4.3.2 Discussions may occur in the EOF or by teleconferences (via the GEC or other communication links, if necessary).

OFFSITE PROTECTIVE ACTIONS

4.3.3 Provide PAR's beyond the 10-mile EPZ, if the projected dose based on field measurement data would exceed the EPA PAG's beyond this distance.

4.3.3.1 If necessary, the evacuation area should be expanded in 5-mile increments such that the EPA PAG's are not expected to be exceeded outside the recommended radius (e.g., if PAG's are expected to be reached at 17 miles, the PAR would include 20 miles).

4.3.4 In the absence of an agreement, the recommendation shall be based on the BVPS staff's best evaluation of the plant conditions or dose assessment information.

4.4 Direct the Communications and Records Coordinator to document the upgraded Protective Action Recommendation on the Initial Notification Form and to make recommendations to the appropriate onsite personnel and/or offsite authorities in accordance with EPP/IP 1.1, "Notifications".

F. FINAL CONDITIONS

- 1.0 All appropriate agencies have been notified of the Beaver Valley Power Station Offsite Protective Action Recommendation.
- 2.0 The GEC has been relinquished to the State and County agencies for coordination of siren activation or other discussions.
- 3.0 The emergency condition has been terminated and recovery has begun.
- 4.0 All Emergency Termination Notifications per EPP/IP 1.1 have been completed.

G. ATTACHMENTS

- 1.0 OFFSITE PROTECTIVE ACTION RECOMMENDATION FLOWCHART
- 2.0 ACTIVATION OF THE GOLD EXECUTIVE CONFERENCE CALL

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OFFSITE PROTECTIVE ACTION

GENERAL EMERGENCY DECLARATION

Obtain the following information:

- 1) 35' wind speed _____ MPH
- 2) 150' wind direction _____ degrees
- 3) 500' wind direction _____ degrees

IS AT LEAST ONE OF THE FOLLOWING TRUE?

- ☛ 35' wind speed LESS than 2 MPH (or unavailable)?
- ☛ Is either the 150' or 500' wind directions unavailable?
- ☛ The difference between the 150' and 500' wind directions is ≥ 165 and ≤ 195 degrees? (opposite wind directions) or unavailable?
- ☛ Release has started or is imminent. (within one hour)
- ☛ Release transport will span sunrise or sunset hours.

TSC/EOF ONLY:

- ☛ NWS forecast indicates a weather front will pass thru EPZ during release transport.

Continue assessments. Expand the affected area if subsequent assessments, including the results of field measurements, indicates the need. *If a new Upgraded PAR is identified, an Initial Notification Form SHALL be completed and appropriate offsite agencies notified within 15 minutes (this does not change the emergency classification status).*

Dose projection results available (FSAR, monitor data, etc.)?

Projected dose at **EAB**
>1 REM TEDE
or
>5 REM CDE

Recommend
EVACUATE 0-5 miles, 360 degrees
AND SHELTER the remainder of the 10 mile EPZ.
(Minimum Recommendation)

YES

YES

NO

NO

NO

Dose projection results available (FSAR, monitor data, etc.)?

Projected dose at **EAB**
>1 REM TEDE
or
>5 REM CDE

Recommend EVACUATE
2 miles, 360 degrees and **5 mile**
downwind wedge
AND SHELTER
the remainder of the 10 mile EPZ.
(Minimum Recommendation)

YES

YES

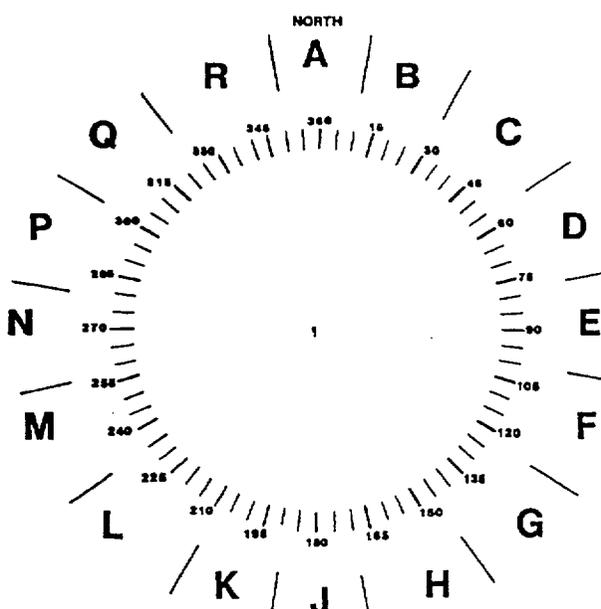
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NO

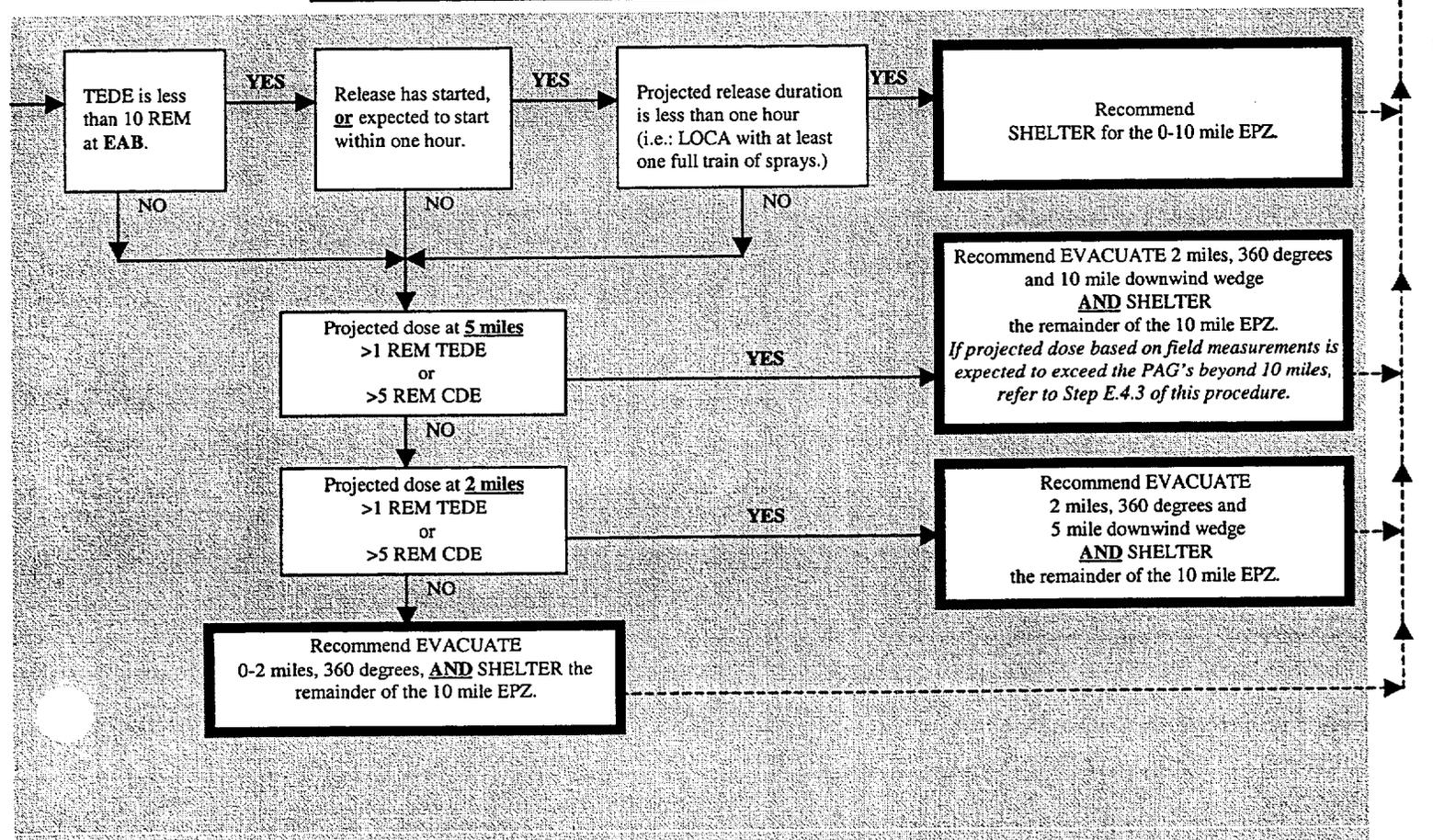
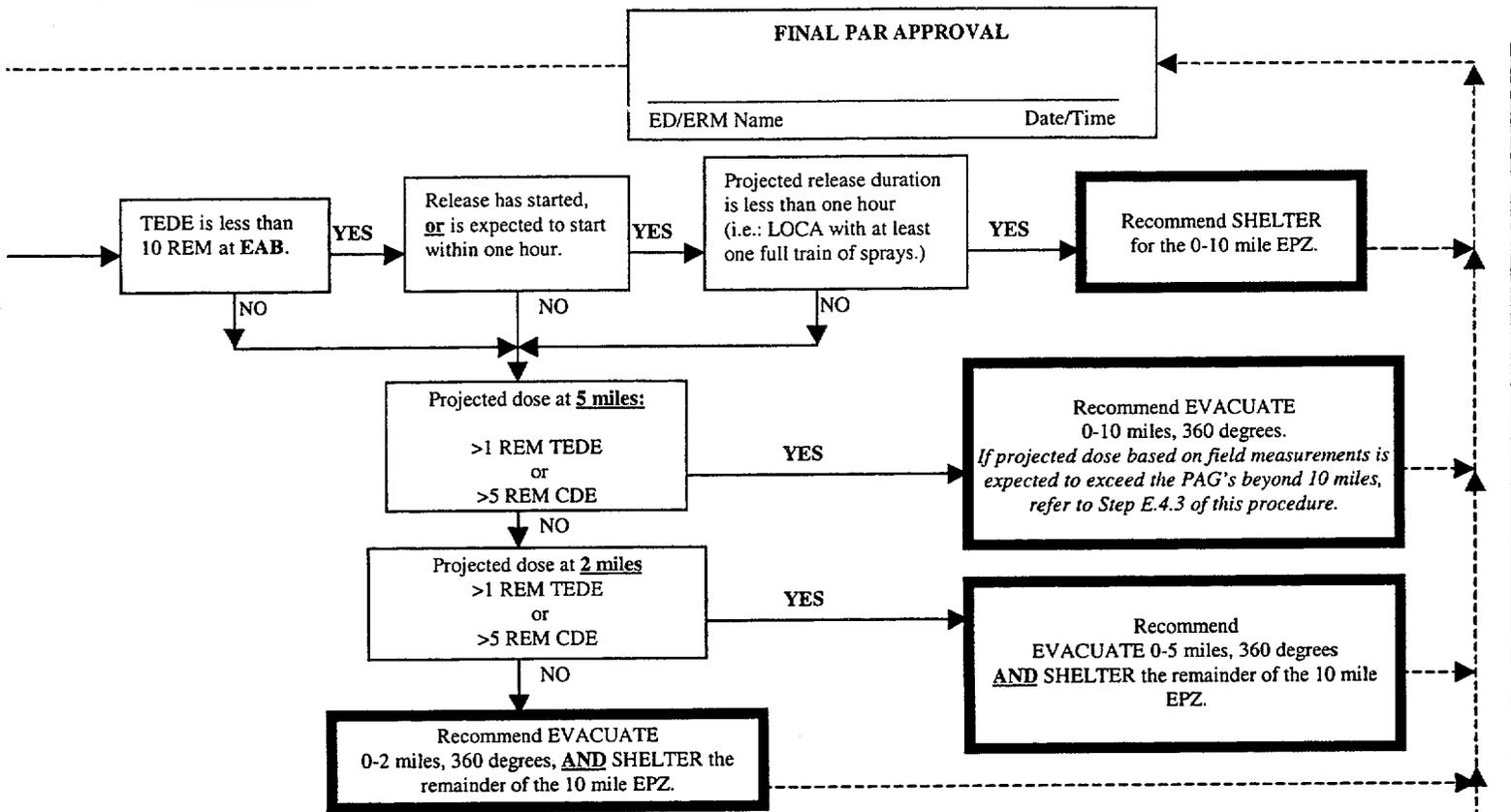
DOWNWIND WEDGE DETERMINATION

- 1) Obtain 150' and 500' Wind Direction
- 2) Using each wind direction, determine Sectors per the Chart below
- 3) Combine Sectors for PAR

Sector	Wind From	Downwind Wedge Sectors
A	350 - 11	GHJKL
B	12 - 34	HJKLM
C	35 - 56	JKLMN
D	57 - 79	KLMPN
E	80 - 101	LMNPQ
F	102 - 124	MNPQR
G	125 - 146	NPQRA
H	147 - 169	PQRAB
J	170 - 191	QRABC
K	192 - 214	RABCD
L	215 - 236	ABCDE
M	237 - 259	BCDEF
N	260 - 281	CDEFG
P	282 - 304	DEFGH
Q	305 - 326	EFGHI
R	327 - 349	FGHIJ



RECOMMENDATION FLOWCHART



OFFSITE PROTECTIVE ACTIONS

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OFFSITE PROTECTIVE ACTIONS

ATTACHMENT 2 (1 of 3)

**ACTIVATION OF THE GOLD EXECUTIVE CONFERENCE
(GEC) CALL INSTRUCTIONS (EXAMPLE)****NOTE:**

The Gold Executive Conference (GEC) is a function of the Beaver Valley Emergency Response System (BVERS). The GEC is the method that the On-Call Emergency Response Organization (ERO), particularly the Emergency Director, or Emergency/Recovery Manager if activated, shall use to establish a conference call for the purpose of discussing a Protective Action Recommendation (PAR) with the Offsite Agencies. This call shall be initiated by the Assistant to the E/RM.

NOTE:

This procedure should be implemented prior to, or in anticipation of, a General Emergency declaration to ensure timely discussion of plant conditions with the State and County agencies.

A. INITIATING GEC

- 1.0 Obtain the PASSCODE and SCENARIO NUMBER from the Assistant to the E/RM Workbook in the EOF to activate the Gold Executive Conference (GEC) call.
- 2.0 From a touch tone phone, dial 9-643-4370 to access the Beaver Valley Emergency Response System (BVERS) and do the following:
 - 2.1 **IMMEDIATELY** enter the BVERS PASSCODE **XXXX** when system answers.
 - 2.1.1 If GEC is unavailable, go to Section B of this Attachment, otherwise, continue with this Section.
 - 2.2 When prompted, enter SCENARIO NUMBER **XXXX**.
 - 2.3 When prompted, verify the SCENARIO NUMBER by pressing **9** for YES OR **6** for NO.
 - 2.4 When prompted, "You will cue SCENARIO **XXXX**. It will now be sent. Are you sure this is what you want to do?" Press **9** for YES OR **6** for NO.
 - 2.5 Hang up.

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ATTACHMENT 2 (2 of 3)

**ACTIVATION OF THE GOLD EXECUTIVE CONFERENCE
(GEC)CALL INSTRUCTIONS (EXAMPLE)**

NOTE:

You must dial the prefix "9" to obtain an outside line to enter the GEC call. This number is NOT a PAX extension.

- 3.0 To enter the GEC call:
 - 3.1 From a touch tone phone, dial "9-682-1900".
 - 3.2 At the voice prompt "Please enter your passcode followed by the "#" sign" enter the **PASSCODE XXXX #**.
 - 3.3 There will be a short delay while the system connects the Offsite Agencies into the conference call. A "Beep" will be heard as each Agency enters the GEC call.

4.0 Upon hearing an individual enter the Conference Bridge:

4.1 State the following:

"This is _____ at Beaver Valley
NAME

Power Station. Please remain on the line for a roll-call and an update.

(log individual names and time contacted below):

	NAME	TIME
BCEMA		
CCEMA		
HCOES		
PEMA		
OEMA		
WVOES		
PA DEP/BRP		

NAME: _____ DATE: _____

OFFSITE PROTECTIVE ACTIONS

ATTACHMENT 2 (3 of 3)

ACTIVATION OF THE GOLD EXECUTIVE CONFERENCE
(GEC)CALL INSTRUCTIONS (EXAMPLE)

NOTE:

Any person disconnected, or any additional personnel, may enter the GEC at any time, once the system is activated, by dialing 724-682-1900 and providing the GEC PASSCODE.

- 5.0 The Assistant to the E/RM shall then turnover the phone to the ED, or E/RM if activated, to provide the PAR.
- 6.0 If an Offsite Agency does not respond, call the agency using the contact phone number from EPP/IP 1.1, "Notifications", and request they call into the GEC by dialing 724-682-1900 and providing the GEC PASSCODE.
- 7.0 Upon providing the PAR, the ED, or E/RM if activated, shall answer any questions from the Offsite Agencies then turn over command of the GEC to the Offsite Agencies for discussions and siren coordination.

B. GEC UNAVAILABLE

- 1.0 If GEC is unavailable, utilize commercial lines.
 - 1.1 Contact the State/County agencies per EPP/IP 1.1 "Notifications", Attachment 2 and provide the PAR.
 - 1.2 PA DEP/BRP may be contacted using the "Blue" Hotline in the EOF.
- 2.0 If commercial phone systems are unavailable, the BVPS Radio System is the alternate method for providing the PARs to the Counties. EPP/IP 1.2, Attachment 3 (Step 6.0) provides direction for using the radio system. The Counties should then contact their respective States.

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TERMINATION OF THE EMERGENCY
AND RECOVERY

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TERMINATION OF THE EMERGENCY AND RECOVERY

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Sam J. Paletta
Reviewed SAM J. PALETTA/for S.L. Vicinie 04/07/01
Manager, Emergency Preparedness _____ Date _____

Mark Ream
Approved Mark Ream 4/7/01
Director, Plant Services _____ Date _____

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BVPS UNIT 3**

TERMINATION OF THE EMERGENCY AND RECOVERY

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TERMINATION OF THE EMERGENCY AND RECOVERY

A. PURPOSE

This procedure provides criteria and guidance for terminating a declared emergency condition and restoring the Station as close as possible to its pre-emergency status.

NOTE:

The termination of an emergency and recovery efforts will depend on the nature of the emergency and the status of plant systems following corrective measures, and although the general provisions within this procedure are expected to be applicable to all emergencies, it may be necessary to supplement this guidance with provisions specific to the emergency at hand.

B. REFERENCES

- 1.0 Beaver Valley Power Station Emergency Preparedness Plan and Implementing Procedures.
- 2.0 Title 10, Code of Federal Regulations Part 20 and 50, Appendix E.
- 3.0 NUREG-0654/FEMA-REP-1 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."
- 4.0 NRC Administrative Letter 97-03: "Plant Restart Discussions Following Natural Disasters".

C. RESPONSIBILITIES

- 1.0 The Emergency Director (in conjunction with the Emergency/Recovery Manager if activated) will make the determination of when an emergency condition is resolved, in accordance with the following criteria, and may declare the termination of the emergency.
- 2.0 For any emergency condition involving plant systems and/or a plant shutdown, the Emergency Director will make a determination as to when it is safe to return the plant to a normal operating mode. BVPS Licensing will resolve any license or technical specification concerns related to the emergency and/or the restart of the plant.

TERMINATION OF THE EMERGENCY AND RECOVERY

D. PRECAUTIONS

- 1.0 Actions taken during an emergency situation can be categorized into two general phases: response and recovery.
 - 1.1 Response actions are the corrective and protective measures taken to mitigate the consequences of the event and to place the emergency under control.
 - 1.2 Recovery actions are longer-term actions taken to restore the Station, as nearly as possible, to its pre-emergency condition.
- 2.0 The extent and nature of the corrective and protective measures and the extent of the recovery operations will depend on the emergency conditions at hand and the status of Station areas and equipment.
 - 2.1 In many emergency situations, the emergency condition may not involve significant plant damage, and thus, the Station can be restored to a normal operation mode without a definitive recovery phase and without extensive outside assistance.
 - 2.2 In the event of more extensive damage, a long-term recovery effort may be necessary, and the man-power and resources demanded by a long-term recovery will require the establishment of a recovery organization.
- 3.0 At the onset of an emergency condition, response actions to mitigate the consequences of the accident take precedence over recovery actions. The Emergency/Recovery Manager may initiate some limited recovery operations during the response phase. Gradually as the response effort begins to abate, recovery efforts gain more importance. Finally, a point is reached where the emergency situation has decreased to the extent that it can be considered, for all practical purposes, to be resolved. At this point, the emergency can be declared to be terminated, and a recovery organization implemented if necessary.
- 4.0 If, following termination, the emergency situation recurs, the Emergency Director will re-activate the onsite emergency organizations, and if required, the offsite emergency organizations. Recovery efforts will be suspended until the Emergency Director or Emergency/Recovery Manager allows them to resume.

TERMINATION OF THE EMERGENCY AND RECOVERY

- 5.0 Station recovery activities shall be in accordance with the Station technical specifications and other license conditions or restrictions. Specifically, during recovery operations, the radiation exposure limits of 10 CFR 20 shall apply. Compliance with these limits shall be the responsibility of the Emergency Director via the Radiation Control Section.
- 6.0 Recovery actions that plan for or may result in radioactivity releases will be evaluated by the Emergency/Recovery Manager and his staff as far in advance of the event as is possible. Such releases and data pertaining to the releases will be reported to the appropriate offsite emergency response organizations and agencies in advance, even if the release is within normal technical specifications, for as long as the recovery operation continues.
- 7.0 The recovery operation will continue until the Station is returned to its pre-emergency status, or as determined by the Senior Vice President or his designee.

E. PROCEDURES

1.0 TERMINATION CRITERIA

- 1.1 The Nuclear Regulatory Commission (NRC) no longer requires or recognizes de-escalation of emergency classifications. Once the emergency is under control (i.e., stable conditions), the event should be terminated and the recovery organization activated.

An Emergency condition can be considered resolved, and a recovery organization established (if necessary) when various guidelines have been met or addressed. These guidelines are addressed in Attachment 1.

2.0 RECOVERY

The overall goals of the recovery effort are to assess the in-plant consequences of the emergency and perform cleanup and repair operations. This effort may include marshaling of additional corporate resources and interfacing with outside agencies.

TERMINATION OF THE EMERGENCY AND RECOVERY

Recovery activities not covered by existing approved procedures shall be pre-planned and reviewed by the Onsite Safety Committee and approved by the Manager Operations or his designee, prior to their implementation.

For convenience in planning, the recovery operations can be classified as follows:

2.1 OFFSITE RECOVERY OPERATIONS

2.1.1 The BVPS Emergency/Recovery Manager will coordinate activities with offsite agencies in the recovery operations.

The State(s) will be the lead organization for offsite recovery operations and put emergency regulations into effect to ensure that no food items in the contaminated area are consumed or put on the market without the required radiological monitoring and to control access into the contaminated areas.

2.1.2 Authorization for re-entry to offsite areas will be made by the senior elected official to the area concerned after consultation with BVPS and the leading State agencies. The specific agencies involved would be:

- 1) Beaver County
 - a. PEMA
 - b. PA DEP/BRP

- 2) Columbiana County
 - a. OEMA
 - b. Ohio Dept. of Health

- 3) Hancock County
 - a. WVOES
 - b. West Virginia Bureau For Public Health

TERMINATION OF THE EMERGENCY AND RECOVERY**2.2 ONSITE RECOVERY OPERATIONS**

When it has been determined that the emergency condition has been resolved, the following shall be performed as applicable, and as directed by the Emergency/Recovery Manager or Emergency Director:

- 2.2.1 Using EPP/IP 1.1 Termination Form, the offsite organizations shall be notified that the emergency condition at the Station has been resolved and that onsite emergency operations will be terminated. If a recovery organization is being established, this should be included in the notification.
- 2.2.2 Corporate Communications shall be notified to make a press release on the termination of the emergency (and the start of recovery efforts).
- 2.2.3 Any emergency radiation exposure limit controls shall be re-established in accordance with 10 CFR 20.
- 2.2.4 Any procedural waivers instituted during the emergency shall be terminated, or formally documented by procedure changes.
- 2.2.5 Emergency organization personnel should be directed to assemble all documents generated during the emergency and to submit them to Emergency Preparedness.
- 2.2.6 Any portable equipment used during the emergency shall be serviced as necessary, and returned to designated storage locations. Any damaged or defective equipment shall be brought to the attention of individuals responsible for its maintenance. Consumable materials (i.e., procedure forms, bags, batteries, etc.) shall be restocked as soon as possible. Inventories of all appropriate Emergency Facilities and storage locations will be performed as soon as personnel can be made available.
- 2.2.7 If a long-term recovery operation is indicated, a recovery organization will be established per the Emergency Director or Emergency/Recovery Manager.

TERMINATION OF THE EMERGENCY AND RECOVERY

2.2.8 If applicable, the Emergency Preparedness Plan should be evaluated to ensure that an adequate emergency preparedness stature can be maintained in light of degraded plant conditions (i.e., inaccessibility of evacuation assembly areas, inoperative emergency instrumentation and equipment as it relates to the EPP) and appropriate corrective measures implemented.

2.2.9 For Alert or higher emergency conditions, the Emergency Preparedness staff will prepare an event report based on the reconstruction of the event using all available logs, status boards and event records. This report will be submitted to the Senior Vice President or his designee for approval. The approved report along with the Operations Incident Report will then be submitted to the Onsite Safety Committee. For Unusual Events, the Licensee Event Report (LER) satisfies this requirement.

2.2.10 Emergency Preparedness should review the various reports on the emergency to identify deficiencies in the Emergency Preparedness Plan and Implementing Procedures, if any, and should initiate appropriate corrective action, if necessary, as soon as possible.

F. FINAL CONDITIONS

A recovery organization has restored the plant to its pre-emergency status, to a modified pre-emergency status capable of power operations, or to a decommissioning status.

G. ATTACHMENTS

1.0 Termination Guidelines

TERMINATION OF THE EMERGENCY AND RECOVERY

ATTACHMENT 1 (1 of 4)

TERMINATION GUIDELINES

1. For emergency conditions classified as Unusual Events or Alerts, and the specified corrective action has been taken or when the plant has been placed in the appropriate operating mode (LCO-related EAL's), and when notifications are complete.

YES/NO/NA COMMENTS:

2. Surveillance relative to offsite protective actions is needed, except for the control of foodstuffs and water, and offsite contamination, or environmental assessment activities.

YES/NO/NA COMMENTS:

3. Radiation levels in affected in-plant areas are stable or decreasing to below acceptable levels.

YES/NO/NA COMMENTS:

4. Releases of radioactive material to the environment greater than Radiological EALs 7.1 and/or 7.2 are under control or have ceased.

YES/NO/NA COMMENTS:

5. The potential for an uncontrolled release of radioactive material is at an acceptably low level.

YES/NO/NA COMMENTS:

TERMINATION OF THE EMERGENCY AND RECOVERY

ATTACHMENT 1 (2 of 4)

TERMINATION GUIDELINES

- 6. Containment pressure is within technical specification requirements related to the existing mode of operation.

YES/NO/NA COMMENTS:

- 7. The reactor is in a safe, stable condition, with a reactor cooldown in progress, long-term core cooling is available as required, and it has been determined that the plant has the ability to achieve and maintain a cold shutdown condition.

YES/NO/NA COMMENTS:

- 8. The shutdown margin for the core has been verified.

YES/NO/NA COMMENTS:

- 9. Any fire, flood, earthquake, or similar emergency conditions are controlled or have ceased.

- a) If emergency conditions were caused by a natural disaster, with offsite consequences, discussions must occur between BVPS, NRC and FEMA prior to plant restart. These discussions shall include an assessment of the offsite conditions and infrastructure to assure offsite emergency preparedness prior to plant restart.

YES/NO/NA COMMENTS:

TERMINATION OF THE EMERGENCY AND RECOVERY

ATTACHMENT 1 (3 of 4)

TERMINATION GUIDELINES

10. A minimum of one (1) offsite power source exists for operation of emergency equipment.

YES/NO/NA COMMENTS:

11. All emergency action level notifications have been completed.

YES/NO/NA COMMENTS:

12. There is no longer a need for staffing emergency response facilities, except for facilities necessary for the Recovery Organization

YES/NO/NA COMMENTS:

13. Access to radiologically controlled areas of the plant necessary for operation during recovery are within acceptable radiation limits or being monitored by Health Physics.

YES/NO/NA COMMENTS:

TERMINATION OF THE EMERGENCY AND RECOVERY

ATTACHMENT 1 (4 of 4)

TERMINATION GUIDELINES

- 14. Offsite conditions will not limit access of personnel and support resources.

YES/NO/NA COMMENTS:

- 15. Discussions have been held with the Nuclear Regulatory Commission, State and local organizations (with FEMA input), and agreement has been reached to terminate the emergency.

YES/NO/NA COMMENTS:

- 16. Deleted.

- 17. A recovery organization has been established, if considered necessary by the Emergency Director or Emergency/Recovery Manager.

YES/NO/NA COMMENTS:

- 18. Termination notification should be completed per EPP/IP 1.1.

YES/NO/NA COMMENTS:

Time/Date

Signature

EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE

EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE

APPROVAL PAGE

Intent Related Revision ___ Yes X No

IF YES

OSC and Site Approval

OSC Meeting Number _____ Date _____

Reviewed _____
Manager, Emergency Preparedness Date

Approved _____
Director, Plant Services Date

IF NO

Reviewed Aaron L. Vicinie _____
Manager, Emergency Preparedness 4-18-01
Date

Approved Marc Pearson _____
Director, Plant Services 4/20/01
Date

CONTROLLED
BVPS UNIT 3

**EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE**

EFFECTIVE INDEX

Issue 8 Rev.	0	OSC Approved	3-12-87
	1	Non-Safety Revision	8-13-87
	2	Non-Safety Revision	7-31-89
Issue 9 Rev.	0	Non-Intent Revision	10-9-90
	1	Non-Intent Revision	10-11-91
	2	Non-Intent Revision	12-29-92
Rev.	5	Non-Intent Revision	1-1-94
Rev.	6	Non-Intent Revision	10-7-94
	7	Non-Intent Revision	10-31-95
	8	Non-Intent Revision	3-27-97
	9	Non-Intent Revision	6-17-97
	10	Non-Intent Revision	12-30-98
	11	Non-Intent Revision	12-31-99
	12	Non-Intent Revision	5-01-01

**EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE**

TABLE OF CONTENTS

- A. Purpose
- B. References
- C. Responsibilities
- D. Action Levels/Precautions
- E. Procedure
- F. Final Condition
- G. Attachments

**EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE**

A. PURPOSE

This procedure provides instructions for maintaining emergency cabinets and equipment. Master inventory lists are maintained by the Manager, Emergency Preparedness and supplied to the Health Physics Department as needed.

B. REFERENCES

- 1.0 Beaver Valley Power Station Health Physics Manual.
- 2.0 Beaver Valley Power Station Emergency Preparedness Plan
- 3.0 Title 10, Code of Federal Regulations Part 50
- 4.0 BVPS Unit 1 Licensing Commitment 2.C (7) (CATS A970524P)

C. RESPONSIBILITIES

The responsibility for this procedure rests with Health Physics and Emergency Preparedness. However, individual responsibilities have been assigned throughout the IP and should be noted. Final retention of the documentation for inventories is the responsibility of Emergency Preparedness.

D. ACTION LEVELS/PRECAUTIONS

1.0 ACTION LEVEL

- 1.1 Inventories are performed quarterly (routine inventory) or after each applicable equipment usage (drills, special inventories, etc.). Equipment is inventoried by the Health Physics personnel at BVPS and completed inventory results are reviewed by Health Physics or EP Supervision and sent to the Manager, Emergency Preparedness or designee. Documentation attesting to the completion of the inventories shall be retained in the EP section of document control.

**EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE**

- 1.2 Monthly EP respirator inventories will be documented on Health Physics Manual (HPM) Form 3.10.4.1 "Respirator Inspection Form: Ultravue Air-Purifying" originals are retained by Health Physics. Copies of this form, along with a signed cover statement by the responsible Health Physics or EP personnel attesting to the completion of the inspection, will be transmitted monthly to the Manager, EP, or his designee. These copies will be retained in the EP section of Document Control until completion of the annual review.

2.0 PRECAUTIONS

- 2.1 If shortages or Checklist discrepancies are identified, they should be circled on the original Checklist and replacements made as soon as possible (within two weeks), or an explanation of the delay provided on the original Checklist. Items or equipment whose (calibration) expiration date is prior to the next scheduled inventory will be replaced prior to their expiration date.
- 2.2 For Checklists with similar titles with more than one location (e.g., Monitoring Kits, Assembly Areas, Personnel Decontamination Kits, EPP Air Sample Carts, Hospitals, etc.), the form for the specific title should be copied as many times as necessary and the actual location inventoried circled or written on the Checklist.
- 2.3 Items may be added to cabinet/kit inventories at the request of the appropriate coordinator. Requests must be given to Emergency Preparedness and will be coordinated with Health Physics to ensure that such additions do not cause a problem for personnel conducting inventories.
- 2.4 No item shall be deleted from cabinet/kit inventories without written justification as to why the such deletion will not decrease overall effectiveness of the area or function. Requests for deleting items should come from the appropriate coordinator and be addressed to the Manager, Emergency Preparedness or designee.

**EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE****E. PROCEDURE**

Listed below are various instruments and equipment which will be included in the inventories. Also included is the assigned responsibility:

- 1.0 G.M. survey meters (Responsibility - Rad Tech).
 - 1.1 Perform inventory check, replace missing or out-of-calibration instruments with an instrument with a calibration due date that will not expire before the next quarterly inventory.
 - 1.2 Record serial number(s) and calibration due date(s) on the instrument(s) or replacement(s) on the inventory checklist.
- 2.0 Survey instruments - Ion chamber (Responsibility - Rad Tech.).
 - 2.1 Perform inventory check, replace missing or out-of-calibration instruments with an instrument with a calibration due date that will not expire before the next quarterly inventory.
 - 2.2 Record serial number(s) and calibration due date(s) on the instrument(s) or replacement(s) on the inventory checklist.
- 3.0 Air sampler (Responsibility - Rad Tech., Steps 3.1 and 3.2: Meter and Control Repairman, Step 3.3).
 - 3.1 Perform inventory check, replace missing or out-of-calibration instruments with an instrument with a calibration due date that will not expire before the next quarterly inventory.
 - 3.2 Operate for at least 5 minutes and check for proper functioning, recording flow rate in "Remarks" section.
 - 3.3 Calibrate air flow according to the latest Field Calibration Procedure.

**EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE**

4.0 Radios (Responsibility - Rad Tech., Step 4.1; Operations personnel and Security personnel, Step 4.2; System Operations and Telecommunications, Step 4.3).

4.1 Check that the proper number of radios are present in designated location.

4.2 Check for proper operation, send and receive, with an operating radio of same frequency.

NOTE:

Field Monitoring Team (FMT) radios (located at the Unit 2 Pump House) are checked during FMT drills and exercises. Problems should be reported to the Manager EP.

4.3 Repair, if inoperable.

5.0 Dosimetry (Responsibility - Rad Tech./Dosimetry Section).

5.1 During routine or special inventories of cabinets containing dosimeters, it is necessary to only verify quantity, type (or range), and that the calibration due date has not been exceeded. Dosimeters should be rezeroed when necessary.

5.2 If discrepancies are noted, report these to the Supervisor of Dosimetry who will arrange to make corrections.

5.3 Serial number tracking of dosimeters in cabinets is accomplished by the computer generated EPP Pocket Dosimeter and TLD Reports. The Supervisor of Dosimetry will send a copy of these reports to Emergency Preparedness for filing in the EP Document Control. An updated report will be sent after each change of dosimeters for calibration or replacement for other reasons.

**EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE**

- 6.0 Respirators and cartridges (Responsibility - Rad Tech.).
 - 6.1 Emergency cabinet/kit respirators will be inspected and accounted for as described in part D.1.2 of this procedure. During routine and special inventories, personnel need only to verify that the correct number of respirators are present and expiration dates have not been exceeded. If replacements are required, Health Physics personnel shall obtain them and record serial numbers on the inventory sheet. Ensure that replacements have an inspection valid for at least 25 days.

- 7.0 Batteries (Responsibility - Rad Tech.).
 - 7.1 Perform operability check of battery powered equipment. Replace batteries, as necessary.
 - 7.2 Replace spare batteries, flashlight batteries, etc., as needed, during each quarterly inventory, or as specified on the inventory list.

- 8.0 Cloth or plastic suits/equipment (Responsibility - Rad Tech.).
 - 8.1 Perform inventory check and replace any cloth/plastic equipment which appears to be ripped, torn, badly soiled, or otherwise exhibiting signs of deterioration.

- 9.0 Rubber and rubberized equipment (Responsibility - Rad Tech.).
 - 9.1 Perform inventory check and replace any rubber or rubberized equipment which appears to be ripped, cracked, or otherwise significantly damaged.

- 10.0 Maps, lists, data sheets, paper supplies, etc. (Responsibility - Rad Tech.); as supplied to Health Physics by EP personnel when necessary. Procedures are supplied by Beaver Valley Records Center (BVRC) Section.
 - 10.1 Perform inventory check and check that all items are current, in order, and in good condition

**EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE**

- 10.2 Verify that Controlled copies of the Emergency Preparedness Plan and of the Implementing Procedures (IPs) are in the locations indicated on the inventory lists.
- 10.3 For sectionalized copies of the IPs, verify the correct issue/revision by comparing to the Effective Index list provided with the inventory list.
- 10.4 Remove and destroy outdated revisions. Obtain correct revisions and place in the specified location.
- 11.0 Miscellaneous equipment (Responsibility - Rad Tech.).
 - 11.1 Perform quarterly inventory check checking that the proper number is in supply as indicated on the Checklist and that each is serviceable, and replace or restore, if required, as soon as possible.
 - 11.2 Check that the EPP seals or locks are in place on Emergency Cabinets/desks, where appropriate.

F. ATTACHMENTS

- 1.0 Index Listing of EPP Inventory Checklists

**EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE**

ATTACHMENT 1 (1 of 1)

INDEX LISTING OF EPP INVENTORY CHECKLISTS

Emergency Cabinet #1 - Control Room
ROC
Water Monitoring Kit
Field Monitoring Team Kits
Pump House Cabinet
Emergency Cabinet #2 (AEOF)
SPING (Unit 1) Emergency Sampling Kit
WRGM (Unit 2) Emergency Sampling Kit
Near-Site Assembly Areas
Primary Assembly Areas
TSC Cabinet #1
TSC Cabinet #2
TSC Cabinet #3
EOF Cabinet #1
EOF Cabinet #2
EOF Cabinet #3 (EA&DP)
Decon Cabinet
Decon Kit
Access Area Supplies
EOF Equipment Cart.
Air Sample Carts
OSC Cabinet 1, 2, 3
Beaver Co. Medical Center
Spill Kit
RCT Response Kit

NOTE:

Emergency Preparedness maintains a master set of Inventory Checklists. Copies are supplied to HP Supervisor for their secondary master set to provide copies to Radiation Technicians doing the inventory.

**EMERGENCY EQUIPMENT INVENTORY
AND MAINTENANCE PROCEDURE**

INTENTIONALLY BLANK

**THIS PROCEDURE IS BEING DELETED IN ITS
ENTIRETY.**

MAJOR INJURY INVOLVING

RADIOACTIVE CONTAMINATION

**UNIVERSITY OF
PITTSBURGH MEDICAL CENTER
BEAVER VALLEY**

**THIS PROCEDURE IS BEING DELETED IN ITS
ENTIRETY.**

**EMERGENCY PLAN
For
MAJOR INJURY INVOLVING RADIOACTIVE CONTAMINATION**

Agreement

Between

Beaver Valley Power Station Units 1 and 2

and

**University of Pittsburgh Medical Center
Beaver Valley**

**CONTROLLED
BVPS UNIT 3**

MAJOR INJURY INVOLVING
RADIOACTIVE CONTAMINATION
FOR
THE MEDICAL CENTER, BEAVER

EMERGENCY PLAN

For

MAJOR INJURY INVOLVING RADIOACTIVE CONTAMINATION

Agreement

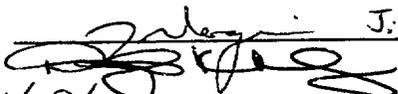
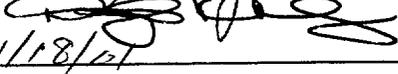
Between

Beaver Valley Power Station Units 1 and 2

and

The Medical Center, Beaver

MAJOR INJURY INVOLVING
RADIOACTIVE CONTAMINATION
FOR
THE MEDICAL CENTER, BEAVER

Approved:  J. NAGIN
Date: 04/18/07  D. KAUFMAN

CONTROLLED
BVPS UNIT 3

EMERGENCY PLAN
FOR
MAJOR INJURY INVOLVING RADIOACTIVE CONTAMINATION
THE MEDICAL CENTER, BEAVER

This Plan, prepared and approved by The Medical Center personnel with the assistance of BVPS personnel, is incorporated into the BVPS EPP as Annex C to the EPP/IP's for reference.

I. PURPOSE AND SCOPE

This plan addresses the general actions to be taken by The Medical Center (TMC) to prepare for and treat a radiologically contaminated injured patient received from either the Beaver Valley Power Station Unit 1 or Unit 2.

This plan is primarily directed towards minimizing the spread of contamination from the patient to hospital personnel, the general public, and to hospital facilities and equipment. The plan only generally addresses the medical treatment to be rendered. The applicability of this plan to other categories of patients received from the Beaver Valley Power Stations is as follows:

- This plan does not apply to injured patients, received from either of the two facilities, who are not contaminated. These patients will be handled in accordance with normal TMC Emergency Patient Center directives.
- For patients who are injured and have been reported to have serious internal contamination or who have been seriously overexposed, but who are not contaminated will be handled in accordance with normal TMC Emergency Patient Center directives and the general guidance of Section IV of this plan.
- Nuclear facility personnel who have been seriously contaminated or overexposed, but who have no other life-threatening physical injury will not normally be transferred to TMC for treatment. If because of unforeseen circumstances such patients are received, they should be handled in accordance with the general guidance of this plan and TMC Emergency Patient Center directives.

Appendix B to this plan provides background information relevant to radiological contamination and the handling of contaminated injured personnel.

II. RESPONSIBILITIES AND AUTHORITY

Although this plan specifically addresses the handling of contaminated injured personnel, the basic hospital policies and directives for emergency treatment of patients remain unchanged. It is understood, the provisions of this plan notwithstanding, that the treatment of affected individuals will be carried out under the direction of Emergency Patient Center and other attending physicians as would be the case for any emergency injury requiring treatment.

II. RESPONSIBILITIES AND AUTHORITY (Cont.)

The role of BVPS Radiological Control personnel will be limited to that of assisting hospital personnel with the monitoring and control of radioactive contamination at the direction of the attending physician. BVPS personnel will be responsible for the handling and disposal of any radioactive wastes created and the restoration of affected TMC facilities and equipment to their pre-emergency condition.

III. PROCEDURE TO BE FOLLOWED BY HOSPITAL PERSONNEL

A. Notification

Upon notification by Control Room personnel from Beaver Valley Power Station Unit 1 or Unit 2, the Unit Clerk or Charge Nurse will:

1. Call Beaver Valley Power Station to confirm the event has occurred (643-8002).
2. Notify the Emergency Patient Center physician who will ascertain:
 - a. Number of patients
 - b. Expected time of arrival
 - * At this point the E.P.C. physician will tell the Charge Nurse to begin preparation for Nuclear decontamination.
 - c. Types of injuries and contamination
 - d. Any other pertinent information
3. Begin the call sequence in Appendix A.

The E.P.C. physician and a nurse shall immediately begin to don the protective clothing. (See 4 on Page 5) The Charge Nurse shall designate personnel to begin preparation of designated Treatment Room as noted in "B" below. Assistance in this shall be provided by Maintenance and Clinical Engineering and/or Security personnel.

III. PROCEDURE TO BE FOLLOWED BY HOSPITAL PERSONNEL (Cont.)

* After 3 P.M., the supervisory personnel of the following departments shall be paged to assist:

- a. Engineering
- b. Security
- c. Medical Records
- d. Nursing

Security shall direct bystanders and media persons to the Education and Research Department. ALL information concerning the patient(s) shall be released through the Public Affairs Department.

B. Preparation of Treatment Area

1. Radiological Supplies are stored in the nuclear response supply cabinet in the designated storage area.
2. Prepare area at the entrance to the designated Treatment Room and/or other rooms, as necessary.
 - a. Lay down a travel path from this area to the expected ambulance arrival point; J-Flex may be used for this path. The path should be wide enough to roll the ambulance stretcher on.
 - b. Place a J-flex stepout area immediately outside the doorway to the designated Treatment Room. This area should be approximately 5 feet by 7 feet.
 - c. Demarcate this entire area using the stanchions and yellow/magenta colored ribbon provided to prevent unauthorized access.

III. PROCEDURE TO BE FOLLOWED BY HOSPITAL PERSONNEL (Cont.)

- d. Place frisker on mayo stand immediately outside of the Treatment Room door and within the ribbon boundary area.
- e. Above mentioned floor covering should be secured with tape where necessary to prevent slip or trip hazard.
- 3. Prepare the designated Treatment Room area.
 - a. Remove all unnecessary equipment from the room.
 - 1) Equipment with potential for use should also be removed and staged nearby in the unaffected area.
 - b. A large enough area to handle the number of patients and/or the entire floor area should be covered. Use the precut floor covering provided in the nuclear response supply cabinet.
 - c. Secure the floor covering as necessary using tape to prevent tripping hazards.
 - d. Avoid unnecessary air movement in room - shut down ventilation if possible.
 - e. Place yellow/magenta tape on the floor at the doorway to the room, this represents the contaminated area boundary.
 - f. At the doorway inside of the room, place the provided step-off pad on the floor and secure in-place with tape.
 - 1) If the entrance into the adjacent room is to be open, a tape and ribbon boundary should be erected at that doorway to prevent unauthorized entry into designated Treatment Room.
 - g. A large yellow bag should be set up inside the room at the step-off pad, to hold used protective garments from exiting personnel (gloves, shoe covers, etc.).

III. PROCEDURE TO BE FOLLOWED BY HOSPITAL PERSONNEL (Cont.)

- h. Several large yellow bags may be strategically placed within the room to accommodate trash (bandages, clothing, etc.).
 - i. Additional large yellow bags should be available in the step-out area near the room entrance for used protective garments.
4. All personnel responsible for giving direct patient care or having to enter designated Treatment Room, will don appropriate clothing:
- a. Yellow gown
 - b. Hightop tote boots
 - c. Impermeable Gown
 - d. Gloves - 2 pr. - (surgical, clear)
 - First pair under cuffs of gown
 - Second pair over cuffs of gown
 - e. Mask/Shield
 - f. Surgical hood
5. Restrict access to the corridor and emergency entrance covered area until such time as the patient is in designated Treatment Room and the area has been monitored by BVPS personnel.

C. Patient(s) Arrival

- 1. Patient taken into designated Treatment Room and placed on blue decon table by Emergency Patient Center personnel.

NOTE:

Table **MUST** be secured to cot with straps.

- a. If emergency lateral C-spine or A-P chest x-rays are immediately required, portable x-ray machine can be situated outside the door with the tube extended into the room. Cassettes shall be covered with plastic bags.

III. PROCEDURE TO BE FOLLOWED BY HOSPITAL PERSONNEL (Cont.)

2. TMC personnel, under direction of BVPS personnel will, starting at Emergency Patient Center entrance, roll up the J-flex runner at entrance areas.
 - a. J-flex is rolled from underside and immediately placed into large plastic bags - top is sealed with radiation warning or tuck tape and tagged.
 - b. Area will be monitored by BVPS personnel.
3. Patient will be cared for as conditions warrants. All contamination will be removed with assistance of BVPS personnel when physician so indicates. Patient's condition will guide the procedure to be followed for decontamination.
4. All persons will be frisked and monitored with assistance from BVPS personnel, prior to leaving the designated Treatment Room.
5. Patient will be moved as condition indicates, and upon recommendation of attending physician and BVPS Radiological Control representatives.
6. BVPS personnel will supervise the recovery and disposal of material and equipment, and restoration of the room to its pre-emergency condition.

D. Minimizing the Exposure of Hospital Personnel

1. **Overexposed or Internally Contaminated, Injured Patients.** In the case of a patient exposed to excessive external radiation, or to internal contamination, no measures are necessary to protect TMC premises or personnel.

III. PROCEDURE TO BE FOLLOWED BY HOSPITAL PERSONNEL (Cont.)

2. Contaminated Patient. The potential radiation exposure to hospital personnel from a contaminated patient will, of necessity, depend on the nature and extent of the contaminant. A potentially more serious problem would be the transfer of contamination from the patient to TMC personnel. This transferred contamination, if not removed, could enter the individual's body via a break in the skin, or by ingestion or inhalation. Techniques to minimize the spread of contamination include:
 - a. All personnel entering the designated area should wear appropriate clothing, preferably disposable, as directed.
 - b. Air conditioning systems and forced air heating systems in the treatment areas should be shut off, if possible, to minimize air currents which could spread contamination to other areas.

NOTE:

IF IT IS NOT POSSIBLE TO SHUT OFF VENTILATION, A PIECE OF PLASTIC SHOULD BE TAPED OVER THE APPROPRIATE LOUVER(S).

- c. Splashing of decontamination solutions should be avoided.
- d. TMC personnel should move to clean areas only after monitoring and release by BVPS personnel.
- e. Patient will be moved only upon recommendation of attending physician and BVPS Radiological Control representative.
- f. Supplies are passed from clean areas to potentially contaminated areas. REVERSE FLOW SHOULD NOT BE ALLOWED, UNLESS MATERIALS HAVE BEEN SURVEYED AND FOUND TO BE CLEAN.

III. PROCEDURE TO BE FOLLOWED BY HOSPITAL PERSONNEL (Cont.)

- g. The entry into the designated area, of all nonessential personnel including family, visitors, and administrative personnel, will be restricted until decontamination is complete and the patient has been moved to a ward or private room.

Family may be placed in Family Waiting Area with appropriate resources and support available.

- 1) Social Workers
- 2) Pastoral/Ministry
- h. TMC personnel working on patient should keep their hands away from exposed skin (e.g., forehead) on their own bodies.
- i. All yellow bags should be "J" sealed when 3/4 full.
- j. All waste material must be bagged for disposal by BVPS personnel

IV. PROCEDURES FOR INTERNAL CONTAMINATION/OVEREXPOSURES

A. Internal Contamination

- 1. BVPS Radiological Control representative should obtain nose swipes for subsequent radiological evaluation before any indicated decontamination is performed.
- 2. All biological material (urine, sputum, feces, blood) taken from the patient should be retained for subsequent radiological evaluation. Such material should be considered to be contaminated until released by the BVPS Radiological Control representative.
- 3. Obtain biological samples for analysis at the direction of the attending physician. Blood, urine, and fecal samples should be collected as soon as possible, and periodically thereafter.

IV. PROCEDURES FOR INTERNAL CONTAMINATION/OVEREXPOSURES
(Cont.)

4. Perform other treatment as directed by attending physician. As outlined in Appendix B, such treatment may include:

a. Administration of diuretics and/or laxatives.

b. Administration of chelating agents.

B. External Overexposure

Treatment of the overexposed individual will depend on, the magnitude of the overexposure, and the extent and location of the exposure site. Treatment for the radiation injury need not be immediate. Treatment for accompanying side-effects should be in keeping with normal medical practice.

1. Blood samples should be taken and laboratory analyses performed as soon as possible to provide biological indicators of the extent of the radiation damage. As a minimum, the following data should be obtained:

a. Differential and absolute white blood cell and platelet counts; hematocrit reading; blood picture; hemoglobin

b. Electrolyte balance

c. Lymphocyte culture chromosome analysis

The tests identified in a. should be repeated several times during the first six hours, for exposures in excess of 50-100 rem, and less often for lower exposures.

2. All urine should be collected for analysis, until otherwise directed by attending physician. Samples should not be mixed and should be clearly labeled as to date and time of collection.

3. The patient should be surveyed for radiation, and appropriate exposure control methods established for TMC personnel if necessary.

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APPENDIX A

THE MEDICAL CENTER
EMERGENCY TEAM PHONE NUMBERS

Maintenance - Ext. 2225, 2234	Laboratory - Ext. 1890
Clinical Engineering - Ext. 1230, 1238	Nuclear Medicine - Ext. 1535
Security - Ext. 1076	Radiology - Ext. 1678
Administrator - Ext. 2025, 2010	
Chairman, Disaster Committee - Ext. 1438, 1416	
Public Relations - Ext. 2040	

E.P.C. ADMIN. TECHS CALL SEQUENCE

- | | | |
|------|----------------------------------|-----------------|
| * 1. | Maintenance | Ext. 2225, 2234 |
| * 2. | Security | Ext. 1076 |
| 3. | Administrator, or Admin. On-call | Ext. 2025, 2010 |
| 4. | Chairman, Disaster Committee | Ext. 1438, 1416 |
| 5. | Public Relations | Ext. 2040 |
| 6. | Laboratory | Ext. 1890 |
| 7. | Nuclear Medicine | Ext. 1535 |
| 8. | Radiology | Ext. 1678 |

- * Call for assistance with room setup and to secure area.

NOTE:

The message shall be as follows: "We have received word that we can expect _____ patients contaminated with radioactive material. We expect them to arrive in _____ minutes."

NOTE:

If above do not answer directly, have them paged **STAT** on overhead loudspeaker.

NOTE:

THE HOSPITAL SWITCHBOARD AND OFFICE MAINTAIN A CURRENT COPY OF THIS PHONE LIST. REFER TO LISTING FOR UP-TO-DATE NUMBERS.

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APPENDIX B

BACKGROUND INFORMATION

I. SITUATION

At the Beaver Valley Power Station Unit 1 & 2, as would be expected at any industrial facility, there exists the possibility of a range of personnel accidents. These accidents range from simple injuries which can be treated by onsite first aid personnel, to more severe accidents that require immediate medical attention to save the life of the injured person.

Many individuals at the Beaver Valley Power Station work with radioactive materials or work in areas where exposure to radiation is probable. The probability of an accident, in which the radiation exposure received by the individual or the amount of loose radioactive material (radioactive contamination) on the individual's skin or inside his body (by ingestion or inhalation) would constitute the primary health risk is very low. However, other personnel injuries requiring offsite medical attention must be expected to occur. Further, it is prudent to assume that some of these injuries may occur in radioactively contaminated areas and that the urgency for medical treatment may not permit removal of the contamination prior to transfer to an offsite hospital. The urgency associated with injury takes precedence over the urgency associated with the contamination and that the first aim must be to save the life and preserve the vital functions of the patient. Treatment of the contamination comes only second.

Nonetheless, since radioactive contamination and the attendant radiation exposure from contamination poses some health risk, it is necessary to make arrangements to control the treatment of such injured contaminated persons, in order to minimize unnecessary exposure to hospital personnel, ambulance personnel, and other patients or members of the general public who might come in contact with the injured person. This plan establishes the controls necessary to minimize the spread of radioactivity while ensuring access to timely medical treatment for contaminated injured personnel.

II. SPECIALIZED TREATMENT

FirstEnergy has made arrangements with the Department of Radiation Health of the University of Pittsburgh and the UPMC-Presbyterian for medical advice and specialized medical treatment of serious radiological injuries. Arrangements have also been made to obtain medical advice for the treatment of radiological injuries to Beaver Valley Power Station personnel.

APPENDIX B

BACKGROUND INFORMATION

(Continued)

II. SPECIALIZED TREATMENT (Cont.)

The Medical Center, Beaver is the facility to which personnel will be transferred for injuries compounded by radioactive contamination, in which the radioactive contamination or radiation exposure is not the primary medical concern. (For example, a bone fracture with skin contamination).

Arrangements have been made with the Radiation Emergency Response Program (RERP) for medical services beyond that which are available at the The Medical Center, Beaver. The RERP program uses the facilities of the Department of Radiation Health and the UPMC-Presbyterian. This facility should be used only in those instances in which the radiation exposure and/or radioactive contamination with or without any other associated injury, represents the major health hazard.

The Medical Center, Beaver personnel may call upon the specialized advice of the Department of Radiation Health in the treatment of contaminated-injured personnel from the Beaver Valley Power Station. Telephone numbers are listed in the Beaver Valley Power Station Emergency Plan Implementing Procedures and are also posted at the E.R. Nurse's Station and designated Treatment Room.

III. RADIOLOGICAL INJURIES

Radiological injuries can be broadly categorized into three classes. These are excessive overexposure to external radiation, ingestion or inhalation of radioactive material into the body (internal contamination) in excess of regulatory standards, and external skin contamination. These injuries can occur individually or in combination with the others.

APPENDIX B

BACKGROUND INFORMATION

(Continued)

III. RADIOLOGICAL INJURIES (Cont.)

A. Indications for Action

1. External Exposure

The primary indication for action will be the initial estimate of the exposure reported by the facility where the exposure occurred. This exposure can involve the whole body (whole body exposure) or parts of the body such as the hands or feet (partial body exposure).

a. Whole Body Exposure Greater than 5 but less than 10 rem

The action in this exposure range is administrative. No medical treatment or evaluation is necessary.

b. Whole Body Exposure Between 10 and 25 rem

The details of the abnormal exposure should be brought to the attention of a radiation medicine physician. The need, extent, and nature of any clinical, biological, or biochemical examinations will be determined by the physician.

c. Whole Body Exposure Greater than 25 rem

The patient should be examined by a radiation medicine physician.

d. Partial Body Exposure

Treatment for partial body exposure, other than that to the face, is seldom urgent, thus there is time for consultation with radiation medicine physicians.

APPENDIX B

BACKGROUND INFORMATION
(Continued)

III. RADIOLOGICAL INJURIES (Cont.)

The higher the estimated dose, the more important becomes the need for accurate dose estimation through a combination of clinical, biological, and physical assessments. It is generally accepted that clinical signs, namely nausea, vomiting, erythema, fever, anorexia, and biological signs, primarily leukopenia, are unlikely to occur at whole body exposures less than 100 rem and are unlikely to be observed for 3-4 hours. Therapy, other than psychotherapy, is generally not required until whole body exposure is between 100-600 rem.

2. Internal Contamination

Internal contamination can enter the body by the processes of inhalation or ingestion, or external contamination can enter the body via an opening in the skin. It is unlikely that an accurate clinical or biological estimate can be made without specialized radiochemical analyses. The best estimate of the exposure will necessarily come from the nuclear facility.

If internal contamination greater than the annual limit of intake is suspected or reported, a radiation medicine physician should be consulted, or the patient transferred to a specialized treatment center. (See Section II of this Appendix).

The treatment will, of course, depend on the circumstances of the internal contamination. Generally attempts are made to minimize the uptake of the radioactive material by the body by accelerating biological elimination (laxatives and diuretics), chemical removal (chelating agents), or by prevention of uptake by administration of stable isotopes of the same species as the radioisotopes ingested or inhaled (potassium iodide to prevent thyroid uptake of Iodine-131). Biological samples are necessary to evaluate the amount of radioactive material eliminated, in order to estimate the internal radiation exposure.

APPENDIX B

BACKGROUND INFORMATION
(Continued)

III. RADIOLOGICAL INJURIES (Cont.)

3. External Contamination

It is unlikely that the nature or extent of radiological contamination on a worker from either nuclear facility would pose a danger to the worker or the hospital staff. Normally, the presence of radioactive contamination will simply indicate the need for special procedures to avoid the spread of contamination through the treatment area and to those responsible for handling the patient.

When skin contamination exists, decontamination must be performed. However, any severe physical injuries (e.g., trauma and burns) are likely to be more important than possible radiation injuries. The basic and most important procedure is simply to wash with soap and copious quantities of water. Care must be taken not to abrade the skin, and decontamination by this procedure must stop before the appearance of skin abrasion. In the case of a contaminated wound, washing with copious amounts of water should be done and bleeding should be promoted. Care must be taken not to transfer contamination from the skin to the wound in the course of aseptic cleansing.

B. Additional Guidance

1. Management of Persons Accidentally Contaminated with Radionuclides, National Council on Radiation Protection (NCRP-65)
2. Manual on Early Medical Treatment of Possible Radiation Injury, International Atomic Energy Agency Safety Series No. 47
3. The Principles and General Procedures for Handling Emergency and Accidental Exposures of Workers, International Commission on Radiological Protection (ICRP-28)

**FIRSTENERGY NUCLEAR OPERATING COMPANY
Beaver Valley Power Station**

**STANDING ORDERS FOR HOSPITAL PERSONNEL
THE MEDICAL CENTER**

Background

The content of the standing orders addresses the general actions to be taken by hospital personnel for a radiation accident case from BVPS. Variations in standing orders may occur due to (a) changing procedures, (b) improved radiation-measuring equipment and (c) isolation space.

Standing Orders

The hospital will receive initial information from the BVPS Control Room in the event of an accident case. When an accident has occurred at a plant, the Radiation Technician, supervisor, coworkers, and the patient should be able to inform the rescue squad of the nature of the accident, type or radiation exposure or radioactive contamination involved, and possible areas of the body that may be affected. The Radiation Technician and/or supervisor will come to the hospital with the patient and can be a source of immediate consultation.

Upon leaving the Beaver Valley Power Station, the ambulance service will alert the hospital Emergency Patient Center to expect a patient who may have had radiation exposure and/or radioactive contamination. It is the responsibility of the Charge Nurse on duty on receipt of notification of the momentary arrival of a case involving radiation exposure and/or contamination to:

- (1) Notify the Emergency Patient Center Medical Director, Director and Assistant Director of Emergency Services, Nurse Management and the responsible staff physician or nurse and clinical technicians.
- (2) The Medical Director may seek expert professional consultation for technical management of the case by calling UPMC-Presbyterian at:
 - (412) 647-3333 (ER) or 647-3597.

**FIRSTENERGY NUCLEAR OPERATING COMPANY
Beaver Valley Power Station**

**STANDING ORDERS FOR HOSPITAL PERSONNEL
THE MEDICAL CENTER
(Continued)**

- (3) Get the RM-14 Frisker. (BVPS supervisor and/or Radiation Technician with radiation monitoring equipment responding with ambulance will assist in monitoring the victim, ambulance, and/or hospital contamination.)
- (4) If contamination is suspected, prepare treatment area for radiation and/or contamination victim.
 - (a) Set up RM-14 frisker.
 - (b) Remove non-essential equipment from treatment area.
 - (c) Cover floor of treatment area.
 - (d) Secure ventilation system.
 - (e) Establish controlled area boundaries from ambulance area to treatment area.
 - (f) Set up receptacle for contaminated items.
 - (g) All personnel entering the treatment area and/or handling contaminated patient should don protective clothing (i.e., hood, jumpsuit, gloves, radiological shoe covers, mask).

On ambulance arrival, the responsible physician or nurse should:

- (1) If patient is seriously injured, give emergency life-saving assistance immediately.
- (2) The BVPS representative will survey patient on stretcher for contamination (preferably as stretcher is removed from the ambulance).

**FIRSTENERGY NUCLEAR OPERATING COMPANY
Beaver Valley Power Station**

**STANDING ORDERS FOR HOSPITAL PERSONNEL
THE MEDICAL CENTER**

- (3) If possible contamination is involved, save all clothing, bedding waste material, and metal objects (i.e., jewelry, belt buckles, etc.) for disposal by BVPS personnel. Save each in appropriate containers. Label with name, body location, time and date. All biological material (urine, sputum, feces, blood) taken from the patient should be retained and labeled for subsequent radiological evaluation.
- (4) Decontamination should start, if medical status permits, with cleansing and scrubbing the area of highest contamination first. If an extremity alone is involved, clothing may serve as an effective barrier and the affected limb alone may be scrubbed and cleansed. Initial cleansing should be done with soap and warm water. If the body as a whole is involved or clothing generally permeated by contaminated material, showering and scrubbing will be necessary. Pay special attention to hair parts, body orifices, and body folds areas. Wash water waste should be retained for radiological evaluation by BVPS.

If a wound is involved, prepare and cover the wound with self-adhering disposable surgical drape. Cleanse neighboring surfaces of skin. Seal off cleansed areas with self-adhering disposable surgical drapes. Remove wound covering and irrigate wound with sterile water, catching the irrigating fluid in a basin. Washings can be marked and handled as described in Rule 3 above. Each step in the decontamination should be preceded and followed by monitoring and recording of the location and extent of the contamination.

- (5) Save physician's, nurses', and attendants' scrub or protective clothing, as described for patients. Nurses, doctors, and attendants must follow the same monitoring and decontamination routine as the patients.

**FIRSTENERGY NUCLEAR OPERATING COMPANY
Beaver Valley Power Station**

**STANDING ORDERS FOR HOSPITAL PERSONNEL
THE MEDICAL CENTER**

- (6) The physician in attendance, if confronted with a grossly contaminated wound with dirt particles and crushed tissue, should be prepared to do a preliminary simple wet debridement. An emergency minor surgical set should be used. Further measurements may necessitate sophisticated wound counting detection instruments supplied by the consultant who will advise if further definitive debridement is necessary.

The nurse can be of tremendous aid in preventing fear and hysteria. The nurse's calm, friendly greeting, attitude, and conversations with the patient are most important psychologically.