

Beaver Valley Power Station Route 168 PO Box 4 Shippingport, PA 15077-0004

Mark B. Bezilla
Site Vice President

724-682-7775 Fax 724-682-1840

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U. S. Nuclear Regulatory Commission Attention: Document Control Desk Washington, DC 20555-0001

Subject: Beaver Valley Power Station, Unit No. 1 and No. 2

BV-1 Docket No. 50-334, License No. DPR-66 BV-2 Docket No. 50-412, License No. NPF-73

Beaver Valley Power Station Emergency Preparedness Plan/Implementing Procedures (Volumes 2 and 3)

In accordance with 10 CFR Part 50.4, this letter forwards a recent revision of the Beaver Valley Power Station Emergency Preparedness Plan/Implementing Procedures (Volumes 2 and 3) to the Nuclear Regulatory Commission. The changes do not decrease the effectiveness of the Plan and the Plan, as changed, continues to meet the requirements of Appendix E of 10 CFR 50. Therefore, 10 CFR Part 50.54(q) requires that these changes be submitted for information only.

There are no regulatory commitments contained in this letter. If there are any questions concerning this submittal, please contact Ms. Susan L. Vicinie, Manager, Emergency Preparedness at 724-682-5767.

Sincerely,

Mark B. Bezilla

Enclosure 1 – Summary of Changes Enclosure 2 – Plan/Procedure revisions

c: Mr. T. G. Colburn, NRR Project Manager (w/o Enclosure 2)

Mr. D. M. Kern, NRC Sr. Resident Inspector (w/o Enclosure 2)

Mr. H. J. Miller, NRC Region I Administrator (2 copies)

A045

Enclosure 1 Summary of Changes

Revisions to Beaver Valley Power Station Emergency Preparedness Plan/Implementing Procedures (Volumes 2 and 3)

The following is a brief summary of the changes made to the Emergency Preparedness Plan/Implementing Procedures.

EPP/Implementing Procedures (Volumes 2 and 3):

EPP/IP 2.3 "Offsite Monitoring for Airborne Release"

Revision 13 added a records transmittal log (RTL) number [A5.715EA] to Attachment 6.

EPP/IP 2.6.1 "Dose Projection - Backup Methods"

Revision 11 reformatted the procedure and corrected the RTL number.

EPP/IP 2.6.9 "Integrated Dose Assessment"

Revision 6 reformatted the procedure and corrected the RTL number for Attachments 1 and 3.

EPP/IP 5.1 "Search and Rescue"

Revision 8 reformatted the procedure and corrected the RTL number for Attachment 1.

EPP/IP 7.1 "Emergency Equipment Inventory and Maintenance Procedure"

Revision 14 reformatted the procedure to a standardized format.

EPP/IP 9.5 "Activation, Operation and Deactivation of the Penn Power Customer Account Services Department"

Revision 7 added an RTL number [A5.715GM] to Attachment 2.

INSTRUCTIONS

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Annex B -	DELETED	
Annex C -	Major Injury Involving Radioactive Contamination For The Medical Center, Beaver	Revision 9
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Annex E -	Reserved	

Beaver Valley Power Station

Unit 1/2

EPP/IP 2.3

OFFSITE MONITORING FOR AIRBORNE RELEASE

<u>Document Owner</u> Manager, Emergency Preparedness

Revision Number	13
Level Of Use	General Skill Reference
Safety Related Procedure	Yes

CONTROLLED BVPS UNIT 3

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Rev.	10	Non-Intent Revision	8-8-01
Rev.	11	Non-Intent Revision	6-14-02
Rev.	12	Non-Intent Revision	7-29-02
Rev.	13	Procedure Correction	1-15-03

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A. OBJECTIVE

This procedure provides instructions to the field monitoring teams for performing offsite field monitoring in the event of a real or potential airborne release of radioactivity.

B. RESPONSIBILITY

This procedure is to be performed by the designated offsite monitoring teams.

C. <u>ACTION LEVELS/PRECAUTIONS/PREREQUISITES</u>

1.0 This procedure shall be implemented by the offsite monitoring teams when the teams are organized and directed to perform offsite field monitoring.

2.0 Precautions

- 2.1 Designated vehicles shall be used for monitoring team purposes. Personal vehicles shall generally not be used, unless no suitable vehicles are available. Owners volunteering the use of their personal vehicles shall be alerted to the fact that most insurance companies will deny any claim for damage due to radioactive contamination. In addition, any personal vehicles shall have the same level of liability insurance as company vehicles.
- 2.2 All monitoring equipment shall be stowed in the vehicle such that it will not effect the safe operation of the vehicle.
- 2.3 Monitoring team vehicles shall be operated in compliance with all motor vehicle laws, including speed limits and the use of seat belts.
- 2.4 During siren activation, field monitoring teams will be instructed not to activate radio transmitters.

3.0 <u>Prerequisites</u>

- 3.1 If any of these prerequisites can not be met, request assistance from the TSC/EOF (724-682-5643, 5644) or the Operations Support Center (724-682-5391).
 - 3.1.1 Inventoried monitoring team kit, and,
 - 3.1.2 Hi-band Communications Radio and antenna, and/or,
 - 3.1.3 Cell phone, and,

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- 3.1.4 Personal dosimetry, and,
- 3.1.5 Ensure PL Switch located in the Control Room is in proper position
- 3.1.6 BVPS vehicle, or another vehicle, meeting the following criteria:
 - 3.1.6.1 Enclosed vehicle with sufficient room for the monitoring kit and fixed seating, with seat belts, for all team members, and,
 - 3.1.6.2 Operable cigarette lighter receptacle, and,
 - 3.1.6.3 At least 1/2 tank of gas, and,
 - 3.1.6.4 Current State motor vehicle inspection sticker (if applicable).
 - 3.1.6.5 If personal vehicle, ensure insurance is in effect, per requirements of Step 2.1.

D. PROCEDURE

1.0 Preliminary Actions

NOTE:

These preliminary steps are written with the assumption that the offsite monitoring teams will be dispatched from the Operations Support Center (OSC) or another inplant location, at the request of EA & DP personnel at the TSC/EOF.

If the TSC/EOF is not activated, all communications specified for EA & DP shall be directed to the Control Room.

If the team(s) are dispatched from an offsite location, (e.g., ERF, JPIC, home, etc.), the team is authorized to deviate from the preliminary steps provided below, as necessary PROVIDED that the PREREQUISITE's listed above are met.

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1.1 Prior to leaving the OSC or the station, obtain the following dosimetry information on team members.

Name Team Leader:	Badge No.	Current TLD+Electronic Dosimeter (mrem)	Expos Limit	Current TLD+Electronic Dosimeter (mrem)
Driver:				
Addit'l:				

- 1.1.1 If any of these data not readily available, a reasonable estimate should be entered until data is available.
- 1.2 <u>If</u> not already in their possession, team members shall obtain and don personal dosimetry.

NOTE:

Team members will retain their dosimetry when they exit the station, and use this dosimetry while performing offsite monitoring.

If dispatched from other locations, (e.g., ERF, home, etc.), team members shall use dosimetry provided in monitoring kits.

NOTE:

Check with OSC for any precautions to transit from OSC to ERF, (i.e., dose rates).

1.3 Exit the station via the Primary Access Facility and proceed to the ERF.

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•			A5.715EB
1.4	Obtain key from Dosimetry Lab Key Cabinet obtain FMT kits.	t for emerge	ncy cabinet in ERF to
	Obtain FWT Kits.		
-	NOTE:		
	An extra set of vehicle keys are maintained in	OSC Key C	Cabinet if ERF can not
	be accessed.		1
1.5	Obtain vehicle key, from EA/DP in ERF.	•	
1.6	Record the following information:		-
	1.6.1 Procedure Start Date:		
	1.6.2 Procedure Start Time:	-	
1.7	Report to EA/DP for a briefing and record spaces provided below. If the TSC is not yet from the OSC or the Control Room.	the following activated, of	ng information in the
	1.7.1 Team Identification:		
	1.7.2 Emergency Classification:		_
	1.7.3 Has Release Started? If so, when?	•	-
-	1.7.4 Plume Type:PUFFGROUND L	VLELEV	ATED
	1.7.5 Current 35' Wind Speed:(mph)	
	1.7.6 Current 150' Wind Direction:	_(deg)	T THE STATE OF THE
~ ,	1.7.7 Initial Survey Route Assignment:		
•	NWNESESW		The state of the s
	- OR -		
	Initial Survey Location:		
			- 1

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A5	4 0
1.7.8 Desired Surveys at Initial Location:	5.715EB
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1.7.9 Air Sampling: Silver Zeolite	
Charcoal None	
1710 Dell's Branches A.C. T. J. C.	
1.7.10 Public Protective Actions Implemented:	
	_
1.7.11 Special Precautions or Instructions:	_
	_
	_
1.8 Locate one of the vehicles for the keys obtained. This vehicle shall r	neet the
requirements of Section C.3.1.6.	
101 16 111 111 111 111 111 111	000
1.8.1 <u>If</u> no vehicles are readily available, request the assistance of the the EA & DP in obtaining a suitable vehicle.	OSC or
ine Dit will in comming a suitable vernole.	
1.8.2 If a vehicle cannot be obtained, a volunteered personal vehicle	may be
used if it meets the requirements of Section C.2.0 and C.3.1.6	
1.9 Obtain monitoring equipment and prepare vehicle as follows:	
1.9.1 Obtain a cell phone and phone number to call from EA/DP.	
1.9.1.1 Verify that EA/DP has cell phone number for each	offsite
FMT.	. 0110110
	 -
NOTE:	
EA/DP will designate which communications device	e is the
	- 10 HIC

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1.9.2 Obtain an airborne radiological monitoring team kit from the emergency cabinets in the ERF.

NOTE: Complete inventory of kit only needed if seal is broken.

- 1.9.3 Perform operability checks on monitoring equipment, before leaving the ERF, in accordance with instrument use procedures provided in kit.
 - 1.9.3.1 <u>If</u> any piece of equipment fails its operability check, obtain a calibrated replacement from other kits or from other station sources.
- 1.9.4 Obtain a 60-watt monitoring team radio unit with magnetic mount antenna from the emergency cabinets in the ERF.
- 1.9.5 If the OSC has explicitly directed the use of protective clothing and/or respirators, this equipment shall be donned prior to leaving the station.
- 1.9.6 Remove the survey maps, survey logs, procedures, the beta-gamma survey instrument, radios, and other equipment that may be needed enroute, from the monitoring kits and stow in a location accessible to the team leader while enroute. Remove and don PIC, zero as necessary.
- 1.9.7 Load monitoring team equipment into the vehicle so that it is safely restrained and will not affect the operation of the vehicle.
- 1.9.8 Install radio equipment on the vehicle.
- 1.9.9 Prior to leaving site perform a cell phone and/or radio check with EA & DP, to verify the operability of the communications equipment.
 - 1.9.9.1 <u>If</u> radio equipment and/or cell phone is inoperable, obtain replacement equipment.
- 1.10 Provide the following information to the EA & DP personnel:
 - 1.10.1 Name and badge numbers of team members.
 - 1.10.2 Current pocket dosimeter reading and exposure limits.

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- 1.11 Obtain a copy of the Field Monitoring Team Log (Form 2.3-1), and complete the following entries in the spaces provided:
 - 1.11.1 GAS TANK LEVEL -- indicate gas tank level by drawing a vertical line across the scale.
 - 1.11.2 TEAM -- indicate the team designation by circling one of the numbers and circling "OFFSITE".
 - 1.11.3 ROUTE -- if so assigned, indicate the assigned survey route by circling one of the distances and one of the quadrants. Otherwise, circle "N/A".
 - 1.11.4 DATE -- Enter today's date.
 - 1.11.5 TEAM MEMBERS -- print the name and badge number of team members.
 - 1.11.6 INSTRUMENT SERIAL NUMBERS -- enter the serial number for survey instruments.
- 1.12 Proceed to the first survey location, when directed.
- 1.13 Perform requested surveys in accordance with the remaining steps of this procedure.
 - 1.13.1 If the TSC/EOF is not yet activated, and the OSC or Control Room has not specified a first survey location, the monitoring team shall proceed as described in Step D.3.0.

2.0 <u>Continuing Actions</u>

NOTE:

The instructions in this section are applicable during all offsite monitoring team activities, and shall be performed in conjunction with other steps as appropriate.

2.1 Team members shall periodically read their pocket dosimeter and report their cumulative radiation reading to the TSC/EOF no less than every 30 minutes or as directed.

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- Team members shall take appropriate actions to prevent the spread of detected contamination to their skin, clothing, survey equipment, and/or vehicle to the extent possible.
- 2.3 Team members shall not eat, drink, or smoke in areas with greater than background contamination or airborne activity.

NOTE:

Periodically check communication with EA/DP. The cell phone may disconnect if you pass through a "weak signal" area.

- 2.4 Keep the communications equipment turned on at all times while away from the station.
- 2.5 All communications between the monitoring teams and EA & DP shall follow standard radio protocol (Attachment 7).
 - 2.5.1 Identify survey locations using predesignated survey locations to the extent possible.
 - 2.5.2 All survey data reports to EA & DP shall use the following format:

NOTE:

To facilitate the transfer of data, the Field Monitoring Team Log used by the monitoring team, and the Field Monitoring Worksheet used by EA & DP has similarly labeled blanks. It is only necessary to transfer the variable information. Fixed information such as Column headings and units need not be relayed. This protocol will minimize communication errors.

- 2.5.2.1 Report all survey data on the worksheet in relation to its block number, rather than its parameter name. For example, "...Block 1 is A point one point one; Block 5 is four zero zero; Block 3 is zero point five;....".
- 2.5.2.2 Do not report units such as mR/hr, ft3.

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- 2.6 <u>If</u> members of the public or the news media solicit information from the monitoring team, the team shall:
 - 2.6.1 Be courteous.
 - 2.6.2 Explain that the survey is a precautionary measure, and, that the survey data are raw data that have not been evaluated, and, that significant final data will be reported to State and local authorities.
 - 2.6.3 Direct additional <u>public</u> questions to the local county information line. The telephone number is provided in the emergency response section (blue pages) of the telephone directory.
 - 2.6.4 Direct additional <u>news media</u> questions to the Chief Company Spokesperson at 412-604-4923.
- 2.7 Remain alert to the status of consumable supplies, such as vehicle gas, sample media and survey meter batteries, and notify EA & DP of any pending shortfalls.
- 2.8 In the event of a monitoring team shift change associated with a longer term emergency response, the off-going monitoring team will complete the FINAL CONDITIONS of this procedure. The oncoming team will initiate a new copy of this procedure, re-performing or verifying the preliminary steps above, as directed by EA & DP or the OSC.

3.0 <u>Default Survey</u>

NOTE:

The steps in this section are performed whenever the OSC or the Control Room does not provide an initial survey assignment. This may occur during a quickly breaking incident prior to activation of the OSC or TSC/EOF. Generally, by the time that the team has completed the preliminary steps of this procedure, the TSC/EOF will have been activated.

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- 3.1 Locate the survey map and the survey point index for the assigned map quadrant.

 (Attachments 2 through 5)
 - 3.1.1 If the quadrant was not assigned, select the quadrant into which the wind is blowing:

Wind Direction	Quadrant	Attachment
0 – 90	sw	3
90 – 180	NW	2
180 - 270	NE	5
270 – 360 · ·	SE	4

- 3.2 <u>If</u> weather permits, perform a moving dose rate survey (Step 4.0) while enroute to the first survey location.
 - 3.2.1 If there is a BVPS monitoring team at that location, proceed to the next location on the survey route.
 - 3.2.2 The first survey location is indicated on each quadrant attachment (Attachments 2 through 5).
- 3.3 Perform a stationary dose rate survey (Step 5.0) at this location.
- 3.4 <u>If</u> the open window dose rate is greater than the closed window dose rate, obtain a 10 ft3 air sample and perform field screening on the sample media as described in Step 6.0.
- 3.4.1 Use a silver zeolite cartridge for iodine sampling. Ensure cartridge shelf life is not expired.
- 3.5 Record all data on the Field Monitoring Team Log.
- 3.6 Report the data to the OSC or Control Room.
- 3.7 Proceed to the next survey point on the route.
- 3.8 Repeat Steps 3.2 to 3.7 until directed otherwise.

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4.0 Moving Dose Rate Survey

NOTE:

Moving dose rate surveys are performed to locate the boundaries of the plume, and/or, to locate plume centerline. The steps in this section are performed when in enroute to the first survey location, while enroute between survey locations, and as directed by EA & DP.

NOTE:

Whenever possible an ion chamber instrument, such as the Eberline RO- series, should be used for making dose rate measurements. However, an instrument with an energy-compensated GM probe, such as the Eberline HP-270, is an acceptable substitute for gamma exposure measurements.

NOTE:

Team SRD readings should be reported to EA & DP approximately every 30 minutes or, in higher dose rate areas, every 100 mrem.

- 4.1 Select a beta-gamma instrument.
- 4.2 Close the beta window.
- 4.3 Open the vehicle window and hold the instrument at the opening.
- 4.4 Travel along the designated survey route at a low rate of speed (within speed limits, no greater than 30 mph).
- 4.5 Monitor instrument read-out and note changes in instrument response.
 - 4.5.1 Report the first increase (>1.0 mrem/hr) in ambient dose rate above background to EA & DP and log the location on the Field Monitoring Team Log.
 - 4.5.2 If the ambient dose rate increases to 100 mR/hr:
 - 4.5.2.1 Immediately move away to an area of lower dose rate.
 - 4.5.2.2 Notify EA & DP and request instructions.

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4.5.3 If the survey is being performed to locate the leading and trailing edges of the plume also report significant decreases in ambient dose rates.

5.0 <u>Stationary Dose Rate Survey</u>

NOTE:

Whenever possible an ion chamber instrument, such as the Eberline RO- series, should be used for making dose rate measurements. However, an instrument with an energy compensated GM probe, such as the Eberline HP-270, is an acceptable substitute for gamma exposure measurements.

CAUTION:

At each survey location:

- Shut vehicle off.
- Place in park and set emergency break.
- Choke wheels or turn wheels into object, (i.e., curb, to keep from drifting).
- Activate flashers.
- Put on reflective vest.
- 5.1 Take a closed window reading.
 - 5.1.1 Check the beta window closed.
 - 5.1.2 Hold the instrument, or instrument probe parallel to, facing, and about 3 feet (e.g., waist height) above the ground.
 - 5.1.3 Allow sufficient time for the instrument reading to stabilize.
 - 5.1.4 Record reading, in Column 3 (in mR/hr), on the Field Monitoring Team Log.
- 5.2 Take an open window reading.
 - 5.2.1 Open the beta window.

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- 5.2.2 Hold the instrument, or instrument probe parallel to, facing, and about 3 feet (e.g., waist height) above the ground. Allow sufficient time for the instrument reading to stabilize. Note the reading.
- 5.2.3 Rotate the instrument beta window to face upwards. Allow sufficient time for the instrument reading to stabilize. Note the reading.
- 5.2.4 Record the higher reading, Column 4 (in mR/hr), on the Field Monitoring Team Log.
- 5.2.5 Vary the height of the instrument, or probe, between waist height and 3 inches above the ground.
 - 5.2.5.1 If the open window reading is higher, closer to the ground, record and label the 3 inch reading in the REMARKS Column.
- 5.3 If an air sample was requested for this location, proceed to Step 6.0.
- 5.4 When all measurements required at this location have been obtained, report the data (blocks 1 11) to EA & DP. Await further instructions.

6.0 <u>Airborne Activity Sampling</u>

NOTE:

If the open window dose rate measurement is about equal to the closed window reading, the survey location is not submerged in the plume and air samples will underestimate the plume concentration. Notify EA & DP if this is the case and request instructions.

- 6.1 Prepare sampler:
 - 6.1.1 If not already present, mark a flow arrow on the side of the charcoal or silver zeolite cartridge.
 - 6.1.1.1 EA & DP will direct which iodine sample media to use.
 - 6.1.2 Place a clean particulate filter, and the iodine sample cartridge, in the sample holder and install on the sampler.
 - 6.1.2.1 Air flow shall pass through the particulate paper first and then the cartridge in the direction of the arrow marked on the cartridge.

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- 6.1.2.2 If EA & DP does not request an iodine sample, use a single charcoal cartridge as a place-holder. Re-use this cartridge for all subsequent particulate sample.
- 6.1.3 Position the sampler so that the intake is not in close proximity to potentially contaminated surfaces. Protect the filter paper and iodine cartridge from rain.
- 6.1.4 If the air sampler has an integral battery, proceed to Step D.6.2.

CAUTION:

In the steps to follow, use caution when connecting the air sampler power leads to the vehicle battery. Specifically:

- Shut car off, if not already done.
- Put on eye protection.
- Self check to determine positive and negative battery terminals.
- Avoid the fan, fan belt, and other potentially engine moving parts when positioning and connecting power leads.
- Avoid contact with battery acid corrosion residue.
- To minimize the potential for hydrogen explosion, do NOT connect or disconnect the sampler power leads while the sampler is turned on
- Place the positive clamp of the air sampler on the positive battery terminal, the negative clamp on the air sampler on the negative battery terminal making sure that proper connections are made.
- 6.1.5 Connect the sampler to the vehicle battery.
- 6.2 Obtain the sample:
 - 6.2.1 Turn on the sampler
 - 6.2.2 Record the sample start time on an Air Sample Record Card.

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6.2.3 Read the flow rate, and determine the sampling time:

Desired Volume ft³
Sample Flow Rate, cfm = Sample Time, in minutes

6.2.3.1 The desired sample volume is 10 ft3, unless directed otherwise by EA & DP personnel.

CAUTION:

- Turn off air sampler prior to removing air sampler power leads.
- Disconnect negative clamp.
- Disconnect positive clamp.
- 6.2.4 When the sample time has elapsed, stop the sampler and record the stop time on an Air Sample Record Card.
- 6.2.5 Complete other data requested on Air Sample Record Card. (Attachment 6)
- 6.3 Using the E140N with a HP210 probe, obtain a background reading.
 - 6.3.1 Check that the RESPONSE control is set for the slowest response. If instrument has a speaker, ensure it is turned on.
 - 6.3.2 Position the probe over the location where the sample media will be counted.
 - 6.3.3 Evaluate background count rate.
 - 6.3.3.1 <u>If</u> the background exceeds 30,000 cpm, notify EA & DP and request clearance to move to an area of lower background.
 - 6.3.4 Note and record the background count rate in Column 7 (in cpm) on the Field Monitoring Team Log.

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6.4 Perform field screening of the sample media.

CAUTION

Handle sample media in a manner that minimizes cross-contamination of sample media or the removal of activity from the sample media. As example:

Handle all sample media by the edges.

Place, do not slide, sample media into sample bags.

Do not shake sample bags, or squeeze sample bags together.

- 6.4.1 Remove the sample media from the sample holder.
- 6.4.2 Count the filter paper and the iodine cartridge separately.
 - 6.4.2.1 Place the filter paper on a clean surface.
 - 6.4.2.2 Hold the HP210 probe about 0.5 inches above the filter paper.
 - 6.4.2.3 Record the gross instrument reading, in Column 5 (in cpm), on the Field Monitoring Team Log.
 - 6.4.2.4 Place the iodine sample cartridge on a clean surface, flow arrow pointing downward.
 - 6.4.2.5 Hold the HP210 probe about 0.5 inches above the face of the sample cartridge.
 - 6.4.2.6 Record the gross instrument reading, in Column 6 (in cpm), on the Field Monitoring Team Log.
- 6.5 On the Field Monitoring Team Log,
 - 6.5.1 Record the sample volume in Column 8 (in cu ft),.
 - 6.5.2 Circle the iodine sample type, if applicable, in Column 9.
 - 6.5.3 Record the team member SRD readings in Columns 10 and 11. (in mR)

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6.6 When all measurements required at this location have been obtained, report the data (blocks 1 - 11) to EA & DP. Await further instructions.

E. FINAL CONDITIONS

- 1.0 All sample media are properly bagged, labeled, and have been returned to the station for possible laboratory analysis.
- 2.0 All survey logs are complete, and signed by the team leader.
- 3.0 Survey logs shall be attached to this procedure, and the procedure forwarded to the EA & DP Coordinator in the TSC/EOF, and then upon termination of the emergency, to the Communications and Records Coordinator.
- 4.0 <u>If</u> the team has been directed to turnover to a relief team, the oncoming monitoring team has been briefed by the off-going team regarding the status of monitoring equipment, supplies, the vehicle, and other pertinent information.
- 5.0 <u>If</u> the team has been directed to return to the station without turnover, all monitoring equipment, including the vehicle, has been returned to the original storage location, or another location designated by EA & DP.
- 6.0 Procedure Complete

6.2 Team Leader:

F. REFERENCES

- 1.0 "Airborne Radioactivity Sampling" HPM RP 7.3
- 2.0 <u>Portable Air Samplers Model H-809C, H-809V, H-809B2 (RADECO)</u>. HPM RIP-6.6
- 3.0 Condition Report #00-2202
- 4.0 Condition Report #02-03520
- 5.0 Condition Report #02-03436

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G. <u>ATTACHMENTS</u>

- 1.0 Worksheet 2.3-1, Field Monitoring Team Log
- 2.0 NW Offsite Survey Map
- 3.0 SW Offsite Survey Map
- 4.0 SE Offsite Survey Map
- 5.0 NE Offsite Survey Map
- 6.0 Air Sample Record Card
- 7.0 Radio Protocol

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WORKSHEET 2.3-1, FIELD MONITORING TEAM LOG

						Gas Tan	k	Ten	m	7	¹ Route	Date
		1	Field Mon	itoring Te	em Log	ĮII.	1 1	2 3		S mi		
Survey Point	Time	Dose Ra	te, mR/hr	E140N Brees	Field Scree	ning, cpm	Sample Vol.		Member	RD, mR Member	Ren	narks
	2	3	4	5				5		1111	7 7 7	*
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INSTRUCTIONS

One Time Entries

- a. GAS TANK -- Enter the gas tank level at the start of monitoring.
- b. TEAM -- Circle the appropriate team designation(s).
- c. ROUTE If assigned a specific route, circle the distance and quadrant designations. IF NOT, circle "N/A".
- d. DATE Enter the current date.
- e. TEAM MEMBERS -- Enter the name and badge number of the team members. Member #1 should be the team leader.
- f. INSTRUMENT SERIAL NUMBERS -- Enter the serial numbers of the instruments that will be used.
- g. TEAM LEADER -- The team leader signs the form when the form is complete.

For Each Survey Point

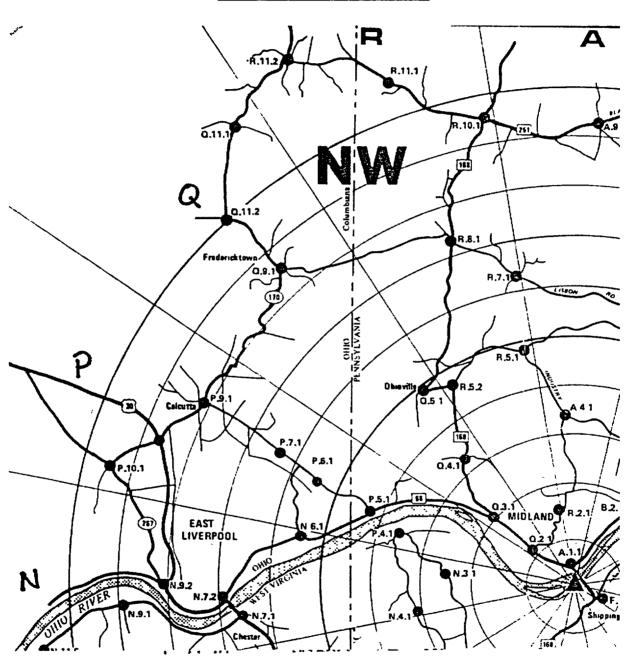
- 1. SURVEY POINT -- Enter the survey point designation, (e.g., A.1.1. If a non-standard survey location, enter an asterisk in Column 1 and put a description of the location in the remarks section.
- 2. TIME -- Enter the time that the measurements were taken. For air samples, use the start time of the sampling period.
- 3,4 DOSE RATE -- Enter the closed window B-G dose rate in mR/hr and the open window B-G dose rate in mR/hr in Columns 3 and 4 respectively.
- 5,6,7 FIELD SCREENING -- Enter the gross count rates for particulate and iodine samples, and the background count rate, in cpm, in Columns 5, 6 and 7 as appropriate.
- 8. SAMPLE VOLUME -- Enter the air sample volume in Column 8.
- 9. CARTRIDGE TYPE -- Circle the iodine sample media type in Column 9.
- 10,11 TEAM SRD, mR/hr -- Enter the team members self-reading dosimeter dose in Columns 10 and 11. Use Column 10 for team member #1 identified at the bottom of the log and Column 11 for team member #2.
- 12. Enter any remarks necessary in the Remarks Column.
- NOTE: When reporting these data back to EA & DP, report the data by Column number and value. For example: "...Column 1 A point 1 point 1, Column 2 fourteen hundred, Column 3 zero point zero one, Column 2 zero point zero three, Column 5 none..." Use "none" to report any Columns for which data were not collected.

2.3-1

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NW OFFSITE SURVEY MAP



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NORTHWEST 5 MILE ROUTE

<u>POINT</u>	LOCATION	RADIO . COMMUNICATION
F.1.1 Q.3.1 P.5.1 P.6.1 N.6.1	Plant Entrance Intersection of Rt's 168 & 68 Intersection of Rt. 68 and Calcutta-Smith Ferry Rd. Top of Hill Calcutta-Smith Ferry Rd. and Fisher Ave Intersection of Parkway Rd. & Ohio Rt. 39	Good Good Good e. Good Good

NORTHWEST 10 MILE ROUTE

	•	RADIO
<u>POINT</u>	<u>LOCATION</u>	<u>COMMUNICATION</u>
F.1.1	Plant Entrance	Good
A.1.1	Rt. 168 Bridge on Midland side of Ohio River	Good
Q.3.1	Intersection of Rt. 168 & 68	Good
Q.4.1	Rt. 168 & Eastwood Dr.	Good
Q.5.1	Ohioville Vol. Fire Dept. off Rt. 168	Good
R.8.1	Intersection of Rt. 168 & Lisbon Rd.	Good
R.10.1	Intersection of Rt's 251 & 168	Fair
R.11.1	Intersection of Rt. 251 & State Gamelands Rd.	Poor
R.11.2	Intersection of Rt's 170 & 251	Poor
Q.11.1	Intersection of Rt. 170 & Clarkson Pancake Rd.	Good
Q.11.2	Intersection of Rt. 170 & Frederickstown Clarkson R	d. Good
Q.9.1	Intersection of Rt. 170 & Frederickstown Rd.	Good
P.9.1	Intersection of Rt. 170 & Calcutta-Smith Ferry Rd.	Good
P.10.1	Intersection of Rt. 267 & T928 (Irish-Ridge Rd)	Good
N.9.2	Intersection of Rt's 267 & 39/7 (School)	Fair
N.7.2	Emergency stopping area before Ohio/W.Va. Bridge	Good
	Rt. 30	1
P.5.1	Intersection of Rt. 68 & Calcutta-Smith Ferry Rd.	Good

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NORTHWEST ROUTE

		RADIO
<u>POINT</u>	<u>LOCATION</u>	COMMUNICATION
T 1 1	DI. 4 D 4	
F.1.1	Plant Entrance	Good
A.1.1	Rt. 168 Bridge on Midland Side of Ohio River	Good
Q.3.1	Intersection of Rt. 168 & 68	Good
P.6.1	Top of Hill Calcutta-Smith Ferry Rd. and Fisher Ave	e. Good
N.6.1	Intersection of Parkway Road & Ohio Rt. 39	Poor
Q.4.1	Entrance to Meadowbrook Estates, Rt. 168 &	Good
	Eastwood Dr.	
Q.5.2	Intersection of Tuscarawas Rd. and Rte. 168	Good
Q.5.1	Ohioville Vol. Fire Dept. off Rt. 168	Good
R.8.1	Intersection of Rt. 168 & Lisbon Rd.	Good
R.10.1	Intersection of Rt's 251 & 168	Fair
R.11.1	Intersection of Rt. 251 & State Gamelands Rd.	Poor
R.11.2	Intersection of Rt's 170 & 154	Poor
Q.11.1	Intersection of Rt. 170 & Clarkson Pancake Rd.	Good
Q.11.2	Intersection of Rt. 170 & Fredrickstown Clarkson Re	d. Good
Q.9.1	Intersection of Rt. 170 & Frederickstown Rd.	Poor
P.9.1	Intersection of Rt. 170 & Calcutta-Smith Ferry Rd.	Good
P.10.1	Intersection of Rt. 267 & T928 (Irish-Ridge Rd)	Good
N.9.2	Intersection of Rt's 267 & 39/7 (School)	Good
N.7.2	Emergency stopping area before Ohio/W.Va. Bridge	
- 101 10	Rt. 30	3004
P.5.1	Intersection of Rt. 68 & Calcutta-Smith Ferry Rd.	Good
P.6.1	Top of hill Calcutta-Smith Ferry Rd. and Fisher Ave	
P.7.1	Calcutta Church (Calcutta-Smith Ferry Rd.)	Good
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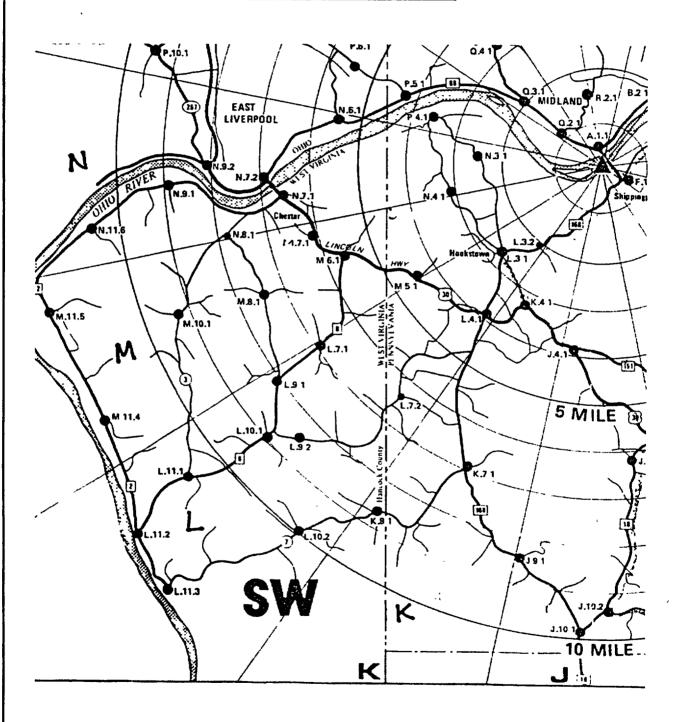
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SW OFFSITE SURVEY MAP



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SOUTHWEST 5 MILE ROUTE

POINT	LOCATION	RADIO <u>COMMUNICATION</u>
F.1.1	Plant Entrance	C 4
		Good
L.3.1	Major Intersection in Hookstown	Good
L.4.1	Intersection of Rt. 168 & Rt. 30	Good
J.4.1	Intersection of Rt. 30 & Tr. 151	Good
H.5.1	Intersection of Rt. 151 & Rt. 18	Good
H.6.2	Intersection of Rt. 18 & Rt. 30	Fair
M.5.1	West on Rt. 30, 1.2 miles Past L.4.1 or East on	Good
	Rt. 30, 1.2 miles Past M.6.1	
M.6.1	Intersection of Rt. 30 & Rt. 8	Good
N.7.1	West Virginia-Ohio Bridge, Rt. 30	Good
N.6.1	Intersection of Rt. 39 & Parkway	Good
Q.2.1	Entrance to J&L Steel, Rt. 68 Midland	Good
A.1.1	Midland Side of Rt. 168 Bridge	Good

SOUTHWEST 10 MILE ROUTE

		RADIO
<u>POINT</u>	<u>LOCATION</u> <u>CC</u>	MMUNICATION
F.1.1	Plant Entrance	Good
L.3.1	Major Intersection in Hookstown	Good
L.4.1	Intersection of Rt. 168 & Rt. 30	Good
J.4.1	Intersection of Rt. 30 & Tr. 151	Good
H.5.1	Intersection of Rt. 151 & Rt. 18	Good
H.6.2	Intersection of Rt. 18 & Rt. 30	Fair
J.10.1	Intersection of Rt. 18 & Rt. 168	Good
J.9.1	Entrance to Youth Forestry Camp Rt. 168	Good
K.7.1	Intersection of Hanover-Kendal Rd. & Rt. 168, 2.7 mile	+
	from J.9.1 or 3.3 miles from L.A.1	
K.9.1	Intersection of Rt. 7 & Rt. 24	Good
L.10.2	Intersection of Rt. 7 & Rt. 26, (Florence Rd.)	Good
	Sewage Lift Station	
L.11.3	Intersection of Rt. 2 & Rt. 7, (Hardin's Run)	Fair
		=

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SOUTHWEST 10 MILE ROUTE

POINT	LOCATION	RADIO COMMUNICATION
- <u> </u>	<u> </u>	<u>COMMICINICITION</u>
L.11.2	Intersection of Rt. 2 & Rt. 8	Good
M.11.4	Bridge of Tomlinson Lake, Rt. 2	Good
M.11.5	Intersection of Rt. 2 & Rt. 208	Good
N.11.6	Intersection of Rt. 2 & Rt. 3/6, R.R. Crossing	g Good
N.9.1	Intersection of Rt. 2 & Rt. 1	Good
N.7.1	West Virginia-Ohio Bridge, Rt. 30	Good
N.6.1	Intersection of Rt. 39 & Parkway	Good
Q.2.1	Entrance to J&L Steel Rt. 68 Midland	Good
A.1.1	Midland Side of Rt. 168 Bridge over Ohio	Good
L.4.1	Intersection of Rt. 168 & Rt. 30	Good

SOUTHWEST ROUTE

		RADIO
<u>POINT</u>	<u>LOCATION</u>	COMMUNICATION
	,	
F.1.1	Plant Entrance	Good
L.3.1	Major Intersection in Hookstown	Good
L.4.1	Intersection of Rt. 168 & Rt. 30	Good
J.4.1	Intersection of Rt. 30 & Tr. 151	Good
H.5.1	Intersection of Rt. 151 & Rt. 18	Good
H.6.2	Intersection of Rt. 18 & Rt. 30	Fair
J.10.1	Intersection of Rt. 18 & Rt. 168	Good
J.9.1	Entrance to Youth Forestry Camp Rt. 168	Good
K.7.1	Intersection of Hanover Rd. & Rt. 18, 2.7 mile	es Good
	from L.4.1	
M.5.1	West on Rt. 30, 1.2 miles Past L.4.1 or East o	r Good
	East on Rt. 30, 1.2 miles Past M.6.1	
M.6.1	Intersection of Rt. 30 & Rt. 8	Good
N.7.1	West Virginia-Ohio Bridge, Rt. 30	Good
A.1.1	Midland Side of Rt. 168 Bridge	Good
Q.2.1	Entrance to J&L Steel, Rt. 68 Midland	Good
N.6.1	Intersection of Rt. 39 & Parkway Rd.	Good
	•	

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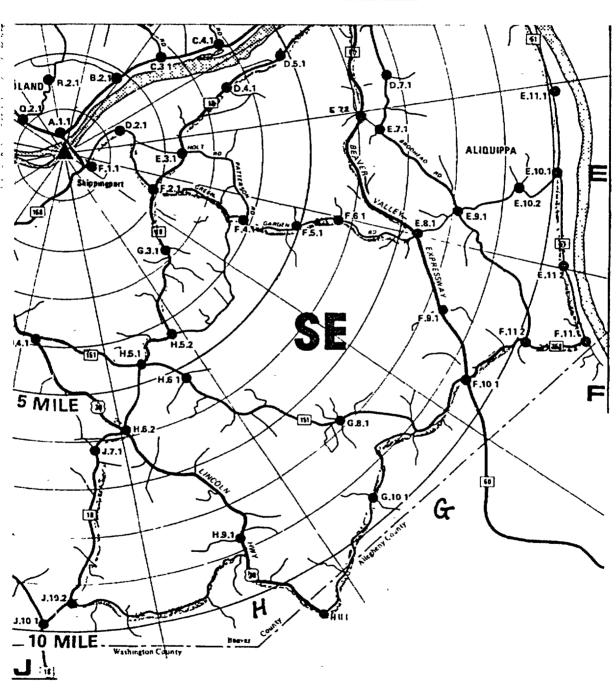
SOUTHWEST ROUTE

<u>POINT</u>	LOCATION	RADIO COMMUNICATION
N.4.1	Second Bridge Past Hookstown Intersection	Good
P.4.1	Georgetown Sand & Gravel	Good
N.3.1	Top of Hill Next to DLCO Radio Tower	Good
L.7.1	Intersection of Rt. 8 & Rt. 14	Good
L.9.1	Intersection of Rt. 8 & Rt. 5	Good
L.10.1	Tomlinson Run State Park Entrance, Rt. 8	Good
L.11.1	Intersection of Rt. 8 & Rt. 3	Good
L.9.2	Oak Glen High School, County Rd. 18	Good
L.7.2	Intersection of Pumpkin Hollow Rd.	
	& Gas Valley Rd.	Fair
N.9.1	Intersection of Rt. 2 & Rt. 1	Good
N.11.6	Intersection of Rt. 2 & Rt. 3/6, RR Crossing	Good
M.11.5	Intersection of Rt. 2 & Rt. 208	Good
M.11.4	Bridge Over Tomlinson Lake, Rt. 2	Good
L.11.2	Intersection of Rt. 2 & Rt. 8	Good
L.11.3	Intersection of Rt. 2 & Rt. 7, (Hardin's Run)	Fair
L.10.2	Intersection of Rt. 7 & Rt. 26, (Florence Rd.)	
K.9.1	Intersection of Rt. 7 & Rt. 24	Good
M.10.1	Intersection of Rt. 3 & Rt. 208	Good
N.8.1	Intersection of Rt. 3/2 & Rt. 5	Good
M.8.1	Intersection of Rt. 5 & Rt. 208	Good

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SE OFFSITE SURVEY MAP



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SOUTHEAST 5 MILE ROUTE

			RADIO
	<u>POINT</u>	LOCATION	<u>COMMUNICATION</u>
	F.1.1	Plant Entrance	Cond
	D.2.1	Bruce Mansfield Plant Entrance	Good
			Good
	F.2.1	Intersection of Rt. 18 & Green Garden Rd.	Good
	E.3.1	Intersection of Rt. 18 & Holt Rd.	Good
	D.4.1	"Y" in road at Rt. 18 and Mowry Rd.	Good
	D.5.1	Main Plant Entrance NOVA CHEMICALS,	Rt. 18 Good
	D.6.1	Zinc Corp. of American Entrance, Rt. 18	Good
	E.7.2	Center Exit of Rt. 60	Good
	E.8.1	Aliquippa Exit of Rt. 60	Good
	F.6.1	Intersection of Penny Hollow Park Rd. &	Good
		Green Garden Road	
	F.4.1	Intersection of Green Garden Rd. & Patterson	n Rd. Good
	G.3.1	Superior Mobile Homes, Rt. 18 and Calhoun	
	H.5.1	Intersection of Rt's 18 & 151	Good
	J.4.1	Intersection of Rt's 30 & 151	Good
r i	L.3.1	Main Intersection in Hookstown	
		TAMES TITLES DESCRIOTE THE LEGISLAND	Good

SOUTHEAST 10 MILE ROUTE

<u>POINT</u>	LOCATION	RADIO COMMUNICATION
F.1.1	Plant Entrance	Good
D.2.1	Bruce Mansfield Plant Entrance	Good
F.2.1	Intersection of Rt. 18 & Green Garden Rd.	Good
E.3.1	Intersection of Rt. 18 & Holt Rd.	Good
	1.1 mile from F2.1	
D.4.1	"Y" in road at Rt. 18 and Mowry Rd.	Good
D.5.1	Main Plant Entrance NOVA CHEMICALS, R	t. 18 Good
D.6.1	Zinc Corp. of American, Rt. 18	Good
D.8.1	Intersection of Rt's 18 & 51, Beaver Valley M	all Good
D.9.1	Walmart Plaza, Rt. 18/51	Good

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SOUTHEAST 10 MILE ROUTE

POINT	<u>LOCATION</u> <u>COM</u>	RADIO MUNICATION
D.10.1	Pheonix Glass Parking Lot, Penn Ave., Monaca	Good
D.10.2	Intersection of Constitution Blvd. and Monaca Rd.	Good
E.11.1	Entrance to West Aliquippa, Constitution Blvd.	Good
E.10.1	Intersection of Constitution & Franklin Ave.	
	(Old Entrance to J&L Steel Plant)	Good
E.10.2	Intersection of Franklin Ave. &	Good
	Kennedy Blvd., Aliq.	
E.11.2	Ambridge-Aliquippa Bridge, Constitution Blvd.	Fair
F.11.1	Phillips Power Station, Constitution Blvd./Rt. 51	Poor
F.11.2	Intersection of Rt's 51 & 151	Good
F.10.1	Intersection of Rt's 151 & 60, 60 overpasses 151	Good
G.10.1	2nd Intersection Past Booktown (off Rt. 151)	Good
H.11.1	Janoskis Farm Rt. 30 - Allegheny Co.	Fair
H.9.1	Raccoon Park Entrance, Rt. 30	Fair
J.10.1	Intersection of Rt's 18 & 168	Good
H.6.2	Intersection of Rt's 18 & 30	Fair
J.4.1	Intersection of Rt's 30 & 151	Good
L.3.1	Main Intersection in Hookstown	Good

SOUTHEAST ROUTE

		RADIO
<u>POINT</u>	LOCATION	COMMUNICATION
F.1.1 :	Plant Entrance	Good
D.2.1	Bruce Mansfield Plant Entrance, Rt. 18	Good
F.2.1	Intersection of Rt. 18 & Green Garden Rd.	Good
E.3.1	Intersection of Rt. 18 & Holt Rd.	Good
D.4.1	"Y" in road at Rt. 18 and Mowry Rd.	Good
D.5.1	Main Plant Entrance NOVA CHEMICALS,	Rt. 18 Poor
D.8.1	Intersection of Rt's 18 & 51, Beaver Valley !	Mall Good
D.9.1	Walmart Plaza, Rt. 18/51	Good
D.10.1	Pheonix Glass Parking Lot, Penn Ave., Mon	aca Good

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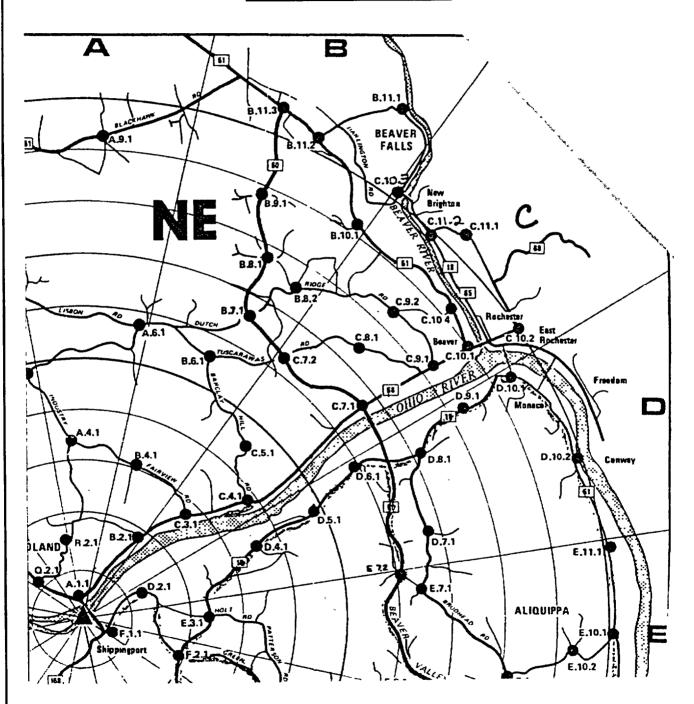
SOUTHEAST ROUTE (Continued)

•	POINT	<u>LOCATION</u> <u>COM</u>	RADIO <u>MUNICATION</u>
	D.10.2	Intersection of Constitution Blvd. and Monaca Rd.	Good
	E.9.1	Intersection of Brodhead Rd. and Kennedy Blvd.	Good '
	E.11.1	Entrance to West Aliquippa, Constitution Blvd.	Good
	E.10.1	Entrance to Aliquippa from Constitution Blvd.	Good
	E.10.2	Inter. of Franklin Ave. & Kennedy Blvd., Aliq	Good
	E.11.2	Ambridge-Aliquippa Bridge, Constitution Blvd.	Fair
	F.11.1	Phillips Power Station, Constitution Blvd./Rt. 51	Poor
	F.11.2	Intersection of Rt's 51 & 151	Good '
	F.10.1	Intersection of Rt. 151 and Rt. 60,	Good
		60 overpasses 151	
	H.11.1	Mazzaro Coal- right side Rt. 30 - Allegheny Co.	Fair
	H.9.1	Raccoon Park Entrance, Rt. 30	Fair
	J.10.1	Intersection of Rt's 18 & 168	Good
	G.8.1	Steel Bridge on Rt. 151	Good
	H.6.1	2 Miles east from 18 & 151 Intersection or	Good '
		2 Miles west on Rt. 151 from G.8.1	
	H.5.1	Intersection of Rt's 151 & 18	Good
	H.6.2	Intersection of Rt's 18 & 30	Fair
	G.3.1	Superior Mobile Homes, Rt. 18 and Calhoun Rd.	Good
	L.3.1	Main Intersection in Hookstown	Good
	D.7.1	Entrance to Community College of	Good
		Beaver County, Brodhead Road	
	E.7.1	BCTA Expressway Travel Center	
		off of Rt. 60 Ramp	Good
	E.7.2	Center Exit of Rt. 60	Good
	F.9.1	Bridge on Rt. 60, 1.6 miles north of Hopewell exit	Good
	E.8.1	Aliquippa Exit of Rt. 60	Good
	F.6.1	Penny Hollow Park Rd. & Green Garden Rd.	Good
	F.4.1	Intersection of Green Garden Rd. & Patterson Rd.	Good
	G.10.1	2nd Intersection past Booktown (off Rt. 151)	Good

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NE OFFSITE SURVEY MAP



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NORTHEAST 5 MILE ROUTE

<u>POINT</u>	LOCATION	RADIO COMMUNICATION
F.1.1	Plant Entrance	Good
A.1.1	Rt. 168 Bridge on the Midland side of Ohio	
B.2.1	Red Brick Bldg. on left side of Rt. 68, 1.5 m from A.1.1	Good
C.3.1	Intersection of Rt. 68 & Engle Rd.	Good
C.4.1	Intersection of Rt. 68 & Barclay Hill Rd.	Good
C.5.1	Inter. of John E. Gray Dr. & Barclay Hill Rd.	
B.6.1	Intersection of Barclay Hill Rd. & Tuscarawa	as Rd. Good
A.6.1	Intersection of Lisbon Rd. and Tuscarawas R	.d. Good
R.5.1	Intersection of Engle Rd. & Tuscarawas Road	
R.5.2	Intersection of Tuscarawas Rd. & Rt. 168	Good
Q.4.1	Intersection on Rt. 168, Eastwood Rd.	Good
Q.3.1	Intersection of Rt. 168 and Rt. 68	Good

NORTHEAST 10 MILE ROUTE

20212		RADIO
POINT	<u>LOCATION</u> <u>CO</u>	<u>MMUNICATION</u>
F.1.1	Plant Entrance	Good
A.1.1	Rt. 168 Bridge on the Midland side of Ohio Rive	
B.2.1	Red Brick Bldg. on left side of Rt. 68, 1.5 m from A.1.1	Good
C.3.1	Intersection of Rt. 68 & Engle Rd.	Good
C.4.1	Intersection of Rt. 68 & Barclay Hill Rd.	Good
C.7.1	Intersection of Rt. 68 & Rt. 60 Rt. 68 overpasses Rt. 60	Good
C.9.1	Beaver County Courthouse, Rt. 68	Good
C.10.1	Intersection of Rt's 68 & 51, 68 overpasses 51	Good
C.10.2	Huntsman Funeral Home at right angle bend in Rt. 68	Good
C.11.1	Four way intersection at bottom of Marion Hill	Good

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NORTHEAST 10 MILE ROUTE (Continued)

		RADIO
<u>POINT</u>	<u>LOCATION</u> COM	MUNICATION
C.10.3	Morrow Ford across bridge over Beaver River,	Good
	Rt. 18	
B.11.1	3 way inter. at Geneva College Athletic complex	Fair
B.11.3	Intersection of Rt's 60 & 51 at Chippewa	Fair
C.11.2	Diamond Milling near N. Brighton/	Good
	Beaver Falls Bridge	
C.10.4	Inter. of Rt 51 & Sharon Rd.	Good
A.9.1	Blackhawk Public Golf Course, Rt. 251	Good
R.10.1	Intersection of Rt's 251 & 168	Fair
R.8.1	Intersection of Lisbon Rd. & Rt. 168	Good
Q.5.1	Ohioville Vol. Fire Dept., Rt. 168	Good
Q.4.1	Intersection on Rt. 168, 2.3m from Q.5.1	Good
Q.3.1	Intersection of Rt's 168 & 68, Midland	Good
-		

NORTHEAST ROUTE

		RADIO
<u>POINT</u>	<u>LOCATION</u>	COMMUNICATION
	,	
F.1.1	Plant Entrance	Good
Q.3.1	Intersection of Rt's 168 & 68, Midland	Good
A.1.1	Rt. 168 Bridge on the Midland side of Ohio R	iver Good
B.2.1	Red Brick Bldg. on left side of Rt. 68,	Good
	1.5 m from A.1.1	
C.3.1	Intersection of Rt. 68 & Industry Engle Rd.	Good
C.4.1	Intersection of Rt. 68 & Barclay Hill Rd.	Good
C.7.1	Intersection of Rt. 68 & Rt. 60	Good
	Rt. 68 overpasses Rt. 60	
C.9.1	Beaver County Courthouse, Rt. 68	Good
C.10.1	Intersection of Rt's 68 & 51, 68 overpasses 51	Good
C.10.2	Huntsman Funeral Home at right angle	Good
	bend in Rt. 68	

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NORTHEAST ROUTE (Continued)

<u>POINT</u>	LOCATION	RADIO COMMUNICATION
C.10.3	Morrow Ford across bridge over Beaver Riv Rt. 18	er, Good
B.11.1	Three-way Inter. at Geneva College Athletic Complex	Good
B.11.2	Intersection of Rt's 588 & 51	Good
B.10.1	Top of Fallston Hill Golf Course	Good
C.10.4	Intersection of Rt. 51 and Beaver Hollow Rd	
C.8.1	Top of Hill on Tuscarawas Rd. at Walington Estates	Good
C.7.2	Intersection of Tuscarawas Rd. and Rt. 60	Good
C.5.1	Inter. of John E. Gray Dr. & Barclay Hill Ro	l. Good
B.6.1	Intersection of Barclay Hill Rd. & Tuscarawa	
A.6.1	Intersection of Lisbon Rd. and Tuscarawas R	.d. Good
R.7.1	Intersection on Lisbon Rd. & Ridgemont Rd.	Good
R.8.1	Intersection of Lisbon Rd. & Rt. 168	Good
R.10.1	Intersection of Rt's 168 & 251	Poor
A.9.1	Blackhawk Public Golf Course, Rt. 251	Poor
Q.5.1	Ohioville Vol. Fire Dept., Rt. 168	Good
Q.4.1	Intersection on Rt. 168 & Eastwood Rd.	Good
Q.3.1	Intersection of Rt's 168 & 68	Good
B.11.3	Intersection of Rt's 60 & 51	Fair
B.9.1	Bridge on Rt. 60 over Brady's Run County Pa	ark Good
B.7.1	Intersection of Dutch Ridge Rd. and Rt. 60	Good
C.7.2	Intersection of Tuscarawas Rd. and Rt. 60	Good
B.4.1	Western Beaver High School	Good
C.9.2	Beaver County Medical CenterDutch Ridge	Rd. Good
R.5.1	Intersection of Engle Rd. & Tuscarawas Rd.	Good
R.5.2	Intersection of Tuscarawas Rd. and Rt. 168	Good

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ATTACHMENT 6 (1 of 1)

AIR SA	AMPLE RECORD CARD	A5.715EA
Air sample location	s:	
Date:	Surveyor:	
Sampler ID#		
Sampler Flow Rate	ft ³ /min	·
Sample time: (10 f	t ³ /Sampler Flow Rate cfm)	
Sample Start Time:	Stop Time:	
Sample Volume: _		

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ATTACHMENT 7 (1 of 2)

RADIO PROTOCOL

Because radio communications is one way at a time (unlike a telephone), the use of a standard protocol is necessary to minimize confusion, speed operation and insure accurate transfer of information.

- 1) Begin a transmission with the name of the receiving party followed by the name of the transmitting party. For example, "Beaver Valley EA & DP this is Field Monitoring Team One, over". Wait for the receiving party to acknowledge before relaying data. During a series of exchanges, terminate each transmission with "over" to indicate to the other person that they may transmit. End the final transmission of a series with an appropriate termination phrase. For example, "Monitoring Team One out".
- 2) Controlling group (EA & DP, OSC) communicators must avoid general statements such as, "Monitoring teams report your dosimeter readings". This can result in confusion due to simultaneous transmissions by two or more teams. Direct such inquiries to each team in sequence. The only exception to this is if no response is needed from the individual teams.
- 3) Certain letters of the alphabet can be confused when said (V and B, P and B, as examples). When spelling words for clarity or giving alphabetic designators, use the standard international phonetic alphabet shown in Step 7. Monitoring locations D.2.1 becomes "Delta point two point one". For a word like bat., say "I spell-bravo, alpha, tango", giving the phonetics slowly.
- 4) Give numerical information as digits rather than reading it as a number. 2432 becomes two, four, three, two rather than two thousand four hundred thirty two. 35.7 becomes three, five, point, seven rather than thirty five and seven tenths.
- 5) Report data as specified in the Field Monitoring EPP/IPs that is by block location on the forms and without units such as mR/hr., cubic ft., or cpm. If units <u>must</u> be given, say them out millirem per hour, counts per minute, etc. Avoid jargon and abbreviations.
- 6) Insure correct data transferal by obtaining repeat backs of all data sent and provide repeat back or acknowledgment of messages received. (Three-way Communication)

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RADIO PROTOCOL

Avoid exclamatory or alarming statements. When you press the microphone button, you are making a public announcement because of the many scanners that can receive business band communications.

INTERNATIONAL PHONETIC ALPHABET

A-ALPHA	J-JULIETT	S-SIERRA
B-BRAVO ,	K-KILO	T-TANGO
C-CHARLIE	L-LIMA	U-UNIFORM
D-DELTA	M-MIKE	V-VICTOR
E-ECHO	N-NOVEMBER	W-WHISKEY
F-FOXTROT	O-OSCAR	X-XRAY
G-GULF	P-PAPA	Y-YANKEE
H-HOTEL	Q-QUEBEC	Z-ZULU
I-INDIA	R-ROMFO	2 2010

Beaver Valley Power Station

Unit 1/2

EPP/IP 2.6.1

DOSE PROJECTION - BACKUP METHODS

<u>Document Owner</u> Manager, Emergency Preparedness

Revision Number	11
Level Of Use	General Skill Reference
Safety Related Procedure	Yes

CONTROLLED BVPS UNIT 3

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EFFECTIVE INDEX

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	2	Non-Safety Related	4-28-89
	3	OSC Approved	3-22-90
	4	OSC Approved	8-16-90
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	1	OSC Approved	12-6-90
	2	Non-Intent Revision	7-31-91
	3	Non-Intent Revision	12-29-92
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Rev.	7	Non-Intent Revision	12-1-95
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Beaver Valley Power Station

Title

DOSE PROJECTION - BACKUP METHODS

Procedure Number:
EPP/IP 2.6.1

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- B. RESPONSIBILITY
- C. ACTION LEVELS/PRECAUTIONS/PREREQUISITES
- D. PROCEDURE
- E. FINAL CONDITIONS
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- G. ATTACHMENTS

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Title	Unit 1/2	Level Of Use General Skill Reference
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A. PURPOSE

This procedure provides instructions for performing an emergency dose assessment using hand calculations. This procedure can also be used as a source of X/Q data for use in other hand calculations.

B. <u>RESPONSIBILITY</u>

This procedure is to be performed by designated shift Radiation Technicians prior to activation of the TSC, as requested by the Nuclear Shift Supervisor.

On activation of the TSC this procedure is performed by designated Environmental Assessment and Dose Projection (EA & DP) personnel. These personnel are authorized to deviate from verbatim compliance with this procedure if instructions in this procedure do not adequately address the actual emergency release situation.

C. <u>ACTION LEVELS/PRECAUTIONS/PREREQUISITES</u>

1.0 Dose projections shall be performed using this procedure whenever the following action levels are present.

NOTE:

ARERAS and the MIDAS software do not require real-time meteorological and radiological inputs to be OPERABLE. <u>IF</u> the MIDAS accident calculations can be started and performed with manual inputs, proceed to EPP/IP 2.6.4, <u>Dose Projection - ARERAS/MIDAS WITH MANUAL INPUTS</u>.

1.1 ARERAS and the MIDAS software are not OPERABLE from within the plant prior to activation of the TSC/EOF; or from within the ERF after activation of the TSC/EOF.

- AND -

1.2 An UNPLANNED RELEASE has occurred.

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- AND -

1.3 The results of an abnormal release evaluation performed in accordance with HPM RP-6.12, or RP-6.12A, indicate that an abnormal release has exceeded Technical Specification/Offsite Dose Calculation Manual limits (i.e., an UNUSUAL EVENT).

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- OR -

One or more effluent radiation monitors has alarmed and the readings are in excess of those values provided as INITIATORS for the UNUSUAL EVENT classification in EPP/I-1.

- 2.0 As requested by the Emergency Director or Emergency/Recovery Manager.
- 3.0 The X/Q portion of this procedure may be performed whenever hand calculations are required and another dose projection method will be used (e.g., EPP/IP 2.6.6, <u>Dose Projection -- Hand Calculation Known Isotopic Release</u>).

4.0 Precautions

- 4.1 The wind direction requested in prompts and displayed on the various printouts is the wind direction from which the wind is coming (upwind), unless otherwise indicated. It is <u>NOT</u> the direction to which the plume is headed (downwind).
- 4.2 All calculations shall be checked for accuracy by another person prior to use in protective action recommendations.
- 4.3 <u>IF</u> using the monitored release worksheets, ensure that the worksheet is proper for the monitor of interest and that data for the appropriate channel are being used.
- This procedure is a sub-procedure to EPP/IP 2.6, Environmental Assessment and Dose Projection Controlling Procedure, and is used in conjunction with that procedure. See also section 6.5.3 of the EPP for additional guidance.

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	Deav	or variey rower station		EPP/IP 2.6.1
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<i>-</i> 0				
5.0	The f	following prerequisites are required for succes	ssful completion	n of this procedure.
5.0	The 1	following prerequisites are required for success Meteorological data are available, either frederived in EPP/IP 2.6.5, Alternate Meteorogy	om the site met	eorological tower or a
5.0		Meteorological data are available, either from	om the site met	eorological tower or a ters.
5.0	5.1	Meteorological data are available, either frederived in EPP/IP 2.6.5, Alternate Meteorogical data are available, either frederived in EPP/IP 2.6.5, and a second se	om the site met logical Parame	eorological tower or a ters. e release:

PROCEDURE

1.0	Compl	ete the following information:	
	1.1	Start of Procedure Date/Time:	
2.0	Obtain the following information from Control Room or TSC personnel.		
	2.1	Type of Accident:	
		2.1.1 <u>IF</u> the type of accident cannot be identified, use LOCA WITH GAP ACTIVITY.	
	2.2	Expected (or known) duration of release: hours.	
		2.2.1 <u>IF</u> the type of accident cannot be estimated, use 1.0 hour, and repeat the projection as better data become available.	
	2.3	Is release monitored?	
3.0	Determ	nine values for the X/Q at the Exclusion Area Boundary, and at 2, 5, and 10	
	3.1	Locate a copy of the X/Q Worksheet (2.6.1-1).	

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- 3.2 Using EPP/IP 2.6.5, Alternate Meteorological Parameters, obtain values for the necessary meteorological parameters and record the values in the spaces provided on the X/Q Worksheet (2.6.1-1).
- 3.3 Using the instructions on the reverse side of the worksheet, determine the X/Q value for each distance of interest.
- 4.0 Select method of source term characterization:
 - 4.1 IF the release was via a monitored release path and monitor data are available, proceed to Step 5.0.
 - 4.2 IF the release was via an unmonitored pathway, proceed to Step 6.0.
 - 4.3 <u>IF</u> the release was via a monitored pathway, but monitor data are unavailable, proceed to Step 6.0.
 - 4.4 <u>IF</u> an imminent release has not started yet, proceed to Step 6.0.
- 5.0 Identify the following data for the effluent radiation monitor channels in alarm or those that have elevated readings:

NOTE:

In obtaining readings, attempt to record an average reading. Avoid short duration (i.e., less than 90 seconds) spikes in monitor reading.

NOTE:

For Unit 2 2MSS*RQ101A,B,C, use the data from effluent channel 4 (2EA005, 4EB005, 6EC005, in uCi/sec).

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		·-·					1 11	A5.715EH
								A3./13E11
				net			Releas	se
		_		cpm, uCi	/cc		Flow	
Monito	r/Char	mel		uCi/sec			cfm	
•								
		_						
	· · · · · · · ·							_
		_						_
	 -							-
		the abov			lect the	e monito	r channel	to be used in this
Ī					NC	TE:	· · · · · · · · · · · · · · · · · · ·	
		e than on uch path.			s affec	ted, this	procedure	shall be repeated for
	5.1.1	Select th	e moni	itor that w	as in al	arm, or,		
	5.1.2			nitor that , RP-6.12.		sed in th	e abnorm	al release assessment
	5.1.3	Select th	e moni	itor that ex	xceeded	the EAL	. INITIAT	OR, or,
	5.1.4						nel (i.e., cl y mid-ran	hannel 5 low, channel ge.
	5.1.5	IF Unit I	l, selec	ct SPING	rather	than Vict	toreen if b	ooth are OPERABLE,
	5.1.6	uCi/cc; u	ise RM		el 3 if t	he readin		ding is less than 0.01 or than 1.0 uCi/cc; use
					-			

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NOTE:

The mid and high range channels on the WRGM are generally not in operation unless the reading on the low range has exceeded the cross-over value of 0.01 uCi/cc.

- 5.2 Locate a copy of the worksheet for this monitor. (See listing under ATTACHMENTS.)
 - 5.2.1 Default Flow Data is available on the back of the worksheet.
- Perform the worksheet calculations in accordance with the instructions on the reverse side of the worksheet.
 - 5.3.1 <u>IF</u> the calculated Total Effective Dose Equivalent (TEDE) at a given distance is less than 1.0 rem, <u>OR</u> <u>IF</u> the calculated thyroid (CDE) at a given distance is less than 5.0 rem, then calculations for further outward distances may be bypassed.
- 5.4 <u>IF</u> more than one release path was affected, proceed as follows:
 - 5.4.1 Record the results from this path below:

Path	TEDE rem	Thyroid CDE rem
		-
Totals =		

- 5.4.2 Repeat Steps 5.2 and 5.4 for each additional path. Use a spare copy of the applicable worksheet(s) and attach this sheet to this procedure when complete.
- 5.4.3 When all paths have been addressed, sum the dose for each path to obtain the total dose. Record the value in the table above, and use the total in all subsequent steps.

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- 5.5 Proceed to Step 7.0.
- 6.0 Locate a copy of the FSAR worksheet.
 - 6.1 Perform the worksheet calculations in accordance with the instructions on the reverse side of the worksheet.
 - 6.1.1 <u>IF</u> the calculated TEDE at a given distance is less than 1.0 rem, <u>OR</u> <u>IF</u> the calculated thyroid CDE at a given distance is less than 5.0 rem, then calculations for further outward distances may be bypassed.
 - 6.2 Continue with Step 7.0.
- 7.0 <u>IF</u> not already done, have all calculations checked by another individual.
- 8.0 Compare the results to the protective action guides.

NOTE:

Radiation Technicians are not required to make Protective Action Recommendations. However, they should provide the Emergency Director/Emergency Recovery Manager dose projection information needed to make protective action recommendations as described in EPP/IP 4.1 "Offsite Protective Actions" if warranted. The following step should be used for this purpose.

Once the TSC/EOF is activated, EA & DP shall develop necessary Protective Action Recommendations and provide these recommendations to the Emergency Director or Emergency/Recovery Manager, in accordance with EPP/IP 4.1.

8.1 <u>IF</u> the TEDE is greater than 1.0 rem or the Child Thyroid CDE is greater than 5.0 Rem, a public protective action may be necessary. Provide the Emergency Director/Emergency Recovery Manager the dose projection information needed for the determination of protective action recommendations per EPP/IP 4.1 "Offsite Protective Actions".

9.0 Compare the results to the Emergency Action Level CRITERIA of EPP/I-1, summarized below.

NOTE:

Radiation Technicians and EA & DP personnel are not required to classify emergencies. However, these personnel should alert the Emergency Director and/or the Emergency/Recovery Manager, when they become aware such an escalation is warranted. The following steps should be used for this purpose.

- 9.1 <u>IF</u> the EAB TEDE exceeds 10 mrem an ALERT EMERGENCY exists.
- 9.2 <u>IF</u> the EAB TEDE exceeds 100 mrem; or <u>IF</u> the EAB Thyroid CDE exceeds 500 mrem; a SITE AREA EMERGENCY exists.
- 9.3 IF the EAB TEDE exceeds 1.0 rem, of if the EAB thyroid CDE exceeds 5.0 rem a GENERAL EMERGENCY exists.
- 10.0 <u>IF</u> any of the following conditions have occurred, perform additional X/Q and dose calculations.
 - 10.1 Effluent radiation monitor readings increase or decrease by more than 20%, OR,
 - 10.2 Wind speed increases or decreases by more than 20%, OR,
 - 10.3 Stability class changes one or more classes towards stable (e.g., ABC to D, E to FG), OR,
 - 10.4 Release duration increases by more than 20%, OR,
 - 10.5 As requested by Nuclear Shift Supervisor.

E. <u>FINAL CONDITIONS</u>

1.0 Assessment results have been reported to the Emergency Director, and/or the Emergency/Recovery Manager, (as appropriate for the emergency classification).

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- 2.0 Assessment results have been compared against the emergency action levels and necessary classification changes have been recommended to the Emergency Director, and/or Emergency/Recovery Manager.
- 3.0 Assessment results have been compared against the protective action guides and necessary offsite protective actions have been recommended to the Emergency Director, and/or the Emergency/Recovery Manager.
- 4.0 Assessment results have been evaluated for impact on onsite personnel and/or traffic control point personnel, and any potential impact has been reported to the NSS, the OSC, or to the Radiological Controls Coordinator in the TSC.
- 5.0 The original of this procedure, with completed worksheets attached, shall be forwarded to the EA & DP Coordinator in the TSC/EOF, and then upon termination of the emergency, to the Communications and Records Coordinator.
 - 5.1 All blank spaces provided in this procedure for recording input shall contain data or shall be marked "N/A".

F. REFERENCES

- 1.0 Conversion Factors for EPP/IP 2.6.1. ERS-MPD-93-010
- 2.0 <u>Conversion Factors for EPP/IP 2.6.1</u>. ERS-MPD-92-023
- 3.0 <u>U1/U2 EPP/IP 2.6.1 Attachment 2 Factors.</u> ERS-SFL-93-028
- 4.0 <u>EPP/IP 2.6.1 Worksheet 1 and xu/Q Graph</u>. ERS-SFL-90-022, Revision 0; 1990.
- 5.0 Recognition and Classification of Emergency Conditions. EPP/I-1a/EPP/I-1b.
- 6.0 Offsite Protective Actions EPP/IP-4.1
- 7.0 Condition Report #00-2202

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G. <u>ATTACHMENTS</u>

1. Graph -- xu/Q versus Distance

NOTE:

The below listed series of worksheets are used in conjunction with this procedure and are located in the Operations Support Center (OSC), Emergency Operations Facility (EOF) and Alternate EOF. Any worksheet used shall be attached to this procedure when complete.

COMMON TO BOTH UNITS

2.6.1-1, X/Q Worksheet

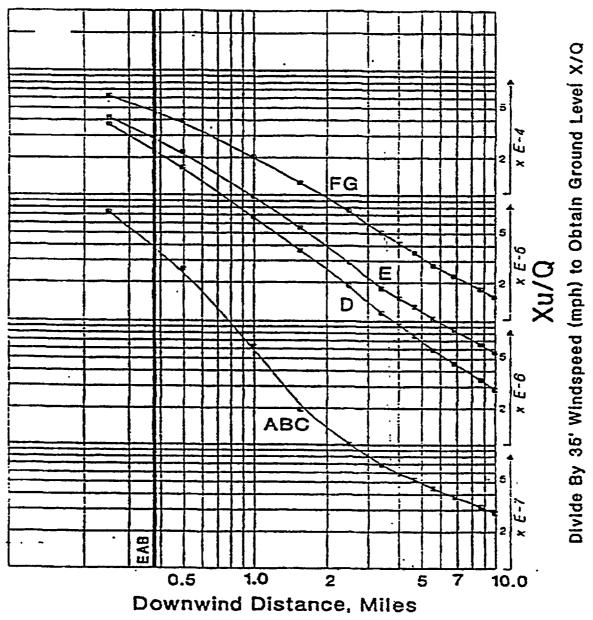
2.6.1-2, FSAR Accident Dose Projection Worksheet

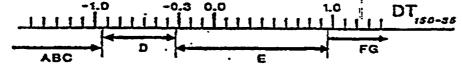
<u>UNIT 1</u>		<u>UNIT 2</u>
2.6.1-3, Victoreen	2.6.1-7,	2HVS*RQ109C
2.6.1-4, SA9 / SA10	2.6.1-8,	2HVS-RQ101B
2.6.1-5, SPING	2.6.1-9,	2HVL-RQ112B
2.6.1-6, Main Steam/		2RMQ-RQ301B
AFTEX (U1)		2RMQ-RQ303B
	2.6.1-10,	2MSS*RQ101A, B, C
•	2.6.1-11,	2HVS*RO109C (eff)

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ATTACHMENT 1 (1 of 1)

Xu/Q versus DISTANCE





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Beaver Valley Power Station

Unit 1/2

EPP/IP 2.6.9

INTEGRATED DOSE ASSESSMENT

<u>Document Owner</u> Manager, Emergency Preparedness

Revision Number	6
Level Of Use	General Skill Reference
Safety Related Procedure	Yes

CONTROLLED BVPS UNIT 3

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	2	Non-Intent Revision	12-29-92
Rev.	5	OSC Approved	12-2-93
	6	Procedure Correction	1-15-03

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- C. PRECAUTIONS
- D. DISCUSSION
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A. OBJECTIVE

This subprocedure provides methodologies to determine Total Effective Dose Equivalent (TEDE) and child thyroid Total Organ dose Equivalent (TODE) from field monitoring samples.

B. PREREQUISITES

This procedure requires documented field monitoring and sampling results, and in particular, data from applicable attachments in subprocedure 2.6.8.

C. PRECAUTIONS

Many of the calculations in this procedure use Regulatory Guide 1.109 methodology. The resultant dose quantities are an approximation of ICRP 30 quantities. The methodology herein is suitable for dose estimation during emergencies; however, it should not be used for any other purpose.

D. DISCUSSION

None

E. PROCEDURE

- 1.0 Attachment 1 Cumulative Exposure from Plume
 - 1.1 A separate data table will be maintained for each location that is sampled during an emergency condition.
 - 1.2 In column c, enter the observed external dose(DDE) rate as reported by the monitoring teams. In column e, enter the child thyroid CDE in mrem per hour of inhalation from Attachment 1, IP 2.6.8 column n, or Attachment 2 column f, as appropriate (assume release time = inhalation time).
 - 1.3 In column d, enter the internal whole body dose rate (CEDE rate) from Attachment 8, IP 2.6.8.
 - 1.4 In each column, enter the Δ T since the last measurement.
 - 1.5 Calculate and record the DDE, CEDE and child thyroid CDE in the respective columns.
 - 1.6 For both TEDE and child thyroid TODE, add the selected doses--columns c and d/c and e--to the last cumulative values recorded in the respective columns f and g. For long term releases, start a new data sheet daily with the cumulative dose reset to "0".

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- 1.7 When each sheet is filled, enter the last cumulative TEDE and child thyroid TODE values in the respective blocks labeled "Totals this Sheet". If there is more than one sheet per day, add totals to the totals on the previous sheets and enter the results in the "Daily Totals" blocks.
- 1.8 If a particular dose rate parameter is not determined at each sampling/monitoring, the previous value for that parameter is assumed to prevail during that time increment. Dose and cumulative dose for that parameter will be calculated using the assumed prevailing dose rate.
- 1.9 Periodically transmit cumulative results to the Emergency Director of Emergency/Recovery Manager for comparison to the Protective Action Guides (PAG's).
- 2.0 Attachments 2 and 3 TEDE and Child Thyroid TODE Cumulative Exposure From All Exposure Pathways
 - 2.1 Attachments 2 and 3 will be used once daily for any particular accident.

NOTE:

Initially in an accident, the inhalation and direct radiation exposure pathways will predominate. However, after passage of the plume, the ingestion pathway can predominate if no protective measures are taken to limit the distribution of contaminated foodstocks, drinking water, and milk. Also, the ingestion pathways may not reach peak activity for some days after the release has terminated. Since ingestion is not a continuous process like inhalation, the dose commitment is calculated on a daily basis.

- Attachment 2 is used to add plume exposure TEDE, ingestion CEDE and ground contamination DDE. Attachment 3 is used to add plume exposure child thyroid TODE, ingestion child thyroid CDE and ground contamination DDE.
- 2.3 Enter the date and sampling location in columns a and b respectively.
- 2.4 In the remaining columns, enter the data described below:
 - 2.4.1 In column c, enter the plume exposure. For Attachment 2, use the Attachment 1 column f daily total. For Attachment 3, use the Attachment 1 column g daily total.
 - 2.4.2 In column d, enter the daily dose from ground contamination (Attachment 6 IP 2.6.8 whole body total dose rate x 24 hours) if greater than 10% of the column c value.

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NOTE:

If the Attachment 1 column c measurement is made after deposition is complete, this step will add-in the ground contamination dose contribution from radioiodine a second time. This is considered acceptable conservatism for early accident assessment.

- 2.4.3 In column e enter the whole body dose commitment from contaminated milk (Attachment 5, 2.6.8).
- 2.4.4 In column f, enter the whole body dose commitment from contaminated meat/poultry (Attachment 5, 2.6.8).
- 2.4.5 In column g, enter the whole body dose commitment from contaminated fish/seafood (Attachment 5, 2.6.8).
- 2.4.6 In column h, enter the whole body dose commitment from contaminated drinking water (Attachment 5, 2.6.8).
- 2.5 Sum the doses, <u>mrem</u>, recorded in columns c through h and enter the result in column i.
- 2.6 Add this daily total to the cumulative total from previous days and record this value in column j.
- 2.7 Repeat Steps 2.3 through 2.6 for other sampling/monitoring locations.
- Retain all data forms for subsequent evaluation. Ensure that all forms are completed so as to ensure capability to reconstruct events at a future date.

F. REFERENCES

1. Beaver Valley Power Station Emergency Preparedness Plan and Implementing Procedures.

G. ATTACHMENTS

- 1. Attachment 1 Cumulative Exposure From Plume
- 2. Attachment 2 Whole Body Cumulative Exposure (TEDE)
- 3. Attachment 3 Child Thyroid Cumulative Exposure (TODE)

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CUMULATIVE EXPOSURE FROM PLUME

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Location:	

a	b	С	d	e	f	g
		F	ield Measureme	nt	Cum	nulative
Date/Time	Parameter	External (DDE)	Internal Whole Body (CEDE)	Child Thyroid (CDE)	Whole Body (mrem) TEDE	Child Thyroid (mrem) TODE
	Dose Rate Δ T Dose					
	Dose Rate ΔT Dose					
	Dose Rate ΔT Dose					
	Dose Rate Δ T Dose					
	Dose Rate Δ T Dose					,
	Dose Rate Δ T Dose			-		
	Dose Rate Δ T Dose			· · · · · · · · · · · · · · · · · · ·		
		<u></u>		This Sheet		
]_		aily Totals		
		Į	Transi	er Data To:	Att. 2 col. c	Att. 3 Col. c

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WHOLE BODY CUMULATIVE EXPOSURE (TEDE) ATTACHMENT 2

				<u> </u>		 , o o 1 cm	(IEDI	4 AT	TACHM
	TEDE Cumul Total (mrem)	•							
	TEDE Daily Total (mrem)								
	Drinking Water (mrem)	h							
tion	Fish/Seafood (mrem)	64							
Ingestion	Meat/Poultry (mrem)	ı							
	Milk (mrem)	٥							
	Ground Contamination DDE (mrem)	Р							
	Plume Exposure TEDE (mrem)	o o							
	Location	р							
	Date	a a							

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CHILD THYROID CUMULATIVE EXPOSURE (TODE) ATTACHMENT 3

		-	CHILD	11111	COIDC	ONIOL	WIIII	SEAL	JOURE	(IOD)	E/ATT	ACHM
	TODE Cumul Total (mrem)											
	TODE Daily Total (mrem)	ı										
	Drinking Water (mrem)	ų										
tion	Fish/Seafood (mrem)	50										
Ingestion	Meat/Poultry (mrem)	f										
	Milk (mrem)	c										
	Ground Contamination DDE (mrem)	þ										
	Plume Exposure TODE (mrem)	၁										
	Location	þ										
	Date	B										

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Unit 1/2

EPP/IP 5.1

SEARCH AND RESCUE

<u>Document Owner</u> Manager, Emergency Preparedness

Revision Number	8		
Level Of Use	General Skill Reference		
Safety Related Procedure	Yes		

CONTROLLED BVPS UNIT 3

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	2	Non-Intent Revision	12-29-92
Rev.	5	Non-Intent Revision	1-1-94
	6	Non-Intent Revision	12-8-95
	7	Non-Intent Revision	4-12-00
	8	Procedure Correction	1-15-03

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SEARCH AND RESCUE	Revision 8	Page Number:

A. PURPOSE

This procedure provides instructions for search and rescue measures necessary to locate personnel who are unaccounted for following a Site Assembly or Site/Local Evacuation and instructions to be utilized when an individual(s) needing medical assistance are discovered.

B. REFERENCES

- 1.0 Beaver Valley Power Station Emergency Preparedness Plan and Implementing Procedures.
- 2.0 Beaver Valley Power Station Operating Manuals.
- 3.0 Title 10, Code of Federal Regulations Parts 20 and 50.
- 4.0 NUREG-0654/FEMA-REP-1 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."

C. RESPONSIBILITIES

The Emergency Director (NSS until properly relieved) is responsible for ensuring the actions outlined in this procedure are implemented.

D. <u>ACTION LEVELS/PRECAUTIONS</u>

1.0 ACTION LEVELS

- 1.1 One or more individuals are missing following an evacuation of an affected area, as discovered during personnel accountability efforts.
- 1.2 A report has been received of an individual trapped or disabled within the Site.

2.0 PRECAUTIONS

- 2.1 If an individual is trapped or disabled in a high radiation area, the rescue must be performed as expeditiously as possible to minimize the dose to the victim and the doses to the rescue personnel, and to ensure that first aid can be provided as soon as possible.
 - 2.1.1 In an emergency situation, exposure in excess of normal limits to rescue and first aid personnel is appropriate if necessary to save a life. Refer to EPP/IP-5.3, "Emergency Radiation Exposure Criteria and Control".

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2.2 Rescue of a victim shall take precedence over fire-fighting efforts, unless the fire must be suppressed to effect rescue, or if the fire poses an <u>immediate</u> threat to the lives of others.

Rescue of a victim shall take precedence over isolation of high energy fluids (Steam, hot water under pressure; hydraulic fluids, etc.) unless isolation of the system is necessary to effect rescue; or if failure to isolate the system will seriously affect reactor safety or will place the lives of other personnel in immediate danger.

E. PROCEDURE

1.0 Initial Response

- 1.1 As soon as it is recognized that one or more individuals are missing, the security supervisor at the Central Alarm Station shall attempt to determine the possible location of the missing individuals, by paging the individual, by conferring with the individual's supervisors and co-workers, via brief searches of the last known location (if possible), and/or calling the individual's home. If following these efforts, the individual is still unaccounted for, the Security Coordinator shall be notified and the following information reported:
 - * Name(s) of individual(s) missing
 - * Summary of efforts performed to locate the individual(s)
 - * Last known location of the individual(s)
- 1.2 Upon the failure to locate missing individual(s) using all available means, the Security Coordinator shall notify the Emergency Director of the results of all attempts. The Emergency Director will then assess the need for in-depth searches of the last known areas the individual(s) were locate in.
- 1.3 Individuals discovering an individual needing rescue and other medical assistance shall:
 - 1.3.1 Effect immediate rescue in accordance with the provisions of this procedure, if required and if within the capabilities of the individual finding the victim.
 - 1.3.2 Report the discovery to the Control Room/TSC/EOF and provide the following information:
 - Location of victim
 - * Extent of injuries
 - * Assistance required
 - * Complications affecting rescue

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- 1.4 Upon receipt of a report identified above, the Nuclear Shift Supervisor (Emergency Director) will complete Attachment 1 of this IP.
 - 1.4.1 Upon hearing the page announcement, the Emergency Squad Captain or Chief will contact the Control Room and be briefed on the situation, if not already done.
 - 1.4.2 The Emergency Squad Captain or Chief will direct the Emergency Squad in the search and rescue operation. The squad may be subdivided (but no less than two people per team) or augmented as necessary.
 - 1.4.3 If necessary, the Emergency Squad Captain or Chief will determine the search pattern, identify necessary equipment, and direct the search and rescue effort, based on the information received.
- 1.5 Upon receipt of a report on the location of the missing individual(s), contact the Emergency Squad Captain or Chief via the page system and direct him to the scene.
- 1.6 Upon arrival at the scene, the Emergency Squad Captain or Chief shall enter the area and assess the situation, if conditions permit.
- 1.7 On the basis of this inspection, the Emergency Squad Captain or Chief will determine the course of action and direct the Emergency Squad in completion of the rescue, and/or request additional support from the Control Room.
- 1.8 If a rescue cannot be immediately carried out, first aid should be applied in the affected area, if necessary.

2.0 Follow-up Actions

- 2.1 Remove the victim to the closest safe area and apply any required first aid.
- 2.2 Evaluate the condition of the victim and take appropriate actions.
 - 2.2.1 If the individual is injured and requires offsite medical treatment, perform actions in accordance with the Operating Manual, Chapter 56A, Injury and Casualty Control.

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NOTE:

A contaminated/injured individual does not constitute an emergency declaration. However, a four (4) hour notification to the NRC per 10 CFR 50.72 is required.

2.3 Emergency Squad personnel who received emergency exposures shall report to Health Physics Supervision for exposure evaluation and follow-up.

F. FINAL CONDITIONS

This procedure shall be terminated when the missing individual(s) is/are located, removed from hazardous area, and any necessary first aid administered.

G. <u>ATTACHMENTS</u>

1.0 Search and Rescue Page Announcement

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				ATTACHMENT 1 (Dans 1 - 61)		
				ATTACHMENT 1 (Page 1 of 1)		
		SEARCH AND	RESCUE PAGE	ANNOUNCEMENT		
Shou the fo	ld an ac	ccountability be initiated at g steps:	BVPS and personr	nel have been deemed unaccounted, complete		
1)	Soun	nd the Stand-by Alarm one (1) time.			
2)	Mak	e one of the following annot	uncements:			
	(a)	"Attention, all Site person	nnel, the following	individual(s)		
				_ is missing within the Site.		
		(name ind	ividual(s))	_		
		Personnel knowing the w	hereabouts of this	individual(s), please contact		
		the Control Room at 511	0/5310".	,		
		<u>OR</u>				
	(b)	"Attention, all Site person	nnel, an individual	(s) is missing/trapped/disabled		
		within.		Emergency Squad personnel		
		(Specify le	,			
		assemble at(S _I	if-14i			
3)	Perfo unles	orm Steps 1 and 2 two (2) and 5 the event is escalated or te	additional times w erminated.	ithin 15 minutes of the first announcement,		
			<u>Time</u>	Initials		
	•]	First Announcement				
	• ;	Second Announcement				
	• 7	Third Announcement				
	•]	Date				
4.		ore the Page Party System t tion of the Emergency Direc		ation upon termination of the event or upon		

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Unit 1/2

EPP-IP-7.1

EMERGENCY EQUIPMENT INVENTORY AND MAINTENANCE PROCEDURE

<u>Document Owner</u> Manager, Emergency Preparedness

Revision Number	14
Level Of Use	General Skill Reference
Safety Related Procedure	Yes

CONTROLLED BYPS UNIT 3

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	1	Non-Intent Revision	10-11-91
	2	Non-Intent Revision	12-29-92
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	13	Non-Intent Revision	8-08-01
	14	Simple Change	1-15-03

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A. PURPOSE

This procedure provides instructions for maintaining and inventorying emergency cabinets and equipment.

B. REFERENCES

- 1.0 Beaver Valley Power Station Radiation Protection Procedures
- 2.0 Beaver Valley Power Station Emergency Preparedness Plan
- 3.0 Title 10, Code of Federal Regulation Part 50
- 4.0 BVPS Unit 1 Licensing Commitment 2.C (7) (CATS A970524P)
- 5.0 Condition Report #972288
- 6.0 Condition Report #02-06579
- 7.0 Condition Report #02-06579

C. <u>RESPONSIBILITIES</u>

- 1.0 The Manager, Emergency Preparedness, is responsible for ensuring that the emergency cabinets and facilities have the proper equipment and procedures required at that location.
- 2.0 Lead Nuclear Technologist is responsible for ensuring that the quarterly inventory or post use inventories are completed and that appropriate corrective actions have been implemented.
- 3.0 Radiation Protection is responsible for performing and documenting the inventory, ensuring calibrated dosimetry and survey instruments are maintained in appropriate locations, and that the monthly respirator inspection is completed.

D. <u>ACTION LEVELS/PRECAUTIONS/PREREQUISITES</u>

1.0 Action Levels

- 1.1 Inventories are performed quarterly (routine inventory) or after each applicable equipment usage (drills, exercises, etc.)
- 1.2 Monthly respirator inspections of respirators maintained for emergency preparedness SHALL be performed and documented by Radiation Protection using appropriate Radiation Protection procedures.

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2.0 <u>Precautions</u>

- 2.1 During inventory, if an item is missing or if the minimum required number is not present, the item shall be replaced as soon as possible (within two weeks).
- 2.2 Items whose calibration expiration date is prior to the next scheduled inventory will be replaced prior to their expiration date.
- 2.3 For additions/deletions/revisions to the facility/cabinet/kit items a Condition Report SHALL be generated.

E. PROCEDURE

1.0 General Inventory Actions

1.1 After a drill, actual emergency event, or if emergency facilities are disturbed, all effected cabinets, facilities and kits will be inventoried by Radiation Protection Technicians as assigned by Radiation Protection or Emergency Preparedness supervision.

NOTE: All inventory locations are listed on Attachment 1.

1.1.1 Radiation Protection supervision will inform the Rad Protection Technician of what areas are to be inventoried

NOTE: Current Forms, E-Plan Appendix C and Implementing Procedure Effective Index are located on FYI.

- 1.1.2 The appropriate inventory forms and applicable E-Plan Appendix C and/or Implementing Procedure Effective Index will be provided to the Radiation Protection Technician.
- 1.1.3 The Radiation Protection Technician will proceed to the appropriate locations and using the form for that location as guidance, perform and document the inventory on the form.
 - 1.1.3.1 Any items that are missing, out of calibration, or need replaced for any reason shall be documented on the inventory form.
 - 1.1.3.2 The Radiation Protection technician should replace any item needing replaced. The Radiation Protection Supervisor should be notified of any items that need replaced but were not.

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- 1.1.3.3 Replacement of items by the Radiation Protection technician shall be documented on the inventory forms
- 1.1.4 All completed inventory forms will be signed and returned to a Radiation Protection Supervisor.
- 1.1.5 The Radiation Protection Supervisor shall make arrangements to replace any items that need replaced as soon as possible. A Condition Report should be generated when replacement is delayed for greater than two weeks.
- 1.1.6 The Radiation Protection Supervisor shall forward all completed and reviewed inventory forms to Emergency Preparedness.

2.0 Specific inventory instructions

- 2.1 Radiation survey meters.
 - 2.1.1 Perform inventory check, replace missing or out of calibration meters with a meter with a calibration due date that will not expire before the next quarterly inventory.
 - 2.1.2 Record serial number(s) and calibration due dates(s) on the meter(s) or replacement(s) on the inventory form.

2.2 Air sampler

- 2.2.1 Perform inventory check, replace missing or out of calibration air samplers with an air sampler with a calibration due date that will not expire before the next quarterly inventory.
- 2.2.2 Record serial number(s) and calibration due dates(s) on the air sampler(s) or replacement(s) on the inventory form.
- 2.2.3 Operate for at least five minutes and check for proper functioning, recording the flow rate in "Remark" column.

2.3 Radios

- 2.3.1 Check that the proper number of radios are present in designated locations.
- 2.3.2 Check for proper operation, send and receive with an operating radio of the same frequency.

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2.4 Dosimetry

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

NOTE: The Dosimetry Lab will calibrate the dosimeters and replace dosimeters when appropriate to maintain calibrated dosimeters in appropriate locations.

2.4.2 If discrepancies are noted, report these to the Dosimetry supervisor and if necessary obtain replacement dosimeters.

2.5 Respirators and cartridges

2.5.1 Emergency cabinet/kit respirators will be inspected as described in part C.1.2 of this procedure. During quarterly 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, Radiation Protection personnel shall obtain them and record serial numbers on the inventory forms. Ensure that replacements have an inspection that will not expire before next scheduled monthly inspection.

2.6 Batteries

- 2.6.1 Perform operability check of battery powered equipment.
- 2.6.2 Replace batteries, including spare batteries, as needed or as specified on the inventory form.
- 2.7 Anti-C's (including coveralls, hoods, gloves, shoe covers) and other cloth or plastic suits/equipment
 - 2.7.1 During inventory check and replace any item that appears to be ripped, torn, badly soiled, cracked, or otherwise exhibiting signs of deterioration.
- 2.8. Maps, lists, data sheets office supplies.

NOTE: Procedures are supplied and updated by Beaver Valley Records Center Section.

2.8.1 Perform inventory check and check that all items are current, in order, and in good condition.

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- 2.8.2 Verify that Controlled copies of the Emergency Preparedness Plan and of the Implementing Procedures (IP's) are in the locations indicated on the inventory forms.
- 2.8.3 For sectionalized copies of the IP's verify the correct revision by comparing to the Effective Index list.
- 2.8.4 Notify Radiation Protection Supervisor of outdated or damaged procedures.
- 2.8.5 Radiation Protection supervision shall notify BVRC of procedures that need updated.

F. FINAL CONDITION

- 1.0 Each cabinet/kit/facility inventoried is complete as indicated on inventory form or deficiency is documented on inventory form.
- 2.0 All inventory forms are reviewed and forwarded to Emergency Preparedness.

G. <u>ATTACHMENTS</u>

1.0 Attachment 1, Emergency Equipment Inventory Locations

H. RECORDS AND FORMS

1.0 Records

1.1 Records generated by this procedure are listed in the FORMs section.

2.0 Forms

- 2.1 Form, EPP-IP-7.1.F01, Emergency Inventory Checklist Control Room Emergency Cabinet No. 1
- 2.2 Form, EPP-IP-7.1.F02, Emergency Inventory Checklist Water Monitoring Team Kit
- 2.3 Form, EPP-IP-7.1.F03, Emergency Inventory Checklist Field Monitoring Team Kit No.
- 2.4 Form, EPP-IP-7.1.F04, Emergency Inventory Checklist Offsite Communication Equipment
- 2.5 Form, EPP-IP-7.1.F05, Emergency Inventory Checklist Alternate EOF Emergency Cabinet No. 2
- 2.6 Form, EPP-IP-7.1.F06, Emergency Inventory Checklist SPING (U1) Emergency Sampling Kit

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- 2.7 Form, EPP-IP-7.1.F07, Emergency Inventory Checklist WRGM (U2 Emergency Sampling Kit
- 2.8 Form, EPP-IP-7.1.F08, Emergency Inventory Checklist Near Site Assembly Area
- 2.9 Form, EPP-IP-7.1.F09, Emergency Inventory Checklist Primary Assembly Areas
- 2.10 Form, EPP-IP-7.1.F10, Emergency Inventory Checklist Technical Support Center (TSC) Cabinet No. 1, 2 and 3
- 2.11 Form, EPP-IP-7.1.F11, Emergency Inventory Checklist Emergency Operations Facility (EOF) Cabinet No. 1, 2 and Cabinet No.3 Environmental Assessment & Dose Projection (EA&DP)
- 2.12 Form, EPP-IP-7.1.F12, Emergency Inventory Checklist Personnel Decontamination Cabinet
- 2.13 Form, EPP-IP-7.1.F13, Emergency Inventory Checklist Personnel Decontamination Kit
- 2.14 Form, EPP-IP-7.1.F14, Emergency Inventory Checklist ERF Access Area Supplies
- 2.15 Form, EPP-IP-7.1.F15, Emergency Inventory Checklist EOF Equipment Cart No. 1
- 2.16 Form, EPP-IP-7.1.F16, Emergency Inventory Checklist EPP Air Sample Cart No.
- 2.17 Form, EPP-IP-7.1.F17, Emergency Inventory Checklist Operations Support Center (OSC)
- 2.18 Form, EPP-IP-7.1.F18, Emergency Inventory Checklist Alternate Operations Support Center (OSC)
- 2.19 Form, EPP-IP-7.1.F12, Emergency Inventory Checklist Medical Kit
- 2.20 Form, EPP-IP-7.1.F12, Emergency Inventory Checklist RCT Response Kit No.

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Emergency Equipment Inventory Type/Locations

Name/Type	Location	Minimum
Control Room Emergency Cab. #1	Control Room	1
Water Monitoring Team Kit	ERF Decon Room	1
Field Monitoring Team Kit	ERF Decon Room/AEOF (JPIC)	3
Offsite Communications Equipment	ERF Decon Room Cabinet	3
Alternate EOF Emergency Cabinet #2	Alternate EOF (JPIC)	1
SPING (U1) Emergency Sampling Kit	U1-752' PAB	1
WRGM (U2) Emergency Sampling Kit	U2-773' PAB	1
Near Site Assembly Areas	QA Bldg., Training Bldg., WH-B	1 each
Primary Assembly Area	NCD-2, NCD-3, SOSB-3, SOSB-4	1 each
TSC Cabinet #1 through 3	ERF-TSC	1
EOF Cabinet #1 through 3	ERF-EOF	1
Personnel Decon Cabinet	ERF Decon Shower, U2-773' Waste Handling Bldg., U1-735' Decon Shower	1
Personnel Decon Kit	ERF Decon Shower Room Cabinet	3
ERF Access Area Supplies	ERF-Decon Shower Room	1
EOF Equipment Cart	ERF-EOF Hallway	1
EPP Air Sampling Cart No.	U1 Turbine Deck 735, U2 SOSB West Stairwell 730'	2
OSC Cabinets 1 through 5	OSC (Outage Central)	1 each
Alternate OSC Cabinets 1 through 3	Emergency Shutdown Panel Area	1 each
Medical Kit	Beaver County Medical Center	1
RCT Response Kit No.	Primary Access Control Point (U2)/ Alternate Access Control Point (U1)	1 each location

Beaver Valley Power Station

Unit 1/2

EPP/IP 9.5

ACTIVATION, OPERATION AND DEACTIVATION OF THE PENN POWER CUSTOMER ACCOUNT SERVICES DEPARTMENT

<u>Document Owner</u> Manager, Emergency Preparedness

Revision Number	7
Level Of Use	General Skill Reference
Safety Related Procedure	Yes



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Rev.	0	OSC Approved	12-8-95
Rev.	1	Non-Intent Revision	10-23-96
Rev.	2	Non-Intent Revision	6-17-97
Rev.	3	OSC Approved	1-1-98
Rev.	4	Non-Intent Revision	12-2-99
Rev.	5	Non-Intent Revision	7-12-00
Rev.	6	Non-Intent Revision	12-12-01
Rev.	7	Procedure Correction	1-15-03

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A. <u>PURPOSE</u>

This procedure provides guidance on the activation, operation and deactivation of the Penn Power Customer Account Services Department (CASD).

B. <u>REFERENCES</u>

- 1.0 Beaver Valley Power Station Emergency Preparedness Plan.
- 2.0 Title 10, Code of Federal Regulations, Part 50.
- 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 NPDAP 5.3, News Release and Notification
- 5.0 EPP/IP 1.7 Emergency Response Organization Teams.
- 6.0 Condition Report #01-4236, #01-4230

C. RESPONSIBILITIES

1.0 The CASD Representative is responsible for addressing incoming phone calls to the Company service board regarding an emergency condition at Beaver Valley Power Station as outlined in Attachment 1.

D. <u>ACTION LEVELS/PRECAUTIONS</u>

1.0 ACTION LEVELS

- 1.1 Penn Power Customer Account Services Department activation is required at an emergency condition, classified as a Site Area or General Emergency at Beaver Valley Power Station Unit 1, Unit 2 or as requested by the Emergency Director or Emergency/Recovery Manager, or...
- 1.2 As deemed necessary by the Senior Nuclear Communications Representative, or designee, in consultation with the Senior Vice President, Nuclear or designee.

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2.0 PRECAUTIONS

- All news announcements must be approved by either the designated Emergency Director (prior to Emergency Operations Facility (EOF) activation) or the Emergency/Recovery Manager (after EOF activation).
- 2.2 Any significant policy announcement on subjects other than plant conditions must be coordinated with First Energy Corporate Communications or designed in consultation with the Senior Vice President, Nuclear, or designee.

E. PROCEDURE

1.0 ACTIVATION

1.1 Upon notification, CASD staff shall report to their respective offices.

2.0 OPERATION

2.1 The Customer Account Services Representative shall direct their staff to refer calls to the appropriate organization (Attachment 2).

3.0 DEACTIVATION

3.1 Upon concurrence from the JPIC Manager, the CASD Staff shall be deactivated.

F. FINAL CONDITIONS

This procedure shall be terminated after the following conditions have been met:

- 1.0 Normal plant operations have been or are in the process of being restored.
- 2.0 News media interest has diminished to such an extent that pre-emergency media relations procedures can again be used.
- 3.0 The CASD staff has been relieved of all duties associated with the development and distribution of news announcements.

G. ATTACHMENTS

- 1.0 Job Guidelines
- 2.0 BVPS Response to telephone inquiries.

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ATTACHMENT 1 (1 of 1)

JOB GUIDELINES

CUSTOMER ACCOUNT SERVICES DEPARTMENT REPRESENTATIVE

- 1. Following notification from the EPIO contact, reports to the Customer Account Services Department.
- 2. Assures that the telephone service board is adequately staffed.
- 3. Following an emergency, issues a report of activities to BVPS Emergency Preparedness.

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A5.715GM ATTACHMENT 2 (1 of 1)

(724) 728-2421

BVPS RESPONSE TO TELEPHONE INQUIRIES

DO NOT GIVE INFORMATION ON PLANT STATUS

IF CALLER IS:

- Refer them to **FirstEnergy** Corporate MEDIA **Communications at (724) 682-5201.** If JPIC is Refer them to the Media Contact Representatives at: activated (412) 604-4937, (412) 604-4938, (412) 604-4939, (412) 604-4940, OR (412) 604-4941 **PUBLIC** Non-Emergency Refer them **FirstEnergy** to Corporate **Communications at (724) 682-5201 Emergency Event – Questions about What to Do** Ask What State they are located in. Refer them to the County Emergency Center: Columbiana County, OH: (330) 424-7139 Hancock County, WVA: (304) 564-4054 Beaver County, PA: (724) 775-1700/
 - **►** <u>EPP Event</u> Questions on <u>Plant Status</u>

Tell them to tune to their local television and radio stations for updates.

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