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LIMERICK GENERATING STATION

EMERGENCY PLAN PROCEDURE INDEX

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PROCEDURE	REV. NO.	TITLE	DATE SIGNED BY SUPER.	DATE OF LAST PERIODIC REVIEW
EP-101	4	Classification of Emergencies	03/25/85	10/26/84
CP-102	10	Unusual Event Response	03/31/86	10/26/84
EP-103	13	Alert Response	03/31/86	10/26/84
EP-104	12	Site Emergency Response	03/31/86	10/26/84
EP-105	12	General Emergency Response	03/31/86	10/26/84
EP-106	4	Written Summary Notification	04/01/85	10/26/84
EP-110	6	Personnel Assembly and Accountability	03/14/85	10/26/84
EP-120	3	Site Emergency Coordinator	04/01/85	10/26/84
EP-201	5	Technical Support Center (TSC) Activation	02/10/86	03/29/85
EP-202	5	Operations Support Center (OSC) Activation	04/01/86	04/01/86
EP-203	5	Emergency Operations Facility (EOF) Activation	04/01/85	04/01/85
EP-208	4	Security Team	12/12/84	10/26/84
EP-210	4	Dose Assessment Team	03/17/86	10/26/84
EP-211	2	Field Survey Group	03/25/85	10/26/84
EP-220		CANCELLED		
EP-221		CANCELLED		
EP-222		CANCELLED		
EP-230	5	Chemistry Sampling and Analysis Team	(93/14/85	10/26/84
EP-231	11	Operation of Post-Accident Sampling Systems (PASS)	04/01/86	10/26/84
EP-232		CANCELLED	<u>fer</u>	
EP-233	7	Retrieving and Changing Sample Filters and Cartridges from the Containment Leak Detector During Emergencies	04/01/86	10/26/84

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LIMERICK GENERATING STATION

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EMERGENCY PLAN PROCEDURE INDEX

PROCEDURE	REV.		DATE SIGNED BY SUPER.	DATE OF LAST PERIODIC REVIEW
NUMBER	NO.	TITLE	04/01/86	10/26/84
EP-234	/	Obtaining Containment Gas Samples from the	04/01/00	10/20/04
		Containment Leak Detector		
		During Emergencies		
EP-235	6	Obtaining Reactor Water	04/01/86	10/26/84
	1.53	Samples from Sample		
		Sinks Following		
		Accident Conditions		
EP-236	5	Obtaining Cooling Tower	03/14/85	10/26/84
		Blowdown Line Water		
		Samples Following		
		Radioactive Liquid		
		Release after Accident		
		Conditions		
EP-237	8	Obtaining the Iodine/	04/01/86	10/26/84
		Particulate and/or Gas		
		Samples from the North		
		Vent Wide Range Gas		
		Monitor (WRGM)		and the second second second second
EP-238	5	Obtaining Liquid Radwaste	04/01/86	10/26/84
		Samples from Radwaste		
		Sample Sink Following		
		Accident Conditions		
EP-240		CANCELLED		
EP-241	9	Sample Preparation and	04/01/86	10/26/84
		Handling of Highly		
		Radioactive Liquid		
		Samples	and the second	
EP-242	5	Sample Preparation and	03/28/85	10/26/84
		Handling of Highly		
		Radioactive Particulate		
		Filters and Iodine		
and the second second		Cartridges		
EP-243	6	Sample Preparation and	04/01/86	10/26/84
		Handling of Highly		
		Radioactive Gas		
		Samples		
EP-244	3	Offsite Analysis of	03/12/85	10/26/84
		High Activity Samples		
EP-250	2	Personnel Safety Team	12/12/84	10/26/84
EP-251	3	Plant Survey Group	04/01/86	04/01/86

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LIMERICK GENERATING STATION

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EMERGENCY PLAN PROCEDURE INDEX

NUMBER	110		DATE SIGNED	DATE OF LAST
	NO.	TITLE	BY SUPER.	PERIODIC REVIEW
EP-252	6	Search and Rescue/First Aid Group	04/22/85	04/01/85
EP-253	0	Personnel Dosimetry, Bioassay, and Respiratory Protection Group	12/12/84	12/12/84
EP-254	3	Vehicle and Evacuee Control Group	02/04/85	10/26/84
EP-255	2	Vehicle Decontamination	12/12/84	10/26/84
EP-260	2	Fire and Damage Control Team	12/12/84	10/26/84
EP-261	2	Damage Repair Group	12/12/84	10/26/84
EP-272	5	Philadelphia Electric Company Officials Phone List	02/10/86	10/26/84
EP-273	6	Limerick Station Supervision Call List	01/02/86	01/02/86
EP-275		CANCELLED		
EP-276	7	Fire and Damage Team Phone List	02/10/86	02/10/86
EP-277	8	Personnel Safety Team Phone List	01/09/86	01/09/86
EP-278	6	Security Team Phone List	02/10/86	02/10/86
EP-279	7	Emergency Operations Facility (EOF) Group Phone List	03/11/86	10/26/84
EF-280	8	Technical Support Center Phone List	02/10/86	02/10/86
EP-282	6	Government and Emergency Management Agencies Phone List	02/10/86	04/22/85
EP-284	5	Company Consultants and Contractors Phone List	02/10/86	02/10/86
EP-287	3	Nearby Public and Industrial Users of Downstream Water	02/11/85	10/26/84
EP-291	6	Staffing Augmentation	04/18/85	10/26/84

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LIMERICK GENERATING STATION

EMERGENCY PLAN PROCEDURE INDEX

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PROCEDURE	REV.		DATE SIGNED	DATE OF LAST
NUMBER	NO.	TITLE	BY SUPER.	PERIODIC REVIEW
EP-292	9	Chemistry Sampling and Analysis Team Phone List	12/18/85	04/22/85
EP-294	7	Dose Assessment Team Phone List	01/09/86	01/09/86
EP-301	1	Operating the Evacuation Alarm and River Warning System	12/12/84	10/26/84
EP-303	3	Local Evacuation	12/12/84	12/12/84
EP-304	3	Partial Plant Evacuation	12/12/84	10/26/84
EP-305	5	Site Evacuation	03/25/85	10/26/84
EP-306	3	Evacuation of the Information Center	02/10/86	10/26/84
EP-307	2	Reception and Orientation of Support Personnel	12/12/84	10/26/84
EP-312	5	Radioactive Liquid Release	01/09/86	01/09/86
EP-313	2	Distribution of Thyroid Blocking Tablets	12/12/84	10/26/84
EP-314	1	Emergency Radiation Exposure Guidelines and Controls	03/29/85	12/06/84
EP-315	7	Calculation of Offsite Doses During a Radiological Emergency Using RMMS in the Manual Mode	03/25/86	01/09/86
EP-316	4	Cumulative Population and Near Real-Time Emergency Dose Calculations for Airborne Releases Manual Method	02/10/86	02/10/86
EP-317	3	Determination of Protective Action Recommendations	03/25/85	10/26/84
EP-318	2	Liquid Release Dose Calculations Method for Drinking Water	04/01/85	04/01/85
EP-319	2	Fish Ingestion Pathway Dose Calculation	03/29/85	03/29/85

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LIMERICK GENERATING STATION

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EMERGENCY PLAN PROCEDURE INDEX

PROCEDURE NUMBER	REV. NO.	TITLE	DATE SIGNED BY SUPER.	DATE OF LAST PERIODIC REVIEW
EP-325	3	Use of Containment Dose Rates to Estimate Release Source Term	02/27/85	10/26/84
EP-330	4	Emergency Response Facility Habitability	03/14/85	10/26/84
EP-333	1	Adjustment of Wide Range Gas Monitor Conversion Factors	05/08/85	05/08/85
EP-401	3	Entry for Emergency Repair and Operations	04/01/86	04/01/86
EP-410	3	Recovery Phase Implementation	03/29/85	10/26/84
EP-500	2	Review and Revision of Emergency Plan	12/12/84	10/26/84

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PHILADELPHIA ELECTRIC COMPANY LIMERICK GENERATING STATION EMERGENCY PLAN IMPLEMENTING PROCEDURE

EP-102 UNUSUAL EVENT RESPONSE

1.0 PARTICIPANTS

- 1.1 Shift Superintendent or designated alternate shall assume the role of Emergency Director and implement this procedure, until relieved.
- 1.2 Station Superintendent or designated alternate shall relieve the Emergency Director, assume the role of Emergency Director, and continue implementing this procedure, if necessary.

2.0 ACTIONS-IMMEDIATE

- 2.1 Emergency Director shall:
- 2.1.1 Verify the emergency classification as determined in EP-101, Classification of Emergencies unless determination has just been made.
- Complete Appendix EP-102-10 Unusual Event Notification Message and sign it. Direct a communicator to complete notification of the appropriate Parties in Appendix EP-102-3, Unusual Event Phone Dist within 15 minutes. Direct the evaluation of affected areas, as necessary 5 Refer to the following procedure: 2.1.2
- 2.1.3

EP-303 Local Evacuation

- 2.1.4 Contact the Station Superintendent, if necessary, and the Shift Technical Advisor inform them of the situation.
- 2.1.5 For samples, contact the Shift Chemistry Technician. If necessary, implement EP-230, Chemistry Sampling and Analysis Team.
- 2.1.6 For in-plant surveys, or contaminated injury, contact a Shift HP Technician. If necessary, implement EP-250, Personnel Safety Team. i iteris . . .

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- 2.1.7 For fire/damage repair, contact the Maintenance Shift Assistance Foreman. If necessary, to implement EP-260, Fire and Damage Team and/or EP-261, Damage Repair Group.
- 2.1.8 For a liquid release, implement EP-312, Radioactive Liquid Release, if required.
- 2.1.9 For security matters, implement EP-208, Security Team, if required.
- 2.1.10 For airborne releases, contact Shift Technical Advisor. If necessary, implement EP-210, Dose Assessment Team.
- 3.0 ACTIONS-FOLLOW-UP

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- 3.1 Emergency Director shall:
- 3.1.1 Periodically reevaluate the event classification in accordance with EP-101, Classification of Emergencies, and escalate or de-escalate the classification, as necessary.
- 3.1.2 If classification is de-escalated fill out Appendix EP-102-2 sign it, Unusual Event De-Escalation Message and give it to the communicator and direct the communicator to perform notification of the appropriate parties listed in Appendix EP-102-3, Unusual Event Phone List.
- 3.1.3 Obtain the following information as necessary to formulate further actions:
 - A. Sample analysis from Shift Chemistry Technician or Chemistry Sampling and Analysis Team Leader.
 - B. In-plant surveys or status of contaminated injury from Shift HP Technician or Personnel Safety Team Leader.
 - C. Fire/Damage Repair status from the Maintenance Shift Assistant Foreman or Fire and Damage Team Leader.
 - D. Airborne releases calculation results from Shift Technical Advisor or Dose Assessment Team Leader.
 - E. Notification Results from Communicator.

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- 3.1.4 Determine which support personnel are necessary for emergency functions and direct the Shift Clerk to contact those personnel. If Shift Clerk is not available, this function shall be assigned to an available individual.
- 3.2 Communicator shall:
- 3.2.1 Inform Emergency Director when appropriate notifications have been made and submit completed copy of Appendix EP-102-3, Unusual Event Phone List, for Emergency Director's Signature.

4.0 APPENDICES

- 4.1 EP-102-1 Unusual Event Notification Message
- 4.2 EP-102-2 Unusual Event De-Escalation Message
- 4.3 EP-102-3 Unusual Event Phone List

5.0 SUPPORTING INFORMATION

5.1 Purpose

The purpose of this procedure is to provide guidelines for site response to an Unusual Event.

- 5.2 Criteria for Use
- 5.2.1 This procedure shall be implemented when an event has been classified as an Unusual Event per EP-101, Classification of Emergencies, and EP-101 has been completed.
- 5.3 Special Equipment

None

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5.4 References

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- 5.4.1 Limerick Generating Station Emergency Plan
- 5.4.2 NUREG-0654, Criteria For Preparation and Evaluation Rev. 1 of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.
- 5.4.3 EP-303 Local Evacuation
- 5.4.4 EP-101 Classification of Emergencies
- 5.4.5 EP-210 Dose Assessment Team
- 5.4.6 EP-230 Chemistry Sampling and Analysis Team
- 5.4.7 EP-250 Personnel Safety Team
- 5.4.8 EP-260 Fire and Damage Team
- 5.4.9 EP-261 Damage Repair Group
- 5.4.10 EP-312 Radioactive Liquid Release
- 5.4.11 EP-208 Security Team

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APPENDIX EP-102-1

UNUSUAL EVENT NOTIFICATION MESSAGE

MESSAGE: This (is)(is not) a drill. This (is)(is not) a

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drill. This is the Limerick Generating Station calling to report an

Unusual Event. My name is _____, telephone

______. Limerick Generating Station is reporting an Unusual Event declared at Unit No. _____. Time and date of Unusual Event classification are

(24 Hr Clock Time) (Date) The basic problem is _____

There (has been) (has not been) an (airborne) (liquid) radioactive release from the plant. The plant status is (stable) (improving) (degrading) (not known). There is no protective action recommended. This (is) (is not) a drill. This (is) (is not) a drill.

Emergency Director

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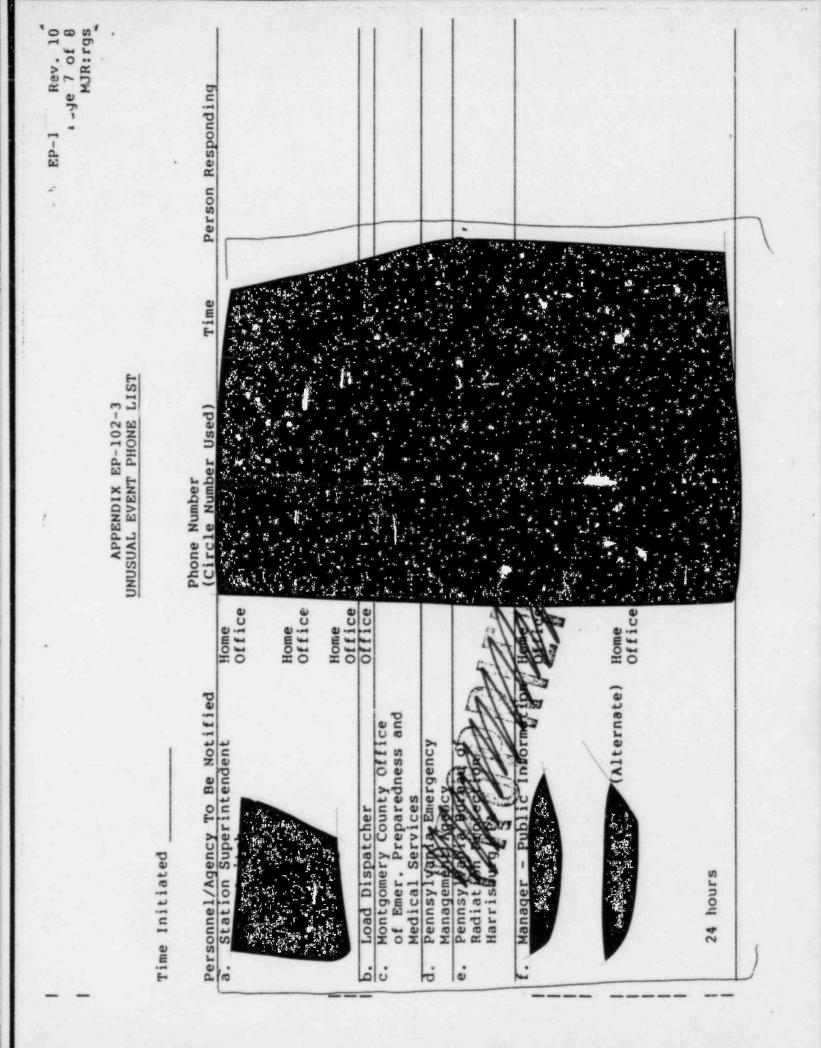
APPENDIX EP-102-2

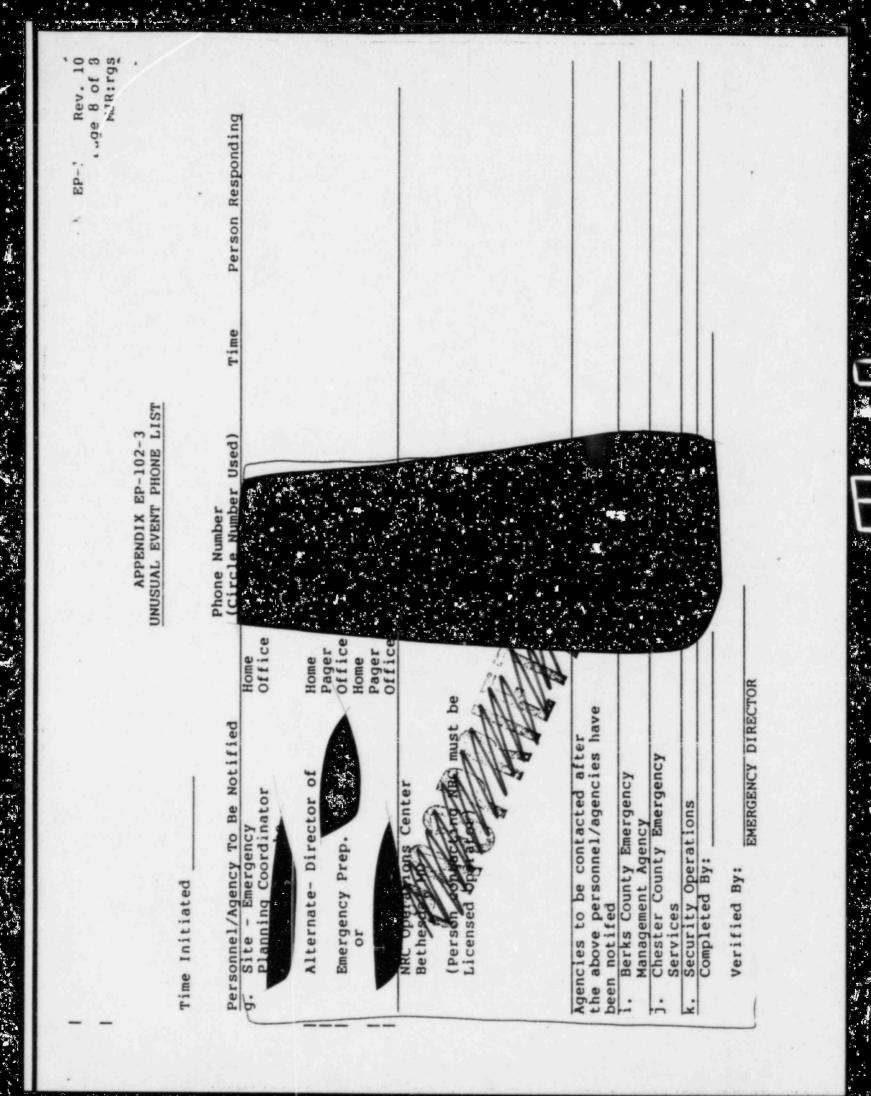
UNUSUAL-EVENT DE-ESCALATION MESSAGE

MESSAGE: This (is) (is not) a drill. This (is) (is not) a

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drill. This is Limerick Generating Station calling to de-escalate
an Unusual Event. Please connect me with the appropriate authority.
This is Limerick Generating Station calling to report the
termination of an Unusual Event. My name is______.
Time and date are______. This (is) (is not) a drill.
This (is) (is not) a drill.





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PHILADELPHIA ELECTRIC COMPANY LIMERICK GENERATING STATION EMERGENCY PLAN IMPLEMENTING PROCEDURE

EP-103 ALERT RESPONSE

1.0 PARTICIPANTS

- 1.1 Shift Superintendent or designated alternate shall assume the role of Emergency Director and implement this procedure, until relieved.
- 1.2 <u>Station Superintendent</u> or designated alternate shall report to the Technical Support Center or Control Room, relieve the Emergency Director, assume the role of Emergency Director and continue implementing this procedure, if necessary.

2.0. ACTIONS-IMMEDIATE

- 2.1 Emergency Director stan
- 2.1.1 Verify the Emergency Classification as determined in EP-101, Classification of Emergencies, unless determination has just been made.
- 2.1.2 Fill out Appendix EP-103-1 Alert Notification Message, sign it and give it to the communicator.
- 2.1.3 Direct the communicator to complete notification of the appropriate parties as specified in Appendix EP-103-3, Alert Phone List (Initial Notification) or Appendix EP-103-4, Alert Phone List (Escalation or De-escalation) within 15 minutes.

THE COMMUNICATOR SHALL MAN THE NRC RED TELEPHONE ON A CONTINUOUS BASIS UNTIL THE NRC DISCONNECTS. IF THE COMMUNICATOR IS REQUIRED FOR URGENT PLANT OPERATIONS RELATED TO THE EMERGENCY, THE CONCURRENCE FOR SECURING THE PHONE SHOULD BE OBTAINED FROM THE NRC PRIOR TO SECURING THIS TELEPHONE.

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2.1.4 Contact the Station Superintendent and the Shift Technical Advisor, inform them of the situation.

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- 2.1.5 Direct the Information Center Staff to implement EP-306, Evacuation of The Information Center. Inform the Staff of the wind direction if there is an airborne release.
- 2.1.6 If there is a potential or actual radiological release, implement EP-305, Site Evacuation.
- 2.1.7 If there has not been a radiological release,
 - A. Evacuate all construction personnel by contacting Bechtel Safety Direct them to call for evacuation of all Unit 2 personnel in accordance with Bechtel procedures. Inform them of the nature of the hazard. Bechtel Safety will report accountability results to Emergency Director.

THIS WILL CALL FOR THE ASSEMBLY OF UNIT 2 PERSONNEL AT THE UPPER PARKING LOT. IF IT IS DESIRED THAT THEY LEAVE THE SITE, INFORM BECHTEL SAFETY.

- B. Inform Operations Security of the evacuation for information purposes, no action required.
- C. Select the type of accountability desired for personnel in the protected area and implement the required actions below:

1. Emergency Assembly Without

THES (S) (IS NOT) A DRILL. AN ALERT HAS BEEN DECLARED. DESIGNATED EMERGENCY PERSONNEL REPORT TO ASSIGNED EMERGENCY RESPONSE FACILITY OR ASSEMBLY AREA. ALL OTHER PERSONNEL STAND BY FOR FURTHER ANNOUNCEMENT. THIS (IS) (IS NOT) A DRILL."

- 2. Emergency Assembly With Accountability
 - A. Contact the Security Team Leader. Inform him of the selected exist point(s), that emergency assembly with accountability is going to be implemented, and to activate the Security Team (EP-208) and to perform personnel accountability in accordance with EP-110, Personnel Assembly and Accountability.

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Contact Yoh Construction Security and inform them that personnel leaving Unit I will be reassembling at the Personnel Processing Center (PPC).

- Make the following announcement.

"THIS (IS)(IS NOT) A DRILL, THIS (IS)(IS NOT) A DRILL. AN ALERT HAS BEEN DECLARED. PLEASE PREPARE FOR ASSEMBLY WITH ACCOUNTABILITY. DESIGNATED EMERGENCY PERSONNEL REPORT TO ASSIGNED EMERGENCY RESPONSE FACILITIES OR ASSEMBLY AREA. ALL OTHER UNIT ONE PERSONNEL LEAVE THE PROTECTED AREA IMMEDIATELY AND REASSEMBLE AT THE PERSONNEL PROCESSING CENTER. THIS (IS) (IS NOT) A DRILL. THIS (IS) (IS NOT) A DRILL."

- 2.1.8 For off-hours, direct the Shift/Clerk to activate the call list using EP-291, Staffing Augmentation. If Shift Clerk is not available, this function shall be assigned to any available individual.
- 2.1.9 Direct the activation of the Technical Support Center in accordance with TP-202, Technical Support Center (TSC) Activation.
- 2.1.10 Assign an operations Support Center Coordinator (PO) to direct available personnel to report to the Operations Support Center on 269' Elev. Turbine Bldg. and to activate it in accordance with EP-202, Operations Support Center (OSC) Activation.
- 2.1.11 For samples, direct the Shift Chemistry Technician or Chemistry Sampling and Analysis Team Leader to implement EP-230, Chemistry Sampling and Analysis Team.
- 2.1.12 For in-plant surveys, direct a Shift HP Technician or Personnel Safety Team Leader to implement EP-250, Personnel Safety Team.
- 2.1.13 For field surveys, when a release of gaseous radioactive material has occurred or is suspected, direct the Dose Assessment Team Leader to implement EP-210, Dose Assessment Team.

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- 2.1.14 For a release at or greater than the Alert level in EP-101, Classification of Emergencies, direct the Dose Assessment Team Leader to implement EP-210, Dose Assessment Team.
- 2.1.15 On an interim bases, direct the Shift Technical Advisor to perform dose projections using EP-316, Cumulative Population and Near Real - Time Emergency Dose Calculations For Airborne Releases - Manual Method or EP-315 Calculation of Offsite Doses during a radiological Emergency using RMMS in the manual mode and to suggest Protective Action Recommendations per EP-317.
- 2.1.16 For fire/damage repair direct the Maintenance Shift Assistant Foreman or Fire and Damage Team Leader to implement EP-260, Fire and Damage Team and/or EP-261, Damage Repair Group.
- 2.1.17 For a liquid release, implement EP-312 Radioactive Liquid Release, if required.
- 2.1.18 For Security matters, contact Security Shift Supervision and direct implementation of EP-208, Security Team unless previously done.
- 3.0 ACTIONS-FOLLOW-UP

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- 3.1 Emergency Director shall:
- 3.1.1 Verify that the Technical Support Center, the Emergency Operations Facility (if necessary) and the Operations Support Center have been activated.
- 3.1.2 Periodically evaluate the event classification in accordance with EP-101, Classification of Emergencies and maintain, escalate or de-escalate the classification, as necessary.
- 3.1.3 If classification is de-escalated, fill out Appendix EP-103-2, Alert De-Escalation Notification Message, sign it and give it to the communicator and direct the communicator to perform notification of the appropriate parties listed in Appendix EP-103-4, Alert Phone List (Escalation or De-escalation).

3.1.4 Obtain the following information as necessary to formulate further actions:

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- A. Security status from Security Team Leader
- B. Sample analysis from Shift Chemistry Technician or Chemistry Sampling and Analysis Team Leader
- C. In-plant surveys from Shift HP Technician or Personnel Safety Team Leader
- D. Field surveys from Dose Assessment Team Leader
- E. Dose projections and protective action recommendations from Shift Technical Advisor or Dose Assessment Team Leader
- F. Fire/damage repair status from the Maintenance Shift Assistant Foreman or Fire and Damage Team Leader
- G. Notification results from Communicator
- 3.1.5 Determine which additional support personnel are necessary for emergency functions and direct the Shift Clerk or other assigned communicator in TSC to contact those personnel.
- 3.1.6 Provide site personnel with public address (PA) announcements for any major changes in plant emergency status, such as changing emergency action levels and evacuations.
- 3.1.7 Evaluate the need and order evacuation of effected areas as necessary. Refer to the following . procedures: EP-303 Local Evacuation, EP-304 Partial Plant Evacuation, EP-305 Site Evacuation.
- 3.2 The Communicator shall:
- 3.2.1 Inform Emergency Director when appropriate Notifications have been made and submit completed copy of Appendix EP-103-3 Alert Phone List (Initial Notification) or Appendix EP-103-4 Alert Phone List (Escalation or De-Escalation) for Emergency Director's Signature.

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4.0 APPENDICES

- 4.1 EP-101-1 Alert Notification Message
- 4.2 EP-103-2 Alert De-Escalation Notification Message
- 4.3 EP-103-3 Alert Phone List (Initial Notification)
- 4.4 EP-103-4 Alert Phone List (Escalation or Deescalation)

5.0 SUPPORTING INFORMATION

5.1 Purpose

The purpose of this procedure is to provide guidelines for site response to an Alert.

- 5.2 Criteria For Use
- 5.2.1 This procedure shall be implemented when an event has been classified as an Alert per EP-101, Classification of Emergencies, and EP-101 has been completed.
- 5.3 Special Equipment

None

- 5.4 References
- 5.4.1 Limerick Generating Station Emergency Plan

5.4.2 NUREG 0654, Criteria for Preparation and Rev. 1 Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.

- 5.4.3 EP-303 Local Evacuation
- 5.4.4 EP-101 Classification of Emergencies
- 5.4.5 EP-304 Partial Plant Evacuation
- 5.4.6 EP-305 Site Evacuation
- 5.4.7 EP-306 Evacuation of the Information Center
- 5.4.8 EP-291 Staffing Augmentation

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5.4.9	EP-201 Technical Support Center (TSC) Activiation
5.4.10	EP-202 Operations Support Center (OSC) Activation
5.4.11	EP-317 Determination of Protective Action Recommendations
5.4.12	EP-316 Cumulative Population Dose Calculations for Airborne Releases- Manual Method
5.4.13	EP-110 Personnel Assembly and Accountability
5.4.14	EP-208 Security Team
5.4.15	EP-210 Dose Assessment Team
5.4.16	EP-230 Chemistry Sampling and Analysis Team
5.4.17	EP-250 Personnel Safety Team
5.4.18	EP-260 Fire and Damage Team
5.4.19	EP-261 Damage Repair Group
5.4.20	EP-312 Radioactive Liquid Release
5.4.21	EP-315 Calculations of offsite doses during a Radiological Emergency using

RMMS in the manual mode

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APPENDIX EP-103-1

ALERT NOTIFICATION MESSAGE

MESSAGE: This (is) (is not) a drill. This (is) (is not) a
drill. This is Limerick Generating Station calling to report an Alert.
My name is _______, telephone ______. Limerick Generating
Station is reporting an Alert declared at Unit No. _____. Time and date
of Alert classification are ______. (date) (improving)(degrading)(not known). There is no
protective action recommended. This (is) (is not) a drill. This (is)
(is not) a drill.

Emergency Director

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APPENDIX EP-103-2

ALERT DE-ESCALATION NOTIFICATION MESSAGE

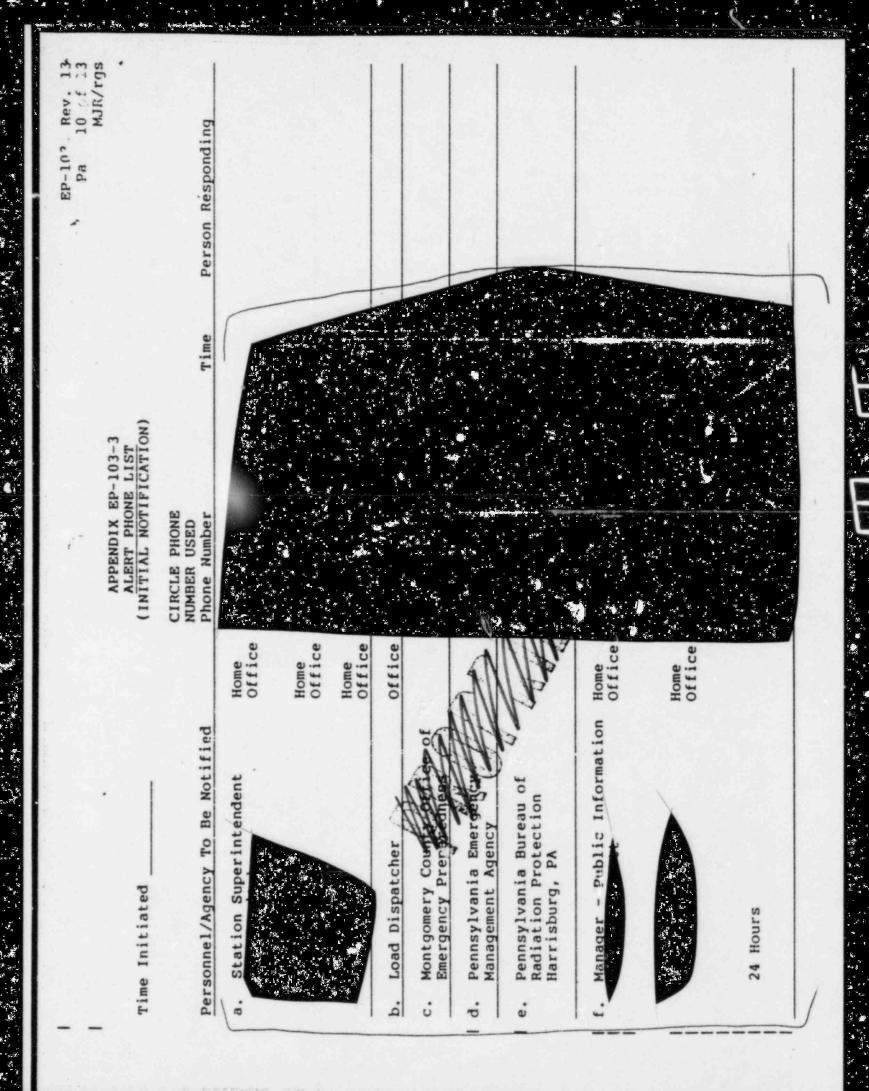
MESSAGE: *This (is) (is not)* a drill. This *(is) (is not)* a drill. This is Limerick Generating Station calling to report a change in emergency classification. The Alert has been *(de-escalated to an Unusual Event) (Terminated)*.

Time and date are

(24 Hr Clock Time) (Date)

The plant status is *(stable) (improving)*. My name is _____. This *(is) (is not)* a drill. This *(is) (is not)* a drill.

Emergency Director



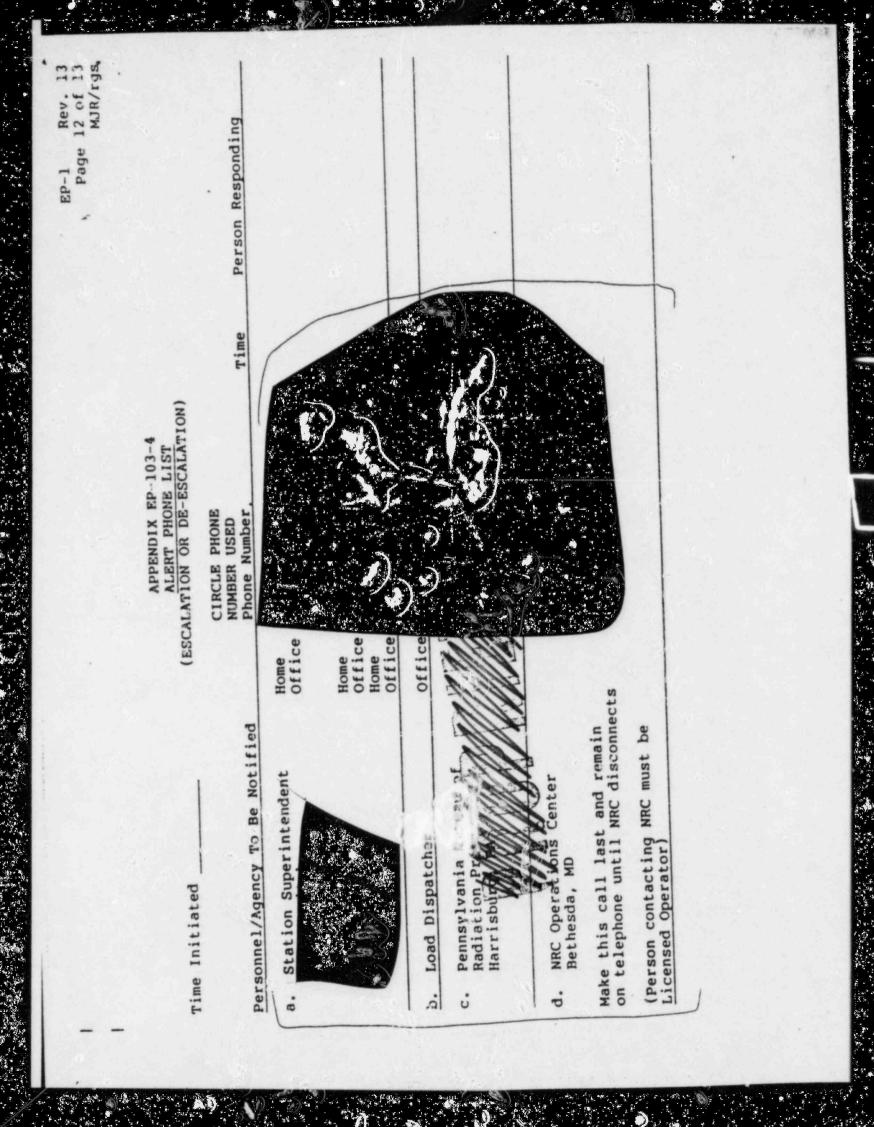
MJR/rgs Rev. 11 of Person Responding EP-107. Pe And a second second 1.2 5 W. Time ALERT PHONE LIST (INITIAL NOTIFICATION) APPENDIX EP-103-3 Time/Date CIRCLE PHONE Phone Number NUMBER USED Office Office Home Work Home Home EMERGENCY DIRECTOR Make this call last and remain on es have Personnel/Agency To Be Notified telephone until NRC disconnects Chester County Emergency NRC Operations Center: Berks County Emergency Planning Coordinator Director - Emergency **Operations Security** Management Agency Site Emergency Completed By. Bethesda, MD Mar 4 Preparedness Verified By: の、「ないの」、「「」」、「 Time Initiated Alternates Person contag Services Licensed Ope, been notifed Agencies to the above p ż 1. .6 k.

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rime Initiated	(ESCALATION OR DE-ESCAL CIRCLE PHONE NUMBER USED		Dansan Dasaadiaa
Personnel/Agency To Be Notif Agencies to be contacted aft the above personnel/agencies been notifed	er	Time	Person Responding
e. Montgomery County Office of Emergency Preparednes	s		
f. Berks County Emergency Managment Agency			
g. Chester County Emergency Services			
Completed By:	The		

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PHILADELPHIA ELECTRIC COMPANY LIMERICK GENERATING STATION EMERGENCY PLAN IMPLEMENTING PROCEDURE

EP-104 SITE EMERGENCY RESPONSE

- 1.0 PARTICIPANTS
 - 1.1 Shift Superintendent or designated alternate shall assume the role of Emergency Director and implement this procedure, until relieved.
 - 1.2 <u>Station Superintendent</u> or designated alternate shall report to the Technical Support Center or Control Room, relieve the Emergency Director, assume the role of Emergency Director, and continue implementing the procedure, if necessary.
 - 1.3 <u>Site Emergency Coordinator</u> shall report to the Emergency Operation Facility and implement the appropriate section of this procedure, if necessary.
- - 2.1.1 Verify the emergency classification is determined in EP-101, Classification of Emergencies unless determination has just been made.
 - 2.1.2 Fill out Appendix EP-104-1, Site Emergency Notification Message, sign it and give it to the Communicator.
 - 2.1.3 Direct the communicator to complete notification of the appropriate parties as specified in Appendix EP-104-3, Site Emergency Phone List (Initial Notification) or Appendix EP-194-4, Alert Bhone List (Escalation or De-escalation) within 15 minutes.

THE COMMUNICATOR SHALL MAN THE NRC RED TELEPHONE ON A CONTINUOUS BASIS UNTIL THE NRC DISCONNECTS.

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indability

- 2.1.4 Contact the Station Superintendent and the Shift Technical Advisor, inform them of the situation, if not already done.
- 2.1.5 Direct the Information Center Staff to implement EP-306, Evacuation of the Information Center, if not already done. Inform the staff of the wind direction, if there is an airborne release.
- 2.1.6 If there is an Potential or Actual radiological release, implement EP-305, Site Evacuation.
- 2.1.7 If there has not been a radiological release,
 - A. Evacuate all construction personnel by contacting Bechtel Safety Direct them to call for an evacuation of all Unit 2 personnel in accordance with Bechtel procedures. Inform them of nature of hazard. Bechtel Safety will report accountability results to the Emergency Director.

THIS WILL CALL FOR THE ASSEMBLY OF UNIT 2 PERSONNEL AT THE UPPER PARKING LOT . IF IT IS DESIRED THAT THEY LEAVE THE SITE, INFORM BECHTEL SAFETY.

- B. Inform operations security of the evacuation for information purposes, no action required.
- C. Select the type of accountability desired for personnel in the protected area and implement the neguired actions below:

"THIS (IS) (IS NOT) A DRILE. A MILE EMERGENCY HAS BEEN DECLARED. DESIGNATED EMERGENCY PERSONNEL REPORT TO ASSIGNED EMERGENCY RESPONSE FACILITY OR ASSEMBLY AREA. ALL OTHER PERSONNEL STAND BY FOR FURTHER ANNOUNCEMENT. THIS (IS) (IS NOT) A DRILL."

- 2. Emergency Assembly With Accountability
 - a. Contact the Security Team Leader. Inform him of the selected point(s), that emergency assembly with accountability is going to be

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implemented, and to activate the Security Team (EP-208) and to perform personnel accountability in accordance with EP-110, Personnel Assembly and Accountability

b. Contact Yoh Construction Security and inform them that personnel leaving Unit 1 will be reassembling at the Personnel Processing Center (PPC)

Make the following announcement.

"THIS (IS) (IS NOT) A DRILL, THIS (IS) (IS NOT) A DRILL. A SITE EMERGENCY HAS BEEN DECLARED. PLEASE PREPARE FOR ASSEMBLY WITH ACCOUNTABILITY. DESIGNATED EMERGENCY PERSONNEL REPORT TO ASSIGNED EMERGENCY RESPONSE FACILITY OR ASSEMBLY AREA. ALL OTHER UNIT ONE PERSONNEL BEAVE THE PROTECTED AREA IMMEDIATELY AND REASSEMBLE AT THE PERSONNEL PROCESSING CENTER. THIS (IS) (IS NOT) A DRILL. THIS (IS) (IS NOT) A DRILL.

- 2.1.8 For off hours, if not already accomplished at the Alert stage, direct the Shift Clerk to activate the call list per EP-291, Staffing Augmentation. If Shift Clerk is not available, this function may be assigned to any available individual.
- 2.1.9 Direct the activation of the Technical Support Center in accordance with EP-201, Technical Support Center (TSC) Activation, if not already activated.
- 2.1.10 If the EOF has not been activated earlier, during the Alert Response procedure, direct a communicator to call EOF personnel (directing them to report to the EOF) using EP-279, EOF Group Phone List.
- 2.1.11 Assign an Operations Support Center coordinator (PO) if not already done, to direct available personnel to report to the Operations Support Center and to activate it in accordance with EP-202, Operations Support Center (OSC) Activation.
- 2.1.12 For samples, direct the Shift Chemistry Technician or Chemistry Sampling And Analysis Team Leader to implement EP-230, Chemistry Sampling And Analysis Team.

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- 2.1.13 For in-plant surveys, direct a Shift HP Technician or Personnel Safety Team Leader to implement EP-250, Personnel Safety Team .
- 2.1.14 For field surveys, when a release of gaseous radioactive material has occurred or is suspected, direct a Shift HP Technician or Dose Assessment Team Leader to implement EP-210, Dose Assessment Team .
- 2.1.15 For a release, at or greater than the Alert level in EP-101, Classification of Emergencies, or at the discretion of the Emergency Director, direct the Dose Assessment Team Leader to implement EP-210, Dose Assessment Team.
- 2.1.16 On an interim basis, direct the Shift Technical Advisor to perform dose projections using EP-316, Cumulative Population Dose Calculations for Airborne Releases-Manual Method or EP-315 Calculations of Offsite Doses during a Radiological Emergency using RMMS in the Manual Mode and to suggest Protection Action Recommendations per EP-317.
- 2.1.17 For fire/damage repair direct the Maintenance Shift Assistant Foreman or Fire and Damage Team Leader to implement EP-260, Fire and Damage Team and/or EP-261, Damage Repair Group.
- 2.1.18 For a liquid release, implement EP-312, Radioactive Liquid Release, if required.
- 2.1.19 For Security matters, contact Security Shift Supervision and direct implementation of EP-208, Security Team, unless previously done.

3.0 ACTIONS-FOLLOW-UP

- 3.1 Emergency Director shall:
- 3.1.1 Verify that the Technical Support Center, Emergency Operations Facility and the Operations Support Center have been activated.
- 3.1.2 Periodically evaluate the event classification in accordance with EP-101, Classification of Emergencies and escalate or de-escalate the classification, as necessary.

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- 3.1.3 If classification is de-escalated, fill out Appendix EP-104-2, Site Emergency De-Escalation Notification Message, sign it and give it to the communicator and direct the communicator to perform notification of the appropriate parties listed in Appendix EP-104-4, Site Emergency Phone List (Escalation or De-escalation).
- 3.1.4 Obtain the following information as necessary to formulate further actions:
 - A. Security Status from Security Team Leader
 - B. Sample analysis from Shift Chemistry Technician or Chemistry Sampling And Analysis Team Leader
 - C. In-plant surveys from Shift HP Technician or Personnel Safety Team Leader
 - D. Field surveys from Shift HP Technician or Dose Assessment Team Leader
 - E. Dose projections and protective action recommendations from Shift Technical Advisor or Dose Assessment Team Leader
 - F. Fire/Damage repair status from the Maintenance Shift Assistant Foreman or Fire and Damage Team Leader.
 - G. Notification Results from Communicator.
- 3.1.5 Discuss protective action recommendations with the Site Emergency Coordinator.
- 3.1.6 Determine which additional support personnel are necessary for emergency functions and direct the shift clerk or other assigned communicator to contact those personnel.
- 3.1.7 Provide site personnel with public addres (PA) announcements for any major changes in plant emergency status, such as changing emergency action levels and evacuations.
- 3.1.8 Evaluate the need and order evacuation of affected areas as necessary.

Refer to the following procedures:

EP-303 Local Evacuation

EP-304 Partial Plant Evacuation

EP-305 Site Evacuation

- 3.1.9 Perform the following until relieved by the Site Emergency Coordinator:
 - A. Discuss protective action recommendations with the Dose Assessment Team Leader.
 - B. Provide protective action recommendations, if necessary, to the Pennsylvania Bureau of Radiation Protection.
 - C. Inform the various emergency response groups if the recovery phase organization is to be implemented.
- 3.2 The Communicator shall:
- 3.2.1 Inform the Emergency Director when appropriate notifications have been made and submit completed copy of Appendix EP-104-3 Site Emergency Phone List (Initial Notification) or Appendix EP-104-4, Site Emergency Phone List (Escalation or Deescalation) for Emergency Directors Signature.

4.0 APPENDICES

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- 4.1 EP-104-1 Site Emergency Notification Message
- 4.2 EP-104-2 Site Emergency De-Escalation Notification Message
- 4.3 EP-104-3 Site Emergency Phone List (Initial Notification)
- 4.4 EP-104-4 Site Emergency Phone List (Escalation or De-escalation)

5.0 SUPPORTING INFORMATION

5.1 Purpose

The purpose of this procedure is to provide guidelines for the site response to a Site Emergency.

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5.2 Criteria For Use

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- 5.2.1 This procedure shall be implemented when an event has been classified as a Site Emergency per EP-101, Classification of Emergency and EP-101 has been completed.
- 5.3 Special Equipment

None

5.4 References

5.4.1 Limerick Generating Station Emergency Plan

5.4.2 NUREG 0654, Criteria For Preparation and Rev. 1 Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.

- 5.4.3 EP-101 Classification of Emergencies
- 5.4.4 EP-291 Staffing Augmentation
- 5.4.5 EP-201 Technical Support Center (TSC) Activation
- 5.4.6 EP-202 Operations Support Center (OSC) Activation
- 5.4.7 EP-317 Determination of Protective Action Recommendations
- 5.4.8 EP-316 Cumulative Population Dose Calculations For Airborne Releases-Manual Method
- 5.4.9 EP-303 Local Evacuation
- 5.4.10 EP-304 Partial Plant Evacuation
- 5.4.11 EP-305 Site Evacuation
- 5.4.12 EP-306 Evacuation of the Information Center
- 5.4.13 EP-110 Personnel Assembly and Accountability

5.4.14 EP-208 Security Team

- 5.4.15 EP-210 Dose Assessment Team
- 5.4.16 EP-230 Chemistry Sampling and Analysis Team

5.4.17 EP-250 Personnel Safety Team

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- 5.4.18 EP-260 Fire and Damage Team
- 5.4.19 EP-261 Damage Repair Group

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- 5.4.20 EP-312 Radioactive Liquid Release
- 5.4.21 EP-279 Emergency Operations Facility (EOF) Group Phone List
- 5.4.22 EP-315 Calculations of Offsite Doses During a Radiological Emergency using RMMS in the Manual Mode

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APPENDIX EP-104-1

SITE EMERGENCY NOTIFICATION MESSAGE

Message: This *(is)(is not) a drill. This (is)(is not)* a drill.

This is Limerick Generating Station calling to report a Site

Emergency. My name is _____, telephone _____.

Limerick Generating Station is reporting a Site Emergency declared at Unit No. .

Time and date of Site Emergency classification are (24 hr. clock time)

(Date)

The basic problem is ______. There *(has been) (has not been)* an *(airborne) (liquid)* radioactive release from the plant. The plant status is *(stable) (improving) (degrading) (not known).* There is no protective action recommended. This *(is) (is not)* a drill. This *(is) (is not)* a drill.

Emergency Director

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APPENDIX EP-104-2

SITE EMERGENCY DE-ESCALATION NOTIFICATION MESSAGE

MESSAGE: This *(is) (is not)* a drill. This *(is) (is not)* a

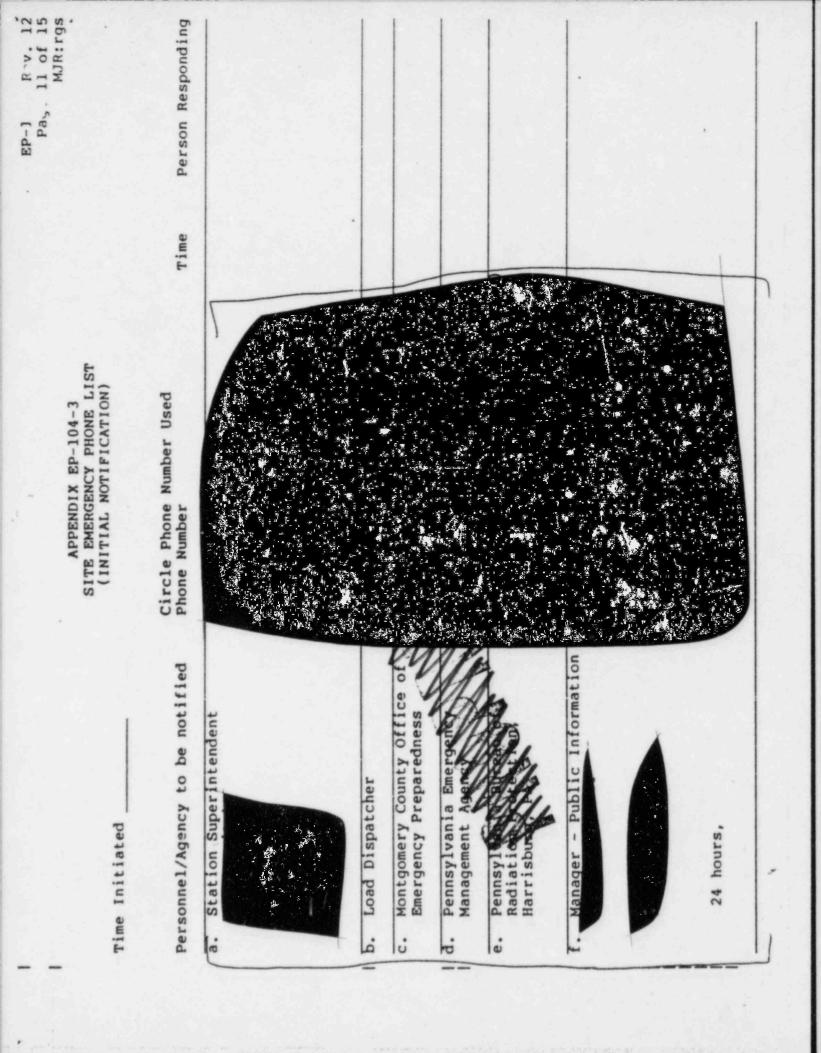
drill. This is Limerick Generating Station calling to report a change in emergency action level. The site emergency has been *(deescalated to an) (Unusual Event) (Alert) (Terminated).* Time and date are

(24 Hr Clock Time) (Date) (Date)

(improving).* My name is_____. This *(is) (is not)* a
drill.

This *(is) (is not)* a drill.

Emergency Director



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Person Responding

Time

APPENDIX EP-104-3 (CONT'D) SITE EMERGENCY PHONE LIST (CONT'D) (INITIAL NOTIFICATION)

Circle Phone Number Used

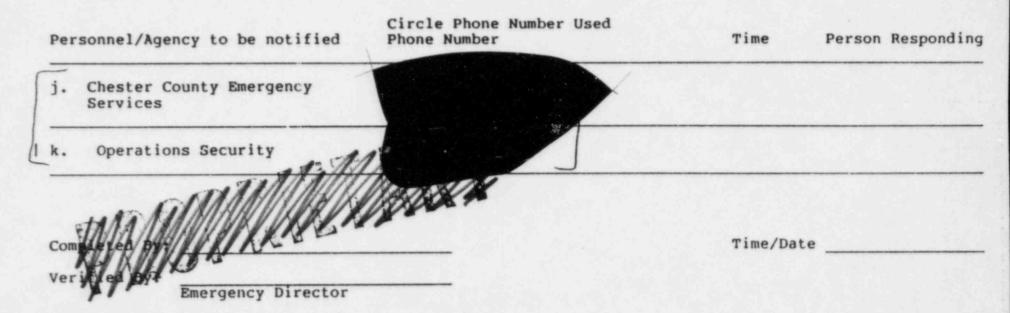
Phone Number

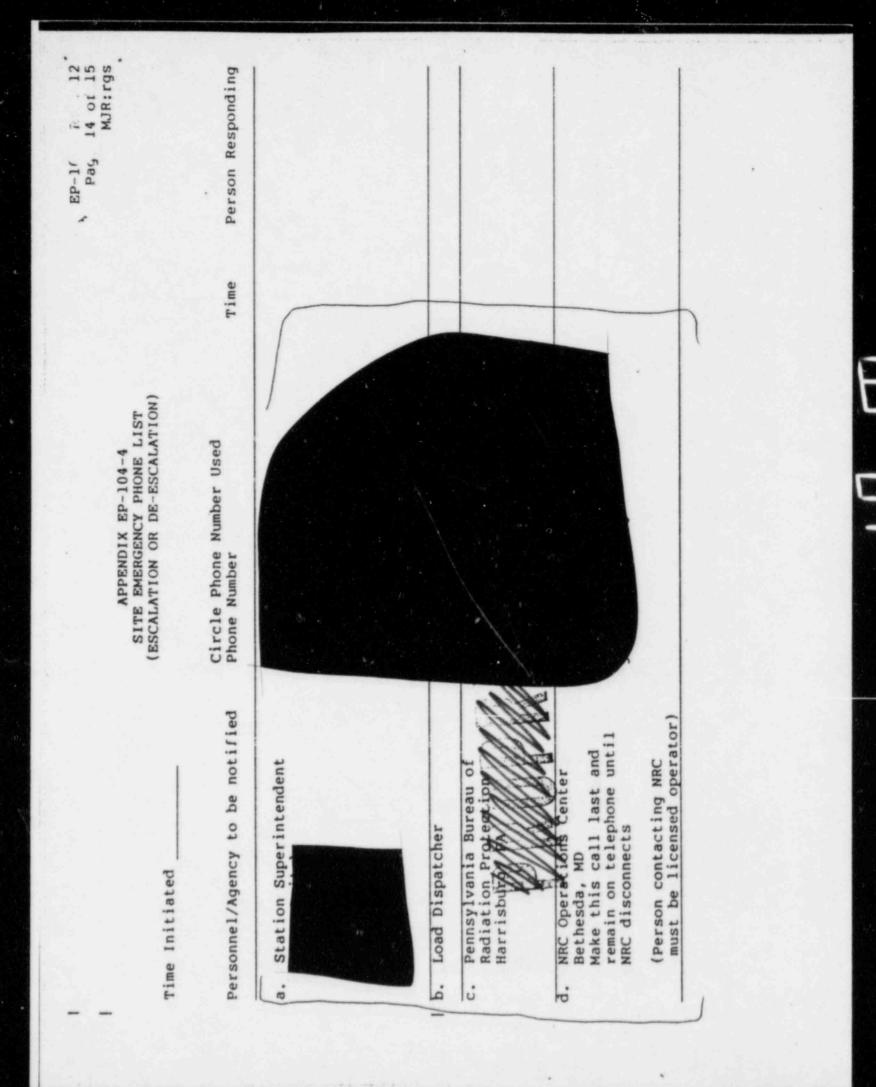
Personnel/Agency to be notified

g. Site Emergency Planning Coordinator Alternates Director - Emergency Preparedness NRC Operations Center h. Bethesda, MD Make this call last and remain on telephone until NRC disconnects (Person contacting NRC must be licensed operator) Agencies to be contacted after the above personnel/agencies have been notified i. Berks County Emergency Management Agency

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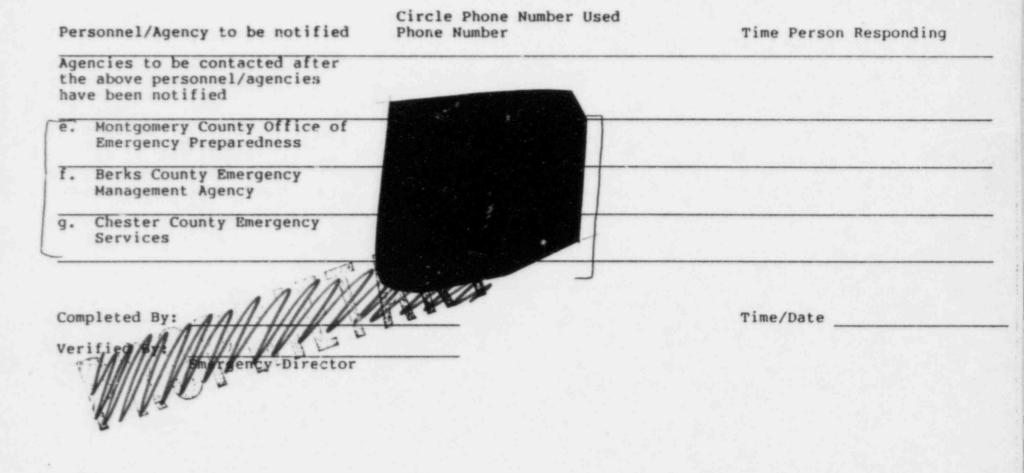
APPENDIX EP-104-3 (CONT'D) SITE EMERGENCY PHONE LIST (CONT'D) (INITIAL NOTIFICATION)





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APPENDIX EP-104-4 (CONT'D) SITE EMERGENCY PHONE LIST (CONT'D) (ESCALATION OR DE-ESCALATION)



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PHILADELPHIA ELECTRIC COMPANY LIMERICK GENERATING STATION EMERGENCY PLAN IMPLEMENTING PROCEDURE

EP-105 GENERAL EMERGENCY RESPONSE

1.0 PARTICIPANTS

2.0

- 1.1 Shift Superintendent or designated alternate shall assume the role of Emergency Director and implement this procedure until relieved.
- 1.2 <u>Station Superintendent</u> or designated alternate shall report to the Technical Support Center or Control Room, relieve the Emergency Director, assume the role of Emergency Director, and continue implementing the procedure, if necessary.
- 1.3 Site Emergency Coordinator shall report to the Emergency Operations Facility and perform the appropriate section of this procedure, if necessary.

ACTIONS - IMMEDIAT 2.1 23 2.1 the emergency classification as ermined in EP-101, Classification of mergencies unless determination has just been made.

- 2.1.2 Fill out Appendix EP-105-1, General Emergency Notification Message, sign it and give it to the communicator.
- 2.1.3 Direct communicator to complete notification of the appropriate parties as specified in Appendix EP-105-3, General Emergency Phone List (Initial Notification) or Appendix EP-105-4, General Emergency Phone List (Escalation or Deescalation) within 15 minutes.

THE COMMUNICATOR SHALL MAN THE NRC RED TELEPHONE ON A CONTINUOUS BASIS UNTIL THE NRC DISCONNECTS.

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- 2.1.4 Contact the Station Superintendent and the Shift. Technical Advisor, inform them of the situation, if not already done.
 - 2.1.5 Direct the Info Center Staff Content to implement EP-306, Evacuation of the Information Center, if not already done. Inform the staff of the wind direction, if there is an airborne release.
 - 2.1.6 If there is an actual or potential radiological release, implement EP-305, Site Evacuation.
 - 2.1.7 If there has not been a radiological release,
 - A. Evacuate all construction personnel by contacting Bechtel Safety Direct them to call for evacuation of all Unit 2 personnel in accordance with Bechtel procedures. Inform them of nature and preferred evacuation direction.

THIS WILL CALL FOR THE ASSEMBLY OF UNIT 2 PERSONNEL AT THE HPPER PARAME LOT IF IT IS DESIRED THAT THEY DEADE THE SATE INFORM BECHTEL GARETY

Bill contert operation security and tell content of any construction evacuation for introduction purposes only, no action required.

- C. Select the type of accountability desired for personnel in the protected area and implement the required actions below:
 - Emergency Assembly Without Accountability

- Make the following announcement

"THIS (IS) (IS NOT) A DRILL. DESIGNATED EMERGENCY PERSONNEL REPORT TO ASSIGNED EMERGENCY RESPONSE FACILITY OR ASSEMBLY AREA. ALL OTHER PERSONNEL STAND BY FOR FURTHER ANNOUNCEMENT. THIS (IS) (IS NOT) A DRILL."

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2. Emergency Assembly With Accountability

a. Contact the Security Team Leader. Inform him of the selected exit point(s), that emergency assembly with accountability is going to be implemented, and to activate the Security Team (EP-208) and to perform personnel accountability in accordance with EP-110, Personnel Assembly and Accountability.

b. Contact Yoh Construction Security and inform them that personnel leaving Unit 1 will be reassembling at the Personnel Processing Center (PPC).

- Make the following announcement.

"THIS (IS) (IS NOT) A. DRILL, THIS (IS) (IS NOT) A DRILL, A GENERAL EMERGENCY HAS BEEN DECLARED. PLEASE PREPARE FOR ASSEMBLY WITH CCOUNTABILITY. DESIGNATED HERGENCY PERSONNEL REPORT TO HERGENCY PERSONNEL REPORT TO HERGENCY AREA. ALL OTHER UNIT ONE PERSONNEL LEAVE THE PROTECTED AREA IMMEDIATELY AND REASSEMBLE AT THE PERSONNEL PROCESSING CENTER. THIS (IS) (IS NOT) A DRILL. THIS (IS) (IS NOT) A DRILL."

- 2.1.8 For OFF-hours, if not already accomplished during an Alert or Site Emergency Response procedure, direct the Shift Clerk to activate the recall list using EP-291, Staffing Augmentation. If Shift Clerk is not available, this function may be assigned to any available individual.
- 2.1.9 Direct the activation of the Technical Support Center in accordance with EP-201, Technical Support Center (T3C) Activation, if not already activated.
- 2.1.10 If the EOF has not been activated earlier, during an Alert or Site Emergency Response procedure, direct a communicator to call EOF personnel (directing them to report to the EOF) using EP-279, EOF Group Phone List.

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- 2.1.11 Assign an Operations Support Center Coordinator (PO), if not already done, to direct available personnel to report to the Operations Support Center and to activate it in accordance with EP-202, Operations Support Center (OSC) Activation.
- 2.1.12 For samples, direct the Shift Chemistry Technician or Chemistry Sampling And Analysis Team Leader to implement EP-230 Chemistry Sampling And Analysis Team.
- 2.1.13 For in-plant surveys, direct a Shift HP Technician or Personnel Safety Team Leader to implement EP-250, Personnel Safety Team.
- 2.1.14 For field surveys when a release of gaseous radioactive material has occurred or is suspected, direct Dose Assessment Team Leader to implement EP-210, Dose Assessment Team .
- 2.1.15 For a release at or greater than the Alert level in EP-101, Classification of Emergencies, or at the discretion of the Emergency Director, direct the Dose Assessment Team Leader to implement EP-210, Dose Assessment Team.
- 2.1.16 On an interim bases, direct the Shift Technical Advisor to perform dose projections using EP-316, Cumulative Population Dose Calculations for Airborne Releases-Manual Method or EP-315 Calculation of Offsite Doses during a Radiological Emergency using RMMS in the Manual Mode and to suggest Protective Action Recommendations per EP-317.
- 2.1.17 For fire/damage repair direct the Maintenance Shift Assistant Foreman or Fire and Damage Team Leader to implement EP-260, Fire and Damage Team and/or EP-261 Damage Repair Group.
- 2.1.18 For a liquid release, implement EP-312, Radioactive Liquid Release, if required.
- 2.1.19 For Security matters, contact Security Shift Supervision and direct implementation of EP-208, Security Team, unless previously done.

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3.0 ACTIONS - FOLLOW-UP

- 3.1 Emergency Director shall:
- 3.1.1 Verify that the Technical Support Center, Emergency Operations Facility and the Operations Support Center have been activated.
- 3.1.2 Periodically evaluate the event classification in accordance with EP-101, Classification of Emergencies. If the conditions change, deescalate to an appropriate classification.
- 3.1.3 If classification is de-escalated, fill out Appendix EP-105-2, General Emergency Deescalation Notification Message, sign it and give it to the communicator and direct the communicator to perform notification of the appropriate parties listed in Appendix EP-105-4, General Emergency Phone List (Escalation or Deescalation).
- 3.1.4 Obtain the following information as necessary to formulate further actions:
 - A. Security Status from Security Team Leader
 - B. Sample analysis from Shift Chemistry Technician or Chemistry Sampling and Analysis Team Leader
 - C. In-plant surveys from Shift HP Technician or Personnel Safety Team Leader
 - D. Field surveys from Shift HP Technician or Dose Assessment Team Leader
 - E. Dose projections and protective action recommendations from Shift Technical Advisor or Dose Assessment Team Leader
 - F. Fire/Damage Repair status from the Maintenance Shift Assistant Foreman or Fire and Damage Team Leader
 - G. Notification results from Communicator
- 3.1.5 Discuss protective action recommendations with the Site Emergency Coordinator.

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- 3.1.6 If not already performed, determine which additional support personnel are necessary for emergency functions and direct the Shift Clerk or other assigned person to contact those personnel.
- 3.1.7 Provide site personnel with public address (PA) speaker announcements for any major changes in plant emergency status, such as changing emergency action levels.
- 3.1.8 Evaluate the need and order evacuation of effected areas as necessary.

Refer to the following procedures:

EP-303 Local Evacuation

EP-305 Site Evacuation

- EP 306 Evacuation of the Information Center
- 3.1.9 Perform the following until relieved by the Site Emergency Coordinator:
 - A. Discuss protective action recommendations with the Dose Assessment Team Leader.
 - B. Provide protective action recommendations to the Pennsylvania Bureau of Radiation Protection.
 - C. Inform the various emergency response groups if the recovery phase organization is to be implemented.
- 3.2 Communicator shall:

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3.2.1 Inform the Emergency Director when appropriate notifications have been made and submit completed copy of Appendix EP-105-4 General Emergency Phone List (Initial Notification) or Appendix EP-105-5 (Escalation or De-escalation) for Emergency Director's signature.

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4.0 APPENDICES

	4.1	EP-105-1	General	Emergency	Notification	Message
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- 4.2 EP-105-2 General Emergency De-escalation Notification Message
- 4.3 EP-105-3 General Emergency Phone List (Initial Notification)
- 4.4 EP-105-4 General Emergency Phone List (Escalation or De-escalation)

5.0 SUPPORTING INFORMATION

- 5.1 The purpose of this procedure is to provide guidelines for the site response to a General Emergency.
- 5.2 Criteria for Use
- 5.2.1 This procedure shall be implemented when an event has been classified as a General Emergency per EP-101, Classification of Emergencies, and EP-101 has been completed.
- 5.3 Special Equipment

None

- 5.4 References
- 5.4.1 Limerick Generating Station Emergency Plan
- 5.4.2 NUREG 0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans in Support of Nuclear Power Plants
- 5.4.3 EP-101 Classification of Emergencies
- 5.4.4 EP-201 Technical Support Center (TSC) Activation
- 5.4.5 EP-202 Operations Support Center (OSC) Activation
- 5.4.6 EP-291 Staffing Augmentation
- 5.4.7 EP-303 Local Evacuation
- 5.4.8 EP-304 Partial Plant Evacuation
- 5.4.9 EP-305 Site Evacuation

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- 5.4.10 EP-306 Evacuation of the Information Center
- 5.4.11 EP-317 Determination of Protective Action Recommendations
- 5.4.12 EP-316 Cumulative Population Dose Calculations For Airborne Releases - Manual Method
- 5.4.13 EP-110 Personnel Assembly and Accountability
- 5.4.14 EP-208 Security Team
- 5.4.15 EP-210 Dose Assessment Team
- 5.4.16 EP-230 Chemistry Sampling and Analysis Team
- 5.4.17 EP-250 Personnel Safety Team
- 5.4.18 EP-260 Fire and Damage Team
- 5.4.19 EP-261 Damage Repair Group
- 5.4.20 EP-312 Radioactive Liquid Release
- 5.4.21 EP-279 Emergency Operations Facility (EOF) Group Phone List
- 5.4.22 EP-315 Calculations of Offsite Doses during a Radiological Emergency using RMMS in the Manual Mode.

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APPENDIX EP-105-1

GENERAL EMERGENCY NOTIFICATION MESSAGE

<u>MESSAGE</u>: This (IS) (IS NOT) a drill. This (IS) (IS NOT) a drill. This is the Limerick Generating Station calling to report a General Emergency. My name is ______, telephone . Limerick Generating Station is reporting a General

Emergency declared at Unit No. _____. Time and date of General Emergency classification are

(24 Hr Clock Time) (Date)

_______/ ______

. . .

The basic problem is ______. There (HAS BEEN) (HAS NOT BEEN) an (AIRBORNE) (LIQUID) radioactive release from the plant. The plant status is (STABLE) (IMPROVING) (DEGRADING) (NOT KNOWN). The protective action recommended is

* _____. The affected area is _____. This

(IS) (IS NOT) a drill. This (IS) (IS NOT) a drill.

*IF A GENERAL EMERGENCY HAS BEEN DECLARED WITHOUT PRIOR EMERGENCY CLASSIFICATION, PROVIDE THE RECOMMENDATION TO SHELTER WITHIN THE 2 MILE RADIUS AND 5 MILES DOWNWIND OF THE PLANT. IF PEMA & BRP ARE NOT AVAILABLE, MAKE THE RECOMMENDATION TO SHELTER 10 MILES FULL CIRCLE (360 DEGREES) DIRECTLY TO THE COUNTIES.

Emergency Director

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APPENDIX EP-105-2

GENERAL EMERGENCY DE-ESCALATION NOTIFICATION MESSAGE

<u>Message</u>: This (IS) (IS NOT) a drill. This (IS) (IS NOT) a drill. This is Limerick Generating Station calling to report a change in emergency action level. The General Emergency has been (DE-ESCALATED TO) (AN UNUSUAL EVENT) (AN ALERT) (AN SITE EMERGENCY) (TERMINATED).Time and date are

(24 Hr Clock Time) (Date)

(IMPROVING). My name is

This (IS) (IS NOT) a drill. This (IS) (IS NOT) a drill.

Emergency Director

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APPENDIX EP-105-2

GENERAL EMERGENCY DE-ESCALATION NOTIFICATION MESSAGE

<u>Message</u>: This (IS) (IS NOT) a drill. This (IS) (IS NOT) a drill. This is Limerick Generating Station calling to report a change in emergency action level. The General Emergency has been (DE-ESCALATED TO) (AN UNUSUAL EVENT) (AN ALERT) (AN SITE EMERGENCY) (TERMINATED).Time and date are

_____, ___. The plant status is (stable)

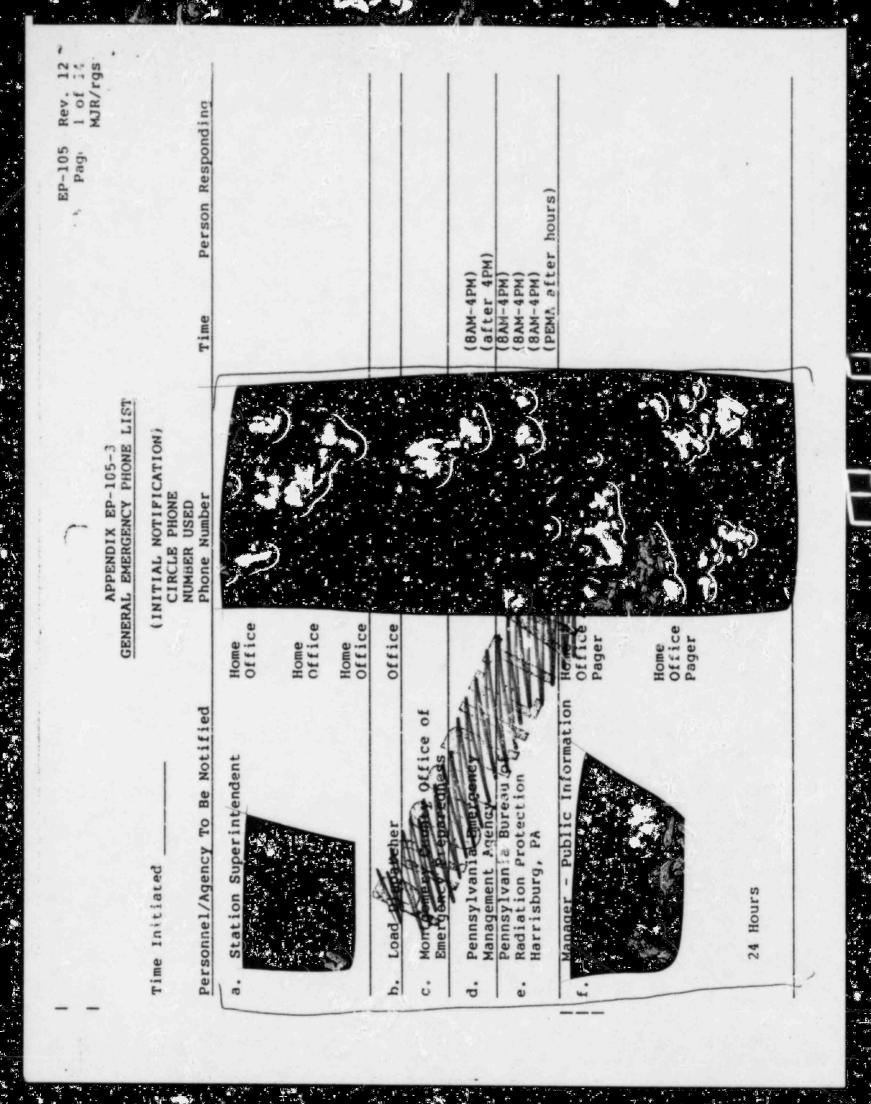
(24 Hr Clock Time) (Date)

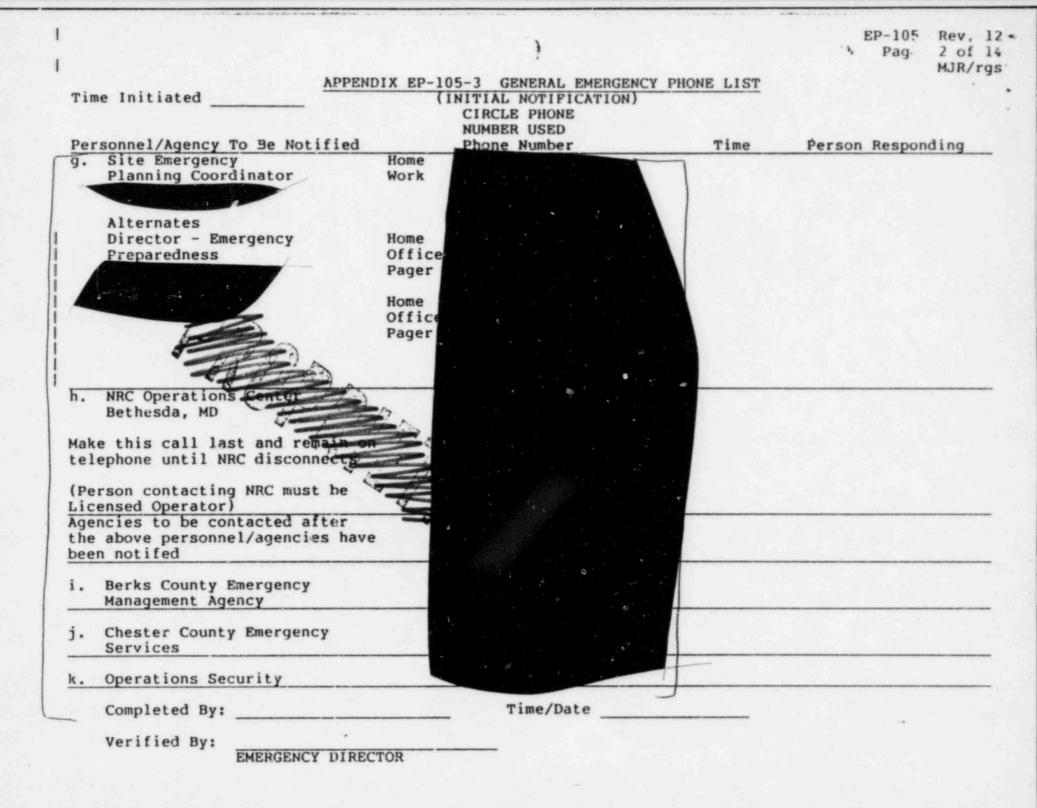
(IMPROVING). My name is

.

This (IS) (IS NOT) a drill. This (IS) (IS NOT) a drill.

Emergency Director





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APPENDIX EP-105-4 GENERAL EMERGENCY PHONE LIST

Time Initiated

.

(ESCALATION OR DE-ESCALATION)

lome office		
Iome		
Office		
	(8am-4pm (8am-4pm)
	Office Office	Office Office (8am-4pm) (8am-4pm) (8am-4pm) (8am-4pm) (8am-4pm) (8am-4pm)

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APPENDIX EP-105-4 GENERAL EMERGENCY PHONE LIST

Tim	e Initiated	(ESCALATION OR DE-ESCALATI	ON)	
Per	sonnel/Agency To Be Notified	CIRCLE PHONE NUMBER USED Phone Number	Time	Person Responding
the	encies to be contacted after above personnel/agencies have en notified			
ē.	Montgomery county office of Emergence preparedness			
f.	Berks County Emergency Management Agency			
g.	Chester County Emergency			
/ .	Completed By: Verified By: EMERGENCY DIRECTOR	The second		

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PHILADELPHIA ELECTRIC COMPANY LIMERICK GENERATING STATION EMERGENCY PLAN IMPLEMENTING PROCEDURE

EP-234 OBTAINING CONTAINMENT GAS SAMPLES FROM THE CONTAINMENT LEAK DETECTOR DURING EMERGENCIES

1.0 PARTICIPANTS

- 1.1 <u>Chemistry Sampling and Analysis Team Leader</u> shall obtain necessary information and permission to obtain sample.
- 1.2 <u>Chemistry Sampling and Analysis Group Leader</u> shall organize and brief the sampling group and have operations defeat isolations.
- 1.3 <u>HP Technician</u> shall provide radiological assessment of the task.
- 1.4 Chemistry Sampling and Analysis Group shall obtain the sample.

2.0 ACTIONS - IMMEDIATE

- 2.1 Chemistry Sampling and Analysis Team Deader Shall:
- 2.1.1 After and souther and the arthust the
 - from the conta ament lean detector is required
- 2.1.2 Chart and Plant Radiation Level Status Board to forecast anticipated radiclogical conditions.
- 2.1.3 Contact the Personnel Safety Team Leader for the latest developments related to radiological conditions, and inform Kim what sample(s) are to be taken, and request Health Physics' coverage if required.

CAUTION

CONTINUOUS COVERAGE BY A HEALTH PHYSICS TECHNICIAN MAY SUBSTITUTE FOR THE RADIATION WORK PERMIT.

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- 2.1.4 Request input from the Control Room (via Emergency Director) to ascertain the desired sample system availability.
- 2.1.5 Determine what analyses are required and inform the Chemistry Sampling and Analysis Group Leader.
- 2.2.6 Request Emergency Exposure Authorizations from the Emergency Director for Group members (as required) and inform the Personnel Safety Team Leader of this development.
- 2.1.7 Direct the Chemistry Sampling and Analysis Group Leader to collect and analyze the filter/cartridge sample.
- 2.2 Chemistry Sampling and Analysis Group Leader shall:
- 2.2.1 Assign the appropriate number of group members to obtain the necessary equipment to collect and transport the sample to the Chemistry Hot Lab.
- 2.2.2 Brief the Chemistry Sampling and Analysis Group members on the following:
- 2.2.2.1 Communications equipment and channel
- 2.2.2.2 Type of sample(s) to be collected
- 2.2.2.3 Location of the sample points. The Containment Leak Detector location is elevation 283' area 16 behind the SLC tank.
- 2.2.2.4 Suggested routes to be taken. Suggested routes are shown in Appendices EF-234-3 and EP-234-4.

CAUTION

DO NOT USE ELEVATOR

- 2.2.2.5 Sample transport mechanism
- 2.2.2.6 Projected amount of time required to collect and transport the sample
- 2.2.2.7 Review of the procedures to be followed for sample collection, handling, preparation and analysis

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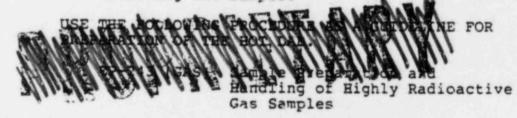
- 2.2.2.8 Special tools and equipment required for sample , handling and/or collection.
- 2.2.2.9 Proper completion of Data Sheets
- 2.2.3 Contact Shift operations in the Control Room to request system line up so that the selected sample can be taken from the desired Sample Station and sample point.

If the Containment Leak Detector is isolated (Group VI: HI D/W PRESS (1.68 psig), LO-LO Rx Level (-38"), REFULL FLOOR HVAC HI RAD (2 mR/Hr), OR RX ENCL. HVAC HI RAD (1.35 mR/Hr)), shift operations shall defeat the signal by placing jumpers across the following contacts:

DO NOT DEFEAT ISOLATION OF HIGH DRYWELL PRESSURE WHEN DRYWELL PRESSURE IS GREATER THAN 5 PSIG.

Valve	Panel	Terminals	Relay
SV-26-190A,C	10C609	HHH8-13 to	B21H-K101C
	(20C609)	HHH8-14	(T4-M4)
SV-26-190B,D	10C611	HHH2-18 to	B21H-K120B
	(20C611)	HHH2-19	(T4-M4)

2.2.4 Appoint group member(s) to prepare the Hot Lab for receiving the sample.



- 2.2.5 Dispatch the Chemistry Sampling and Analysis group members to the OSC for Health Physics Support if radiological conditions permit or other appointed location as determined by the Plant Survey Group Leader.
- 2.3 Health Physics Technician shall:
- 2.3.1 Determine which route should be used for collecting and transporting the sample.
- 2.3.2 Take appropriate radiation survey equipment and ensure that equipment is functional and calibrated.

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- 2.3.3 Provide Group Members with the appropriate dosimetry, protective clothing and respiratory equipment.
- 2.3.4 Perform a pre-job briefing with the Chemistry technicians assigned to obtain the sample to discuss the following:
- 2.3.4.1 RWP requirements
- 2.3.4.2 Routes to be used
- 2.3.4.3 Authorized doses
- 2.3.4.4 Radiological concerns and precautions
- 2.3.4.5 Review of procedure for obtaining and transporting sample to hot lab
- 2.3.4.6 Suggested methods to maintain exposures ALARA
- 2.3.4.7 Stay times and abort criteria
- 2.3.5 Provide constant coverage while obtaining, transporting and analyzing the sample from the Containment Leak Detector.
- 2.3.6 Monitor dose rates enroute and at the sample location. Upon entering the power block, the surveyors will note trends in general radiation levels enroute to the Containment Leak Detector. If general area dose rates (unanticipated) exceed 5 R/hr gamma and/or beta prior to arriving at the door leading to Rx.283', exit immediately and report to Chemistry Sampling and Analysis Group Leader. If dose rates (unanticipated) exceed 5 R/hr at the door leading to Rx. 283', leave the area immediately and report to Chemistry Sampling and Analysis Group Leader, who will evaluate the situation with the Personnel Safety Team Leader
- 2.3.7 Survey the sample area and sample cask.
- 2.3.8 Document the sample cask survey results and give them to the Chemistry Sampling and Analysis Group Leader (or other designated group member) when arriving at the hot lab.
- 2.3.9 Provide constant coverage during sample preparation and handling as specified in EP-243.

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- 2.3.3 Provide Group Members with the appropriate dosimetry, protective clothing and respiratory equipment.
- 2.3.4 Perform a pre-job briefing with the Chemistry technicians assigned to obtain the sample to discuss the following:
- 2.3.4.1 RWP requirements
- 2.3.4.2 Routes to be used
- 2.3.4.3 Authorized doses
- 2.3.4.4 Radiological concerns and precautions
- 2.3.4.5 Review of procedure for obtaining and transporting sample to hot lab
- 2.3.4.6 Suggested methods to maintain exposures ALARA
- 2.3.4.7 Stay times and abort criteria
- 2.3.5 Provide constant coverage while obtaining, transporting and analyzing the sample from the Containment Leak Detector.
- 2.3.6 Monitor dose rates enroute and at the sample location. Upon entering the power block, the surveyors will note trends in general radiation levels enroute to the Containment Leak Detector. If general area dose rates (unanticipated) exceed 5 R/hr gamma and/or beta prior to arriving at the door leading to Rx.283', exit immediately and report to Chemistry Sampling and Analysis Group Leader. If dose rates (unanticipated) exceed 5 R/hr at the door leading to Rx. 283', leave the area immediately and report to Chemistry Sampling and Analysis Group Leader, who will evaluate the situation with the Personnel Safety Team Leader
- 2.3.7 Survey the sample area and sample cask.
- 2.3.8 Document the sample cask survey results and give them to the Chemistry Sampling and Analysis Group Leader (or other designated group member) when arriving at the hot lab.
- 2.3.9 Provide constant coverage during sample preparation and handling as specified in EP-243.

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- 2.4 Chemistry Sampling and Analysis Group Members shall:
- 2.4.1 Assemble for a pre-job briefing at the chemistry lab.
- 2.4.2 Inform the Group Leader if they are approaching the administrative exposure guidelines, or may not have sufficient exposure remaining to successfully complete the assigned task.
- 2.4.3 Obtain the necessary equipment to collect the sample and ensure that the hot lab is ready to accept the sample.

CAUTION

EYE PROTECTION SHOULD BE WORN BY ALL PERSONNEL WHEN OBTAINING SAMPLES FROM THE SAMPLE STATIONS.

2.4.4 Prepare three off gas sample vials by withdrawing from the sample vial (with a syringe) the same volume that is to be injected as a sample.

PROPERLY LABEL ALL SAMPLE CONTAINERS

- 2.4.5
 - Once the group has been briefed and the appropriate equipment has been assembled, proceed to the OSC or other designated location for Health Physics Coverage. Once briefed by Health Physics, proceed to the Containment Leak Detector area and collect a containment gas sample.
- 2.4.5.1 Proceed to the Containment Leak Detector.
- 2.4.5.2 Have the H.P. Technician survey the Containment Leak Detector.
- 2.4.5.3 Obtain the sample. The time required to obtain a sample is approximately 10 minutes.

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2.4.5.4 Sampling Method

- A. Verify that HS-26-190-1 (pump 1 switch) is in the ON position. Turn switch HS-26-190-2 switch (pump 2 switch) to OFF.
- B. Verify Flow Indicator (FI-26-190) indicates flow.
- C. Put switch HSS-26-190 (OPERATE/PURGE) in the PURGE position.
- D. Allow to purge for one minute.
- E. Close valves V-2 and V-3.
- F. Disconnect the filter holder assembly on the outlet side and install the gas sampling apparatus (similar to the one described in Appendix EP-234-1) making sure the sample valve and septum valve are closed.
- G. Open valves V-2 and V-3.
- H. Close valve V-8 (located behind the panel).
- I. Put switch HSS-26-190 in OPERATE position.
- J. Open the sample valve.
- K. Open the septum valve.
- L. Insert the 1.0 ml microsyringe through the septum valve and the sample valve into the sample tee.
- M. Flush the microsyringe by taking a 1.0 ml sample and injecting it back into the sample tee two times.
- N. Take a 1.0 ml sample and remove the microsyringe from the sample tee. Inject the sample into a 14.4 ml off gas vial. Place the microsyringe in a plastic bag and secure.
- O. Have the HP Technician immediately survey the vial and record the Initial Contact Dose Rate in Appendix EP-234-2 and using remote handling tools, place the vial into an appropriate transport container.
- P. Complete Appendix EP-234-2.

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- Q. Close the sample and septum valves.
- R. Open valve V-8.
- S. Turn HS-26-190-2 switch (pump 2 switch) to ON.
- T. Take the sample to the Chemistry Hot Lab.
- 2.4.7 Upon introduction of the sample into the hot lab, the sample will be handled and stored in a manner that personnel exposures are kept ALARA.
- 2.4.8 As soon as the sample reaches the hot lab, inform the Group Leader that sample collection has been completed and report the status of the sample.
- 3.0 ACTIONS FOLLOW-UP
 - 3.1 Chemistry Sampling and Analysis Group Members shall:
 - 3.1.1 Verify Appendix EP-234-2 is complete.
 - 3.1.2 Prepare, handle and analyze the sample using EP-243 Preparation and Handling of Highly Radioactive Gas Samples.
 - 3.1.3 Report the results to the Chemistry Sampling and Analysis Group Leader.
 - 3.1.4 Return all sampling equipment to the CHEMISTRY EMERGENCY CABINET.
 - 3.2 Chemistry Sampling and Analysis Group Leader shall:
 - 3.2.1 Notify Shift Supervision that a sample has been taken and the aligned valves may be returned to the "NORMAL" position (i.e., remove Jumpers).
 - 3.2.2 Ensure group member(s) dose is monitored to ensure that exposure limits have not been exceeded.
 - 3.2.3 Inform the Chemistry Sampling and Analysis Team Leader that the required sample is in the hot lab.

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- 3.2.4 Direct group members to refer to EP-243 Sample Preparation and Handling of Radioactive Gas Samples for guidance for sample preparation and handling.
- 3.2.5 Obtain and review all Data Sheets and report the sample results to the Chemistry Sampling and Analysis Team Leader and attach all Data Sheets to Appendix EP-230-2.
- 3.3 Chemistry Sampling and Analysis Team Leader shall:
- 3.3.1 Report the results to the Emergency Director and the Health Physics and Chemistry Coordinator if the EOF has been activated.
- 4.0 APPENDICES
 - 4.1 EP-234-1 Diagram of Gas Sampling Apparatus
 - 4.2 EP-234-2 Data Sheet
 - 4.3 EP-234-3 Equipment Location Reactor Enclosure Unit 1 Elevation 283
 - 4.4 EP-234-4 General Arrangement Plan at Elevation 217
- 5.0 SUPPORTING INFORMATION
 - 5.1 Purpose

This procedure provides guidelines for obtaining gas samples from the Containment Leak Detector during emergencies.

- 5.2 Criteria for use
- 5.2.1 This procedure shall be implemented when a gas sample shall be taken from the Containment Leak Detector during an Emergency.
- 5.2.2 Planned radiation exposures should be limited to the administrative guide levels in Appendix EP-230-1 Emergency Exposure Guidelines.

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- 5.3 Special Equipment
- 5.3.1 Transport container (shielded)
- 5.3.2 Gas Sampling Apparatus
- 5.3.3 3 off-gas vials with septums
- 5.3.4 Appropriate microsyringes
- 5.3.5 Plastic bags

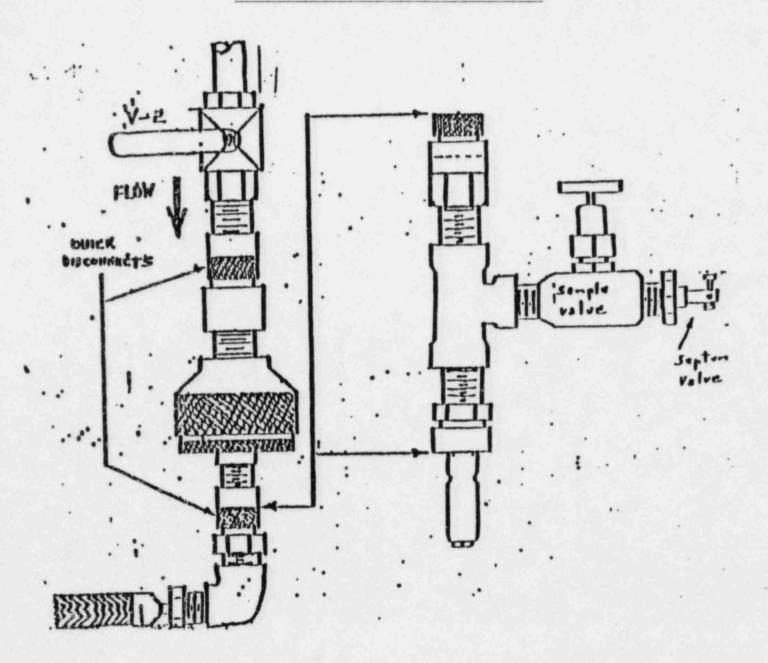
5.3.6 Tongs or other remote handling tools

5.4 References

- 5.4.1 EP-230 Chemistry Sampling and Analysis Team
- 5.4.2 EP-243 Preparation and Handling of Highly Radioactive Gas Samples
- 5.4.3 M-102 General Arrangement Plan at El. 217'-0"
- 5.4.4 M-104 General Arrangement Plan at E1. 269'-0" & 283'-0"
- 5.5.5 M-26 P&ID, Sh. 1, Rev. 8; Sh. 2, Rev. 9; Sh. 3, Rev. 4; Sh. 4, Rev. 4 - Plant Process Radiation Monitoring
- 5.5.6 E-519, Sh. 1 of 2; Rev. 4

APPENDIX EP-234-1

DIAGRAM OF GAS SAMPLING APPARATUS



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APPENDIX EP-234-2

DATA SHEET

Containment Leak Detector - Gas Grab Sample

DATE:

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TIME:

VOLUME: 1.0 ml

INITIAL CONTACT DOSE RATE:

ANALYSIS REQUIRED:

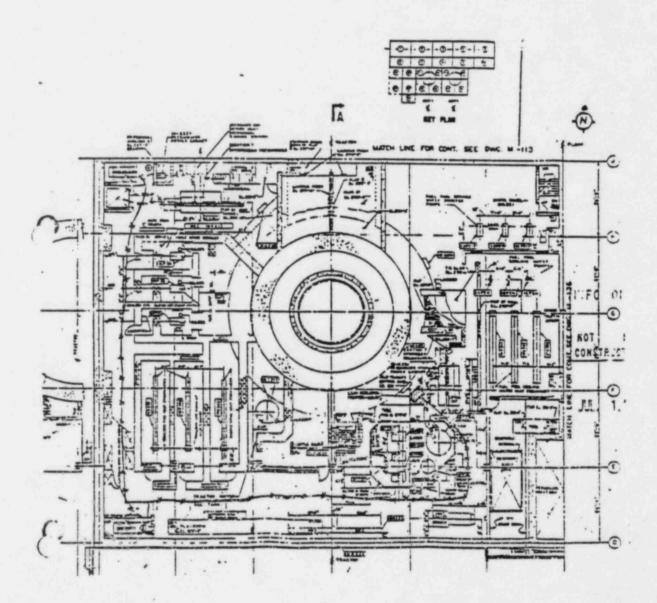
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APPENDIX EP-234-3

EQUIPMENT LOCATION REACTOR ENCLOSURE

UNIT 1 ELEVATION 283

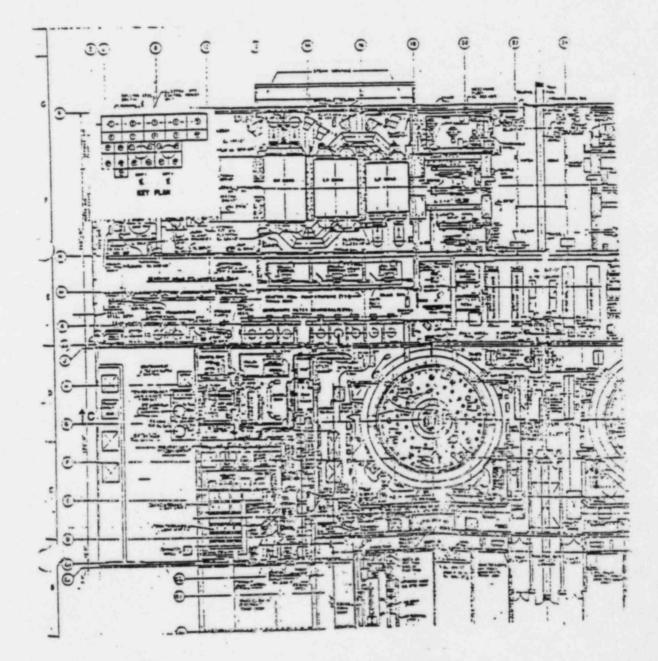


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APPENDIX EP-234-4

GENERAL ARRANGEMENT PLAN

AT ELEVATION 217



PHILADELPHIA ELECTRIC COMPANY LIMERICK GENERATING STATION EMERGENCY PLAN IMPLEMENTING PROCEDURE 3865034160

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EP-235 OBTAINING REACTOR WATER SAMPLES FROM SAMPLE SINKS FOLLOWING ACCIDENT CONDITIONS

1.0 PARTICIPANTS

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- 1.1 Chemistry Sampling and Analysis Team Leader shall obtain necessary information and permissions to obtain sample.
- 1.2 Chemistry Sampling and Analysis Group Leader shall organize and brief the sampling group and have operations defeat isolations.
- 1.3 <u>HP Technician</u> shall provide radiological assessment of the task.
- 1.4 Chemistry Sampling and Analysis Group shall obtain the sample.
- 2.0 ACTIONS IMMEDIATE
 - 2.1 The Chemistry Sampling and Analysis Team Leader shall:
 - 2.1.1 After discussing the situation with the Emergency Director, determine if a reactor water sample is required.
 - 2.1.2 Determine preference of sampling points from below:
 - Reactor Water Clean-up Filter Demineralizer Inlet
 - 2. Reactor Water Recirculation Inlet
 - 3. Main Steam from Reactor

Inform the Chemistry Sampling and Analysis Group Leader of sampling point preference.

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2.1.3 Check the Plant Radiation Level Status Board to forecast anticipated radiological conditions.

2.1.4 Contact the Personnel Safety Team Leader for latest developments related to radiological conditions, inform him what sample(s) are to be taken and that Health Physics' coverage is required.

> AN ALARA CONCEPT IS MANDATORY. SAMPLING AND ANALYSIS GROUP MEMBERS' EXPOSURE SHOULD BE LIMITED TO THE ADMINISTRATIVE GUIDE LEVELS IN EP-230, CHEMISTRY SAMPLING AND ANALYSIS TEAM, APPENDIX EP-230-1, EMERGENCY EXPOSURE GUIDELINES.

- 2.1.5 Request input from the Control Room (via Emergency Director) to ascertain desired sample system availability.
- 2.1.6 Determine what analyses are required and inform the Chemistry Sampling and Analysis Group Leader.
- 2.1.7 Request Emergency Exposure Authorizations from the Emergency Director for Group Members (as required) and inform the Personnel Safety Team Leader of this development.
- 2.1.8 Direct the Chemistry Sampling and Analysis Group Leader to collect and analyze the reactor water sample from the sample sink.
- 2.2 Chemistry Sampling and Analysis Group Leader shall:
- 2.2.1 Check with shift operations whether a sample can be taken from the desired sample station and sample point.
- 2.2.2 If the reactor water clean up filter demin inlet sample point is to be used, contact the control room to determine if a Group III isolation signal is present.

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2.2.2.1 If Group III isolation signal is present, request Shift Operations to defeat the appropriate trip signal by placing a jumper across the following contacts:

SRIFT APPROVAL IS REQUIRED FOR THIS STEP.

	Valve	Panel	Relay	Contacts	Isolation Signal
l	HV-44-1F001	100622	B21H-K40A	T1-H1	SLCS Initiation (I/B)
1	HV-44-1F004	10C523 (20C623)	B218-K40B	22-M1	SLCS Initiation (0/B)
1	EV-44-1F004	10C623	821E-K42	T1-M1	Non-Regen HX (O/B) Outlet Bigh Temp
1	HV-44-1F001	10C609 (20C609)	B218-K3A	T2-M2	-38" Vessel Level (1/B)
1	HV-44-1F004	10C609	B21H-K3C	T2-M2	-38" Vessel Level (0/5)

DO NOT DEFEAT THE ISOLATIONS OF HIGH RWCU DIFFERENTIAL FLOW, HIGH AREA TEMPERATURE OR HIGH DIFFERENTIAL TEMPERATURE ON ROOM VENTILATION AS THIS INDICATES A LEAK IN THE SYSTEM.

2.2.2.2 Have Operations reset the Inboard and/or Outboard Isolation Logic per GP-8.

2.2.3 If the Reactor Water Recirculation Inlet sample line has been isolated, contact the Control Room and request shift operations to defeat the isolation signal by placing jumpers across the following contacts:

SHIFT APPROVAL IS REQUIRED FOR THIS STEP.

ł	Valve	Panel	Relay	Terminal	18	Isola	ation Signal
read solution (see	EV-43-1F019	10C622 (20C622)	B21E-K23A (T2-M2)	*CCC8-10 CCC8-11	1000	High	Steam Line Radiation and/or Vessel Level
A	HV-43-1F020	10C623 (20C623)	B21E-K23D (T2-M2)	8386-2 DDD2-5	to	High	Steam Line Radiation and/or Vessel Level
2							

 Jumper will open valve once installed.
 If switch control is required, jumper relay contacts.

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2.2.4 If the Main Steam from Reactor sample point has been isolated (Group I), contact the Control Room and request Shift Operations to defeat the isolation signal by placing jumpers across the following contacts:

4

SHIFT APPROVAL IS REQUIRED FOR THIS STEP.

1	Valve	Panel	Relay	Terminals	Isolation Signal
State of the local division of the	HV-41-1F084	100622 (200622)	B218-K23A (T3-M3)	*CCC8-15 to CCC8-16	-38" Vessel Level and/or Main Steam Line Bigh Radiation
	HV-41-17085	10C623 (20C623)	B21H-E23D (T3-M3)	*AAA5-2 to DDC2-10	-38" Vessel Level and/or Main Steam Line High Radiation

* Jumper will open valve ence installed. If switch control is required, jumper relay contacts.

2.2.5 Assign the appropriate number of group members to obtain the necessary equipment to collect and transport the sample to the Chemistry Hot Lab.

CAUTION

EYE PROTECTION SHOULD BE WORN BY ALL PERSONNEL OBTAINING THE SAMPLE.

- 2.2.6 Brief the Chemistry Sampling and Analysis Group Members on the following:
- 2.2.6.1 Communications equipment and channel
- 2.2.6.2 Type of sample(s) to be collected
- 2.2.5.3 Location of sample points
- 2.2.6.4 Suggested routes to be taken
- 2.2.6.5 Sample transport mechanism
- 2.2.5.6 Projected amount of time required to collect and transport the sample

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- 2.2.6.7 Review of the procedures to be followed for sample collection, handling, preparation and analysis
- 2.2.6.8 Proper completion of Data Sheets
- 2.2.7 Appoint Group Member(s) to prepare the Hot Lab for receiving sample.

JSE THE FOLLOWING PROCEDURES AS GUIDELINES FOR PREPARATION OF THE HOT LAB.

- EP-_41 (LIQUID) Sample Preparation and Handling of Highly Radioactive Liquid Samples
- EP-242 (IODINE) Sample Preparation and Handling or Highly Radioactive Particulate Filters and Iodine Cartridges
- EP-243 (GAS) Sample Preparation and Handling of Highly Radioactive Gas Samples
- 2.2.8 Dispatch the Chemistry Sampling and Analysis Team members to the OSC for Health Physics Support if radiological conditions permit by the Plant Survey Group Leader.
- 2.3 Health Physics Technician shall:
- 2.3.1 Determine which route shall be used to collect and transport the sample.
- 2.3.2 Take appropriate radiation survey equipment. Ensure that equipment is functional and calibrated.
- 2.3.3 Provide Group Members with the appropriate dosimetry, protective clothing and respiratory equipment.
- 2.3.4 Perform a pre-job briefing with the Chemistry technicians assigned to obtain the sample to discuss the following:
- 2.3.4.1 RWP requirements
- 2.3.4.2 Routes to be used
- 2.3.4.3 Authorized doses

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- 2.3.4.4 Radiological concerns and precautions
- 2.3.4.5 Review of procedure for obtaining and transporting sample to hot lab
- 2.3.4.6 Suggested methods to maintain exposures ALARA
- 2.3.4.7 Stay times and abort criteria
- 2.3.5 Provide constant coverage while obtaining, transporting and analyzing the reactor water sample.
- 2.3.6 Monitor dose rates enroute and at the sample location. If upon entering the Power Block, general area dose rates (unanticipated) exceed 5 R/hr gamma and/or beta prior to arriving at the point specified below, exit immediately and report to Chemistry Sampling and Analysis Group Leader, who will evaluate the situation with the Personnel Safety Team Leader.

If the general area dose rate (unanticipated) exceeds 5 R/hr at the door leading to Rx. 253, leave the area immediately and report this information to Chemistry Sampling and Analysis Group Leader, who will evaluate the situation with the Personnel Safety Team Leader.

- 2.3.7 Survey the sample area and sample cask.
- 2.3.8 Document the sample cask survey results and give them to the Chemistry Sampling and Analysis Group Leader (or other designated group member) when arriving at the hot lab.
- 2.3.9 Provide constant coverage during sample preparation and handling as specified in EP-241.
- 2.4 Chemistry Sampling and Analysis Group members shall:
- 2.4.1 Assemble for a pre-job briefing at the chemistry lab.
- 2.4.2 Inform the Group Leader if they are approaching the Administrative Exposure Guidelines, or may not have sufficient exposure remaining to successfully complete the assigned task.

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2.4.3 Obtain the key to the Sample Station and the necessary equipment to collect the sample.

PROPERLY LABEL ALL SAMPLE CONTAINERS

- 2.4.4 Ensure that the hot lab is ready to accept the sample.
- 2.4.5 Once the Group has been briefed and the appropriate equipment has been assembled, proceed to the OSC or other designated location for HP coverage. Once briefed by Health Physics, collect the reactor water sample as follows:
- 2.4.5.1 Proceed to the RWCU Sample Station in the Reactor Building.
- 2.4.5.2 Request the Health Physics Technician to survey the area, concentrating on the sample sink.
- 2.4.5.3 Proceed to the predetermined sample point.

CAUTION

DO NOT USE ELEVATORS

- 2.4.5.4 Ensure that a flow is present. If not, attempt to initiate flow by opening root valves. If flow is not established, exit and consult Chemistry Sampling and Analysis Group Leader.
- 2.4.5.5 SAMPLING METHOD

Obtain a 2 oz. sample (or less if activity is extreme) in a 4 oz. bottle. Use tongs or other remote handling tools for sample collection if required. When required amount of sample is obtained remove bottle from hood, quickly place lid on bottle and transport with tongs, other remote tools, or lead shielded carrying container.

- 2.4.5.6 Have the HP Technician survey the vial and record the Initial Contact Dose Rate in Appendix EP-235-1.
- 2.4.5.7 Complete the Data Sheet in Appendix EP-235-1.

2.4.5.8 Take the sample to the Chemistry Hot Lab.

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- 2.4.6 Upon introduction of the sample into the hot lab, the sample will be handled and stored in a manner that personnel exposures are kept ALARA.
- 2.4.7 Contact the Group Leader as soon as the sample reaches the hot lab and inform him that the sample collection has been completed and what the sample status is.

3.0 ACTIONS - FOLLOW-UP

- 3.1 Chemistry Sampling and Analysis Group Members shall:
- 3.1.1 Prepare, handle and analyze the sample using EP-241, Sample Preparation and Handling of Highly Radioactive Liquid Samples.
- 3.1.1.1 Properly place and shield the sample so that it will be processed remotely (where and when possible). Careful handling of the sample is mandatory in preparation for analysis to minimize radiological conditions.
- 3.1.2 Report the results to the Chemistry Sampling and Analysis Group Leader.
- 3.1.3 Properly file the data sheets and report back to the Group Leader for re-assignment.
- 3.1.4 Return all sampling equipment to the CHEMISTRY EMERGENCY CABINET.
- 3.2 Chemistry Sampling and Analysis Group Leader shall:
- 3.2.1 Notify Shift Supervision that a sample has been taken and the aligned valves may be returned to the "NORMAL" position (i.e. Remove Jumpers).
- 3.2.2 Ensure Group Member(s) dose is monitored to ensure that exposure limits have not been exceeded.
- 3.2.3 Inform the Chemistry Sampling and Analysis Team Leader that the required sample is in the hot lab.
- 3.2.4 Direct Group Members to refer to EP-241, Sample Preparation and Handling of Highly Radioactive Liquid Samples for guidance for sample preparation and handling.

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- 3.2.5 Obtain and review ALL Data Sheets, report the sample results to the Chemistry Sampling and Analysis Team Leader and attach all Data Sheets to Appendix EP-230-2.
- 3.2.6 Obtain sample station key from Group Member.
- 3.3 Chemistry Sampling and Analysis Team Leader shall:
- 3.3.1 Report the results to the Emergency Director and the Health Physics and Chemistry Coordinator if the EOF has been activated.
- 4.0 APPENDICES

4.1 EP-235-1 Data Sheet

- 5.0 SUPPORT INFORMATION
 - 5.1 Purpose

The purpose of this procedure is to provide guidelines for consideration prior to, during and after obtaining a reactor water sample following accident conditions with major fuel damage.

5.2 Criteria for Use

This procedure shall be implemented when a Reactor water sample must be taken from the Reactor Enclosure sample stations during an emergency situation.

- 5.3 Special Equipment
- 5.3.1 4 oz. sample bottle with lid
- 5.3.2 Tongs or remote tooling for holding the sample bottle during sampling.
- 5.3.3 Eye Protection
- 5.3.4 Plastic bags
- 5.3.5 Sample station key

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5.4 References

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5.4.1	EP-230 Chemistry Sampling and Analysis Team
5.4.2	M-23 P&ID, Sheet 3, Rev. 12 Process Sampling
5.4.3	M-102 General Arrangement Plan at el. 217'-0"
5.4.4	M-103 General Arrangement Plan at el. 239'-0" & 253'-0"
5.4.5	EP-241 Sample Preparation and Handling of Highly Radioactive Liquids
5.4.6	GP-8 Primary and Secondary Containment Isolation Verification and Reset, Rev. 0.

*

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APPENDIX EP-235-1

DATA SHEET

Reactor Water Grab Sample

DATE:

TIME:

SAMPLE LOCATION:

UNIT 1 _____

1. .

SAMPLE POINT:

1. REACTOR WATER CLEAN UP FILTER DEMIN INLET

2. REACTOR WATER RECIRCULATION INLET

3. MAIN STEAM FROM REACTOR

VOLUME:

INITIAL CONTACT DOSE RATE

ANALYSIS REQUIRED:

NAME :

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PHILADELPHIA ELECTRIC COMPANY LIMERICK GENERATING STATION EMERGENCY PLAN IMPLEMENTING PROCEDURE

EP-237 OBTAINING THE IODINE/PARTICULATE AND/OR GAS SAMPLES FROM THE NORTH VENT WIDE RANGE GAS MONITOR (WRGM)

1.0 PARTICIPANTS

- 1.1 Chemistry Sampling and Analysis Team Leader shall obtain necessary information and permissions to obtain sample.
- 1.2 <u>Chemistry Sampling and Analysis Group Leader shall</u> organize and brief the sampling group and have operations defeat isolations.
- 1.3 HP Technician shall provide radiological assessment of the task.
- 1.4 Chemistry Sampling and Analysis Group shall obtain the sample.

2.0 ACTIONS-IMMEDIATE

- 2.1 Chemistry Sampling and Analysis Team Leader shall:
 - 2.1.1 After discussing the situation with the Emergency Director, determine if a filter/cartridge or gas sample is required from the North Vent WRGM.
 - 2.1.2 Check the Plant Radiation Level Status Board to forecast anticipated radiological conditions.
 - 2.1.3 Contact the Personnel Safety Team Leader and check on the latest developments related to radiological conditions and inform that what sample(s) are to be taken and that Sealth Physics coverage is required.

CONTINUOUS COVERAGE BY A HEALTH PHYSICS TECHNICIAN MAY SUBSTITUTE FOR THE RADIATION WORK PERMIT.

2.1.4 Request input from the Control Room (via Emergency Director) to ascertain desired sample system availability.

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- 2.1.5 Determine what analyses are required and inform the Chemistry Sampling and Analysis Group Leader.
- 2.1.6 Request Emergency Exposure Authorizations from the Emergency Director for Group Members (as required) and inform the Personnel Safety Team Leader of this development.
- 2.1.7 Contact the Security Team Leader and arrange access for the sampling route by having Security implement YOH Security Instruction No. SI-004.
- 2.1.8 Direct the Chemistry Sampling and Analysis Group Leader to collect and analyze the appropriate samples.
- 2.2 Chemistry Sampling and Analysis Group Leader shall:
 - 2.2.1 Determine what type(s) of sample(s) are to be taken:
 - 2.2.1.1 Local Particulate/Iodine Sample
 - 2.2.1.2 Remote Particulate/Iodine Sample
 - 2.2.1.3 Gas Grab Sample
 - 2.2.1.4 Alternate Samples
 - 2.2.2 Assign the appropriate number of group members to obtain the necessary equipment to collect and transport the sample to the Chemistry Hot Lab.
 - 2.2.3 Brief the Chemistry Sampling and Analysis Group members on the following:
 - 2.2.3.1 Communications equipment and channel
 - 2.2.3.2 Type and sampling time of sample(s) to be collected
 - 2.2.3.3 Location of sample point
 - 2.2.3.4 Suggested routes to be taken
 - 2.2.3.5 Sample transport technique
 - 2.2.3.6 Projected amount of time required to collect and transport the sample
 - 2.2.3.7 Review of the procedures to be followed for sample collection, handling, preparation and analysis

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- 2.2.3.8 Special tools and equipment required for sample handling and/or collection
- 2.2.3.9 Proper completion of Data Sheets.
- 2.2.4 Appoint Group member(s) to prepare the Hot Lab for receiving the sample.

USE THE FOLLOWING PROCEDURES AS GUIDELINES FOR PREPARATION OF THE HOT LAB.

- EP-241 (LIQUID) Sample Preparation and Handling of Eighly Radioactive Liquid Samples.
- EP-242 (IODINE) Sample Preparation and Handling of Highly Radioactive Particulate Filters and Iodine Cartridges.
- EP-243 (GAS) Sample Preparation and Handling of Highly Radioactive Gas Samples.
- 2.2.5 Dispatch the Chemistry Sampling and Analysis Group members to the OSC for Health Physics Support if radiological conditions permit or other appointed location as determined by the Plant Survey Group Leader.
- 2.3 The Health Physics Technician shall:
 - 2.3.1 Determine which route should be used to collect and transport the sample.

CAUTION DO NOT USE ELEVATORS						
DC	NOT	USE	ELEVATORS			

- 2.3.2 Take appropriate radiation survey equipment and ensure that equipment is functional and calibrated.
- 2.3.3 Provide Group Members with the appropriate Dosimetry, Protective Clothing and Respiratory Equipment.

EYE PROTECTION SHOULD BE WORN WHEN OBTAINING SAMPLES FROM THE SAMPLE STATIONS.

2.3.4 Perform a pre-job briefing with the Chemistry technicians assigned to obtain the sample, to discuss the following:

2.3.4.1 RWP requirements

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- 2.3.4.2 Routes to be used
- 2.3.4.3 Authorized doses
- 2.3.4.4 Radiological concerns and precautions
- 2.3.4.5 Review of procedure for obtaining and transporting sample to hot lab
- 2.3.4.6 Suggested methods to maintain exposures ALARA
- 2.3.4.7 Stay times and Abort Criteria
- 2.3.5 Provide constant coverage while obtaining, transporting and analyzing the sample filter/cartridge and/or gas sample from the WRGM.
- 2.3.6 Monitor dose rates enroute to and at the sample location.
 - 2.3.6.1 The surveyor shall note trends in general radiation levels enroute to the sample point. If general area dose rates (unanticipated) exceed 5 R/hr gamma and/or beta, prior to arriving at the point specified below, immediately report to Chemistry Sampling and Analysis Group Leader, who will evaluate the situation with the Personnel Safety Team Leader.
 - 2.3.6.2 If the dose rate (unanticipated) exceeds 5 R/hr at the door leading to 217', 332', 352', or 411' El. exit the area immediately and report to Chemistry Sampling and Analysis Group Leader with this information. With dose rates less than 5 R/hr., enter the desired elevation through that door. Take careful note of the dose rates.
 - 2.3.6.3 If using the North Vent stairs, remember the stairs are next to the North Vent. If general area dose rate (unanticipated) exceeds 5 R/hr. gamma and/or beta, exit the area immediately and report to Chemistry Sampling and Analysis Group Leader, who will evaluate the situation with the Personnel Safety Team Leader.

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- 2.3.7 Survey the sample area and sample cask.
- 2.3.8 Document the sample cask survey results and give them to the Chemistry Sampling and Analysis Group Leader (or other designated group member) when arriving at the Hot Lab.
- 2.3.9 Provide constant coverage during sample preparation and handling as specified in EP-242 or 243.
- 2.4 Chemistry Sampling and Analysis Group members shall:
 - 2.4.1 Assemble for a pre-job briefing at the chemistry lab.
 - 2.4.2 Inform the Group Leader if they are approaching the administrative exposure guidelines or do not have sufficient exposure remaining to successfully complete the assigned task.
 - 2.4.3 Obtain the necessary equipment (Screwdriver and adjustable wrench) to collect the sample and ensure that the Hot Lab is ready to accept the sample:
 - 2.4.3.1 Properly label all sample containers.
 - 2.4.3.2 If a gas sample is to be taken, prepare three evacuated gas sampling vials by withdrawing from the sample vial (with a syringe) the same volume that is to be injected as a sample.
 - 2.4.4 Once the group has been briefed and the appropriate equipment has been assembled, proceed to the OSC or other designated location for Health Physics coverage. Once briefed by Health Physics perform the appropriate section for the desired sample:
 - A. Remote Particulate/Iodine Sample
 - B. Local Particulate/Iodine Sample
 - C. Gas Grab Sample
 - D. Alternate Samples
 - A. REMOTE PARTICULATE/IODINE SAMPLE
 - 1. Proceed to the Control Room.

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- Locate Control Room Panel Timer/Control . Assembly (RIX-26-076, KIC-26-076-1, KIC-26-076-2).
- 3. Verify SKID CONT-REMOTE light is lit.

IF SKID CONT-REMOTE LIGHT IS NOT LIT AND SKID CONT-LOCAL LIGHT IS LIT, THEN THE SAMPLE CONDITION SKID CONTROL STATION ELECTRICAL ENCLOSURE LID IS OPEN AND THE SKID CONTROL SWITCH (HSS-076-2) IS IN THE LOCAL POSITION.

Tell group leader remote sample is impossible and ask for further instructions.

- 4. Press CLEAR.
- Press MON, 1, 3, 6, ITEM and the channel number will be displayed. Record channel number.

CHANNEL NUMBER	RANGE BUTTON
1	LOW RANGE
2	MID RANGE
3	HIGH RANGE

- Push appropriate channel (Range) button. Record concentration.
- 7. Press MON, 1, 3, 7, ITEM.

If the value is equal to 2, inform the Team Leader of the Range and Concentration and inform that isokinetic sampling is present. Have the Team Leader inform you of the Sampling Time. Record Range Selection and Sampling Time. Proceed to Section A-1 (or Section B-1 if a Local Sample is desired).

If the value is NOT equal to 2, proceed to step 8.

8. PRESS MON, 1, 3, 8, ITEM.

If the value is equal to 2, inform the Team Leader of the Range and concentration and inform that isokinetic sampling is present. Have the Team Leader inform you of the

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Sampling Time. Record Range Selection and sampling time. Proceed to Section A-2 (or Section B-2 if a Local Sample is desired).

If the value is NOT equal to 2, proceed to step 9.

- Inform the Team Leader that isokinetic sampling is impossible and ask for further instructions.
- A-1 LOW RANGE (REMOTE SAMPLE)
 - 10. Set KIC-26-076-2, LOW RANGE GRAB SAMPLE TIMER, to the desired sample time by use of the screwdriver adjustment and record the SAMPLING TIME.
 - 11. Press START TIMER pushbutton (HS-26-076-2) and verify the timer display is counting. Record the time as TIME-1.
 - When the timer stops counting, grab sample has been taken. Record time as TIME-2.
 - 13. Press MON, 0, 2, 8, ITEM and the sample flow will be displayed. Record the sample flow.
 - 14. Press MON, 0, 2, 9, ITEM and the stack flow will be displayed. Record the stack flow.
 - 15. Press CLEAR.
 - 16. Proceed to the North Vent WRGM.

GROUP MEMBERS AT THE WRGM PERFORM:

- 17. Close the isolation valves (26-0026, 26-0027, 26-0028, 26-0029) on each side of the quick-disconnects on GRAB SAMPLE 1.
- 18. Release the band on the holder assembly and immediately have the HP Technician survey the sample and record the Initial Contact Dose Rate. Remove the cartridge and filter paper and place into an appropriate transport container, (cask or plastic bag).

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- Install a new cartridge and filter paper into the assembly and reclip the band.
- 20. Open the isolation valves (26-0026, 26-0027, 26-0028, 26-0029).
- 21. Transport the sample to the Chemistry Hot Lab or other designated location.

A-2 MID/HIGH RANGE (REMOTE SAMPLE)

- 10. Set KIC-26-076-1, MID HIGH RANGE GRAB SAMPLE TIMER, to the desired sample time by use of the screwdriver adjustment and record the SAMPLING TIME.
- 11. Press START TIMER pushbutton (HS-26-076-1) and verify the timer display is counting. Record the time as TIME-1.
- When the timer stops counting, grab sample has been taken. Record time as TIME-2.
- Press MON, 0, 7, 2, ITEM and the sample flow will be displayed. Record the sample flow.
- 14. Press MON, 0, 2, 9, ITEM and the Stack Flow will be displayed. Record the stack flow.

15. Press CLEAR.

16. Proceed to the North Vent WRGM.

GROUP MEMBERS AT THE WRGM PERFORM:

- 17. Close the isolation valves (26-0021, 26-0022, 26-0023, 26-0024) on each side of the quick-disconnects on GRAB SAMPLE 2.
- 18. Open the door to the holder assembly and immediately have the HP Technician survey the holder assembly and record the Initial Contact Dose Rate.

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- 19. Release the quick-disconnects on either. side of the holder assembly and place the holder assembly into an appropriate transport cask (high-range cask).
- 20. Install a new holder assembly.
- 21. Open the isolation valves (26-0021, 26-0022, 26-0023, 26-0024).
- 22. Transport the sample to the Chemistry Hot Lab or other designated location. (Use crane mechanism on South Stack if needed.)

B. LOCAL PARTICULATE/IODINE SAMPLE

B-1 LOW RANGE (LOCAL SAMPLE)

- 1. Proceed to the North Vent WRGM.
- Verify that the isolation valves (26-0026, 26-0027, 26-0028, 26-0029) on either side of the quick-disconnects for GRAB SAMPLE 1 are OPEN.
- Locate Sample Conditioning Skid Control Station Electrical Enclosure. Open lid and verify that HSS-26-076-4, FILTER SELECTOR LOW RANGE switch is in position A or B.
- Set HSS-26-076-2, SKID CONTROL switch to LOCAL.
- Turn HSS-26-076-4 to GRAB 1 position and immediately record the time as TIME-1.
- After the desired time has expired, turn HSS-26-076-4 to position A or B and immediately record the time as TIME-2.
- Close the isolation valves (26-0026, 26-0027, 26-0028, 26-0029).
- Release the band on the holder assembly and immediately have the HP Technician survey the sample and record the Initial Contact Dose Rate.

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- Remove the cartridge and filter paper and place into an appropriate transport cask.
- Install a new cartridge and filter paper into the assembly.
- 11. Reclip the band on the holder assembly.
- 12. Open the isolation valves (26-0026, 26-0027, 26-0028, 26-0029).
- Set HSS-26-076-2, SKID CONTROL switch to REMOTE.
- Close Sample Conditioning Skid Control Station Electrical Enclosure lid and secure.
- 15. Transport the sample to the Chemistry Hot Lab or other designated located.
- 16. Contact the Control Room and obtain the Stack Flow and Sample Flow at the time the sample was taken and record.

B-2 MID/HIGH RANGE (LOCAL SAMPLE)

- 1. Proceed to the North Vent WRGM.
- Verify that the isolation valves (26-0021, 26-0022, 26-0023, 26-0024) on either side of the quick-disconnects for GRAB SAMPLE 2 are OPEN.
- 3. Locate Sample Conditioning Skid Control Station Electrical Enclosure. Open lid and verify that HSS-26-076-3, FILTER SELECTOR HIGH RANGE switch is in position C or D.
- Set HSS-26-076-2, SKID CONTROL switch to LOCAL.
- Turn HSS-26-076-3 to GRAB 2 position and immediately record the time as TIME-1.
- After the desired time has expired, turn HSS-26-076-3 to position C or D and immediately record the time as TIME-2.

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- Close the isolation valves (26-0021, 26-0022, 26-0023, 26-0024).
- Open the door to the holder assembly and immediately have the HP Technician survey the holder assembly and record the Initial Contact Dose Rate.
- 9. Release the quick-disconnects on either side of the holder assembly and place the holder assembly into an appropriate transport cask or unlatch the holder assembly and place the cartridge and filter paper into an appropriate transport cask. (high-range cask)
- Install a new holder assembly complete with cartridge and filter paper or install only a new cartridge and filter paper as applicable.
- 11. Close the door to the holder assembly.
- 12. Open the isolation valves (26-0021, 26-0022, 26-0023, 26-0024).
- Set HSS-26-076-2, SKID CONTROL switch to REMOTE.
- Close Sample Conditioning Skid Control Station Electrical Enclosure lid and secure.
- 15. Transport the sample to the Chemistry Hot Lab or other designated location. (Use crane mechanism on South Stack if needed).
- 16. Contact the Control Room and obtain the Stack Flow and Sample Flow at the time the sample was taken and record.

C. GAS GRAB SAMPLE

- 1. Proceed to the North Vent WRGM.
- Verify that either PUMP ON LOW or PUMP ON MID/HIGH or both green lights are lit.
- Verify that either MID/HIGH FLOW or LOW RANGE FLOW switches or both visual flow meters on sample detection skid are indicating flow.

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- Locate sample tap valve and verify that. it is closed.
- If necessary, remove plug and install septum valve and verify valve is closed.
- 6. Open sample tap valve.
- 7. Open septum valve.
- Insert the 1.0 ml microsyringe through the septum valve and the septum valve into the tee connection.
- Flush the microsyringe by taking a 1.0 cc sample and injecting it back into the sample tee two times.
- Take a 1.0 cc sample and remove the microsyringe from the sample tee. Inject the sample into an evacuated 14.4 ml off gas vial.
- Place the vial into an appropriate container for transportation to the Hot Lab.
- 12. Close the septum valve.
- 13. Close the sample tap valve.
- Record the sample volume and time in Appendix EP-237-1.
- Have the HP Technician survey the vial and record the Initial Contact Dose Rate.
- Transport the sample to the Chemistry hot lab or other designated location.

D. Alternate Samples

- Notify the control room that you will be performing alternate sampling on the WRGM and that the low and mid/high range pumps will be disengaged.
- 2. Proceed to the north vent WRGM.
- Verify that both the low and mid/high range pumps are inoperable. (If either pump is operable, grab samples may be

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obtained by using part 2.4.4 A, part 2.4.4 B and/or part 2.4.4 C of this procedure.

- 4. Assemble filters and pump in the following order: male quick disconnect fitting, tubing, filter holder (complete with a 47 mm particulate filter and iodine cartridge), and GAST sampler model 0522 pump. Disconnect the muffler on the pump and install the outlet tubing.
- If alternate sampling is necessary, turn the low and mid/high range pump switches off.
- Ensure that the grab sample tap valve is closed. Remove the spool piece and install the outlet tubing.
- Close isolation valves 26-0026, 26-0027, 26-0028 and 26-0029 on either side of the quick disconnects for grab sample 1.
- Remove the filter assembly for grab sample 1 by releasing the quick disconnect fitting.
- Install the male quick disconnect fitting into the quick disconnect on the inlet side of grab sample 1.
- Open isolation valves and valve 26-0026 on the inlet side of grab sample 1.
- 11. Close valves 26-0030, 26-0034, 26-0012, 26-0016 and 26-0021.
- Turn the pump on by plugging it in and record the start time on Data Sheet 2 (Appendix EP-237-2).

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- If a Noble Gas sample is desired, open the sample tap valve, and the septum valve.
- 14. Insert the 1.0 ml microsyringe through the septum valve and the septum valve into the tee connection.
- 15. Flush the microsyringe by taking a 1.0 cc sample and injecting it back into the sample tee two times.
- 16. Take a 1.0 cc sample and remove the microsyringe from the sample tee. Inject the sample into an evacuated 14.4 ml off gas vial.
- Place the vial into an appropriate container for transportation to the Hot Lab.
- 18. Close the septum valve.
- 19. Close the sample tap valve.
- Record the sample volume and time on Data Sheet 2.
- Have the HP Technician survey the vial and record the Initial Contact Dose Rate.
- 22. If additional gas samples are desired, repeat Steps 13 through 21.
- 23. If no more gas samples are desired or after the time has expired for the Particulate/Iodine sample, turn the pump off. Record the stop time and Vent Flow Rate only for a Particulate and/or Iodine sample onto Data Sheet 2.
- 24. Remove the particulate filter with forceps and place in a plastic bag. Label with sample source, date, time ON and OFF and sample flow rate.
- 25. Remove cartridge and place in plastic wrap or plastic bag. Label plastic wrapped cartridge with the date, time, sample source, and flow rate.
- 26. If additional Particulate/Iodine samples are desired, install a new

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filter and cartridge and return to Step. 8.3.1.11.

- 27. Have the HP Technician survey the samples and record the initial Contact Dose Rates on Data Sheet 2.
- Use shielded casks for transporting samples if necessary.
- 29. If no more samples are to be taken, reinstall the filter assembly for GRAB SAMPLE 1. Close the grab sample tap valve and reinstall the sample port.
- 30. Open the isolation valves 26,0030, 26-0034, 26-0026, 26-0012, 26-0016, 26-0021.
- Turn both low and mid/high pump switches to on.
- 32. Contact the Control Room and inform them that alternate sampling is complete and that the WRGM is in the AUTO position.
- 33. Transport the sample to the Chemistry Hot Lab or other designated location.
- 2.4.5 Upon introduction of the sample into the hot lab, the sample will be handled and stored in a manner that personnel exposures are kept ALARA.
- 2.4.6 Contact the Group Leader as soon as the sample reaches the hot lab and inform him that the sample collection has been completed and what the sample status is.

3.0 ACTIONS - FOLLOW-UP

- 3.1 Chemistry Sampling and Analysis Group members shall:
 - 3.1.1 Complete appropriate Appendix EP-237-1 or EP-237-2.
 - 3.1.2 Prepare, handle and analyze the sample using EP-242 or EP-243.
 - 3.1.3 Report the results to the Chemistry Sampling and Analysis Group Leader.
 - 3.1.4 Properly file the Data Sheets and report back to the Group Leader for reassignment.

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- 3.1.5 Return all sampling equipment to the CHEMISTRY EMERGENCY CABINET.
- 3.2 Chemistry Sampling and Analysis Group Leader shall:
 - 3.2.1 Ensure Group member(s) dose is monitored to ensure that exposure limits have not been exceeded.
 - 3.2.2 Inform the Chemistry Sampling and Analysis Team Leader that the required sample is in the hot lab.
 - 3.2.3 Direct group members to refer to EP-242 Sample Preparation and Handling of Radioactive Particulate and Iodine Cartridges or EP-243 Sample Preparation & Handling of Highly Radioactive Gas Samples, for guidance for sample preparation and handling.
 - 3.2.4 Obtain and review ALL Data Sheets and report the sample results to the Chemistry Sampling and Analysis Team Leader and attach all Data Sheets to Appendix EP-230-2.
- 3.3 Chemistry Sampling and Analysis Team Leader shall:
 - 3.3.1 Report the results to the Emergency Director and the Health Physics and Chemistry Coordinator if the EOF has been activated.

4.0 APPENDICES

- 4.1 EP-237-1 Data Sheet 1
- 4.2 EP-237-2 Data Sheet 2

5.0 SUPPORTING INFORMATION

- 5.1 <u>Purpose</u> The purpose of this procedure is to provide guidelines for obtaining particulate/iodine and/or gas samples from the North Vent WRGM following accident conditions.
- 5.2 Criteria for Use
 - 5.2.1 Prior to entering the plant to obtain the sample, ensure that the iodine cartridges and particulate filter papers are adequate and properly installed by verifying that

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RT-5-026-620-0, routine changeout of iodine cartridges and particulate filters from the North Vent Wide Range Gas Monitor (WRGM) is properly completed.

- 5.2.2 This procedure shall be implemented when a particulate, iodine or gas sample shall be taken from the North Vent WRGM during an emergency situation.
- 5.2.3 Planned radiation exposures should be limited to the administrative guide levels in Appendix EP-230-1 Emergency Exposure Guidelines.
- 5.3 Special Equipment
 - 5.3.1 3-off gas vials with septums
 - 5.3.2 Adjustable wrench
 - 5.3.3 Channel lock pliers
 - 5.3.4 Extremity dosimetry
 - 5.3.5 Extra filter
 - 5.3.6 Extra cartridge
 - 5.3.7 Mininert-septum valve
 - 5.3.8 Transport cask
 - 5.3.9 Designated remote handling tools
 - 5.3.10 Plastic bags
 - 5.3.11 Screwdriver
 - 5.3.12 Extra marinelli beaker (if performing alternate sampling)
- 5.4 REFERENCES

5.4.1 EP-2	30 -	Chemistry	<pre>Sampling</pre>	and	Anal	ysis	Team
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- 5.4.2 M-102 General Arrangement Plan at El. 217'-0"
- 5.4.3 M-106 General Arrangement Plan at El. 352'-0"
- 5.4.4 General Arrangement Plan at El. 411'-0"

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- 5.4.5 M-26 P&ID, Sh. 1, Rev. 8, Sh. 3, Rev. 3, Sh. 4, Rev. 3, - Plant Process Radiation Monitoring
- 5.4.6 EP-242 Sample Preparation And Handling of Eighly Radioactive Particulate Filters and Todine Cartridges
- 5.4.7 EP-243 Sample Preparation And Handling Of Highly Radioactive Gas Samples
- 5.4.8 SI-004-YOH Security Instruction

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		PENDIX EP-237-1 DATA SHEET 1	
		SAMPLE	
. FOR	OBTAINING REMOTE PARTS	ICULATE/IODINE SAMPLE	
	nnel number:	(1,2 or 3)	
Ran	cMicroCuries ge Selection pling Time		
A-1 LOW	RANGE	A-2 MID/HIGH RANGE	
Tim	e-l	Time-1	
Tim	e-2	Time-2	
	ple Flow (CFM)		CFM)
	ck Flow (CFM) tial Contact	Stack Flow (CFM Initial Contact	1)
1111	Dose RatemR/hr		R/hr
B. FOR	OBTAINING LOCAL PARTIC	CULATE/IODINE SAMPLE	
B-1 LOW	RANGE	B-2 MID/HIGH RANGE	
Tim	e-1	Time-1	
Tim	e-2	Time-2	
Cta	ck Flow (CFM)		(CFM)
Sca			
Sam	ple Flow (CFM)		(CFM)
Sam	ple Flow(CFM) tial Contact Dose RatemR/hr	Sample Flow Initial Contact Dose RateM	
Sam Ini	tial Contact	Initial Contact Dose Rate	(CFM) R/hr
Sam Ini . FOR	tial Contact Dose RatemR/hr OBTAINING A GAS GRAB	Initial Contact Dose Rate	
Sam Ini C. FOR	tial Contact Dose RatemR/hr OBTAINING A GAS GRAB	Initial Contact Dose Rate	
Sam Ini C. FOR Tim Vol	tial Contact Dose RatemR/hr	Initial Contact Dose RateM SAMPLE	
Sam Ini C. FOR Tim Vol	tial Contact Dose RatemR/hr OBTAINING A GAS GRAB : e	Initial Contact Dose RateM SAMPLE	
Sam Ini C. FOR Tim Vol	tial Contact Dose RatemR/hr OBTAINING A GAS GRAB : e	Initial Contact Dose Ratem SAMPLE mR/hr	

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APPENDIX EP-237-2 DATA SHEET 2 ALTERNATE SAMPLING

PARTICULATE

1

1

×

1

Location	
Rack No.	
Start Time	
Stop Time	
Vent Flow Rate	CFM
Initials	
Date	

IODINE

Location	
Rack No.	
Start Time	
Stop Time	
Vent Flow Rate	CFM
Initials	
Date	

NOBLE GAS GRAB SAMPLE

Time				
Vol. 1.1	0 ml			
Initial	Contact	Dose	Rate	MR/hr

NOTE: SAMPLE FLOW RATE IS 1 CFM WHEN USING THE GAST SAMPLE PUMP, HODEL 0522, DUE TO ITS CRITICAL FLOW ORIFICE.

Name : _____

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PHILADELPHIA ELECTRIC COMPANY LIMERICK GENERATING STATION EMERGENCY PLAN IMPLEMENTING PROCEDURE

EP-238 OBTAINING LIQUID RADWASTE SAMPLES FROM RADWASTE SAMPLE SINK FOLLOWING ACCIDENT CONDITIONS

1.0 PARTICIPANTS

- 1.1 Chemistry Sampling and Analysis Tear Leader shall obtain necessary information and permissions to obtain sample.
- 1.2 Chemistry Sampling and Analysis Group Leader shall organize and brief the sampling group and have operations defeat isolation.
- 1.3 HP Technician shall provide radiological assessment of the task.
- 1.4 Chemistry sampling and analysis group shall obtain the sample.

2.0 ACTIONS-IMMEDIATE

- 2.1 Chemistry Sampling and Analysis Team Leader shall:
- 2.1.1 After discussing the situation with the Emergency Director, determine if a liquid radwaste sample is required.
- 2.1.2 Determine preference of the Sampling Point from M-23 Sheet 1, P&ID Process Sampling.
- 2.1.3 Check the Plant Radiation Level Status Board to forecast anticipated radiological conditions.
- Contact the Personnel Safety Team Deader and check 2.1.4 on the latest developments related to radiological conditions and inform him what sample(s) are to be taken and that Health Physics' coverage is required.

CONTINOUS COVERAGE BY A HEALTH PHYSICS TECHNICIAN MAY SUBSTITUTE FOR THE RADIATION WORK PERMIT (RWP). 10

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- 2.1.5 Request input from the Control Room (via Emergency Director) to ascertain the desired sample system availability.
- 2.1.6 Determine what analyses are required and inform the Chemistry Sampling and Analysis Group Leader what analyses are required.
- 2.1.7 Request Emergency Exposure Authorizations from the Emergency Director for Group Members (as required) and inform the Personnel Safety Team Leader of this development.
- 2.1.8 Direct the Chemistry Sampling and Analysis Group Leader to collect and analyze the liquid sample from the radwaste sample sink (Radwaste Enclosure 162')
- 2.2 Chemistry Sampling and Analysis Group Leader shall:
- 2.2.1 Check with Shift Operations whether a sample can be taken from the desired sample point. (See M-23 P&ID, sheet 1 for reference).

Eye protection should be worn by all personnel obtaining the sample.

- 2.2.2 Assign the appropriate number of group members to obtain the necessary equipment and collect and transport the sample to the Chemistry Hot Lab.
- 2.2.3 Brief the Chemistry Sampling and Analysis Group members on the following:
- 2.2.3.1 Communications equipment and channel.
- 2.2.3.2 Type of sample(s) to be collected.
- 2.2.3.3 Location of sample points.
- 2.2.3.4 Suggested routes to be taken.
- 2.2.3.5 Sample transport technique.
- 2.2.3.6 Projected amount of time required to collect and transport the sample.
- 2.2.3.7 Review of the procedures to be followed for sample collection, handling, preparation and analysis.
- 2.2.3.8 Special tools and equipment required for sample handling and/or collection.

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- 2.2.3.9 Proper completion of Data Sheets.
- 2.2.4 Appoint one Group member to prepare the Hot Lab for receiving the sample.

USE THE FOLLOWING PROCEDURES AS GUIDELINES FOR PREPARATION OF THE HOT LAB.

- EP-241 (LIQUID) Sample Preparation and Handling of Highly Radioactive Liquid Samples
- EP-242 (IODINE) Sample Preparation and Handling of Highly Radioactive Particulate Filters and Iodine Cartridges

EP-243 (GAS) Sample Preparation and Handling of Highly Radioactive Gas Samples

- 2.2.5 Dispatch the Chemistry Sampling and Analysis Team Members to the OSC for Health Physics Support if radiological conditions permit or other appointed location as determined by the Plant Survey Group Leader.
- 2.3 Health Physics Technician shall:
- 2.3.1 Select the appropriate sample route.
- 2.3.2 Take appropriate radiation survey equipment and ensure that equipment is functional and calibrated.
- 2.3.3 Provide Group Members with the appropriate dosimetry, protective clothing and respiratory equipment.

CAUTION: EYE PROTECTIONS SHOULD BE WORN | BY ALL PERSONNEL OBTAINING THE SAMPLE.

- 2.3.4 Perform a pre-job briefing with the Chemistry technicians assigned to obtain the sample to discuss the following:
- 2.3.4.1 RWP requirements
- 2.3.4.2 Routes to be used
- 2.3.4.3 Authorized doses
- 2.3.4.4 Radiological concerns and precautions

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- 2.3.4.5 Review of procedure for obtaining and transporting sample to hot lab
- 2.3.4.6 Suggested methods to maintain exposures ALARA
- 2.3.4.7 Stay times and abort criteria
- 2.3.5 Provide constant coverage while obtaining, transporting and analyzing the sample from the Containment Leak Detector.
- 2.3.6 Monitor dose rates enroute and at the sample location. The surveyors will note trends in general radiation levels. If general area dose rates (unanticipated) exceed 5 R/hr gamma and/or beta prior to arriving at the point specified below, exit immediately and report to Chemistry Sampling and Analysis Group Leader, who will evaluate the situation with the Personnel Safety Team Leader.

If the general area dose rate (unanticipated) exceeds 5 R/hr at the door leading to Rx. 162', leave the area immediately and report to Chemistry Sampling and Analysis Group Leader with this information who will evaluate the situation with the Personnel Safety Team Leader.

2.3.7 Survey the sample area and sample cask.

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- 2.3.8 Document the sample cask survey results and give them to the Chemistry Sampling and Analysis Group Leader (or other designated group member) when arriving at the hot lab.
- 2.3.9 Provide constant coverage during sample preparation and handling as specified in EP-241.
- 2.4 Chemistry Sampling and Analysis Group members shall:
- 2.4.1 Assemble for a pre-job briefing at the chemistry lab.
- 2.4.2 Inform the Group Leader if they are approaching the administrative exposure guidelines, or may not have sufficient exposure remaining to successfully complete the assigned task.

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2.4.3 Obtain the necessary equipment to collect the sample and ensure that the hot lab is ready to accept the sample.

PROPERLY LABEL ALL SAMPLE CONTAINERS

1		CF	UT	I	ON:			
ł	DO	NOT	US	E	EL	EVA	TORS	

2.4.4

Once the group has been briefed and the appropriate equipment has been assembled, proceed to the OSC or other designated location for HP support. Once briefed by Health Physics, collect the sample as follows:

- 2.4.4.1 Proceed to the Radwaste Sample Sink.
- 2.4.4.2 Have the H.P. Technician survey the area, concentrating on the Sample Sink.
- 2.4.4.3 Proceed to the predetermined Grab Sample Point.
- 2.4.4.4 Ensure that a flow is present. If not, attempt to initiate flow by opening root valves. If flow is not established, exit and consult Chemistry Sampling and Analysis Group Leader.
- 2.4.4.5 <u>SAMPLING METHOD</u> Obtain a 2 oz. sample (or less if activity is extreme) in a 4 oz bottle. Use tongs or other remote handling tools for sample collection if required. When required amount of sample is obtained remove bottle and transport with tongs, other remote tools, or lead carrying container.
- 2.4.4.6 Have the Health Physics Technician survey the vial and record the Initial Contact Dose Rate in Appendix EP-235-1.
- 2.2.4.7 Complete the Data Sheet in Appendix EP-238-1.

2.2.4.8 Take the sample to the Hot Lab.

3.0 ACTIONS-FOLLOW-UP

- 3.1 Chemistry Sampling and Analysis Group Members shall:
- 3.1.1 Prepare, handle and analyze the sample using EP-241 Preparation and Handling of Highly Radioactive Liquids.

- 3.1.2 Report the results to the Chemistry Sampling and . Analysis Group Leader.
- 3.1.3 Properly file the data sheets and report back to the Group Leader for reassignment.
- 3.1.4 Return all sampling equipment to the CHEMISTRY EMERGENCY CABINET.
- 3.2 Chemistry Sampling and Analysis Group Leader shall:
- 3.2.1 Ensure Group Member(s) dose is monitored to ensure that exposure limits have not been exceeded.
- 3.2.2 Inform the Chemistry Sampling and Analysis Team Leader that the required sample is in the hot lab.
- 3.2.3 Direct Group Members to refer to EP-241 Sample Preparation and Handling of Radioactive Liquids for guidance for sample preparation and handling.
- 3.2.4 Obtain and review all Data Sheets, report the sample results to the Chemistry Sampling and Analysis Team Leader and attach all Data Sheets to Appendix EP-230-2.
- 3.2.5 Obtain sample station key from Group Member.
- 3.3 Chemistry Sampling and Analysis Team Leader shall:
- 3.3.1 Report the results to the Emergency Director and the Health Physics and Chemistry Coordinator (EOF).

4.0 APPENDICES

4.1 EP 238-1 - Data Sheet

5.0 SUPPORTING INFORMATION

5.1 Purpose

The purpose of this procedure is to provide guidelines for consideration, prior to, during and after obtaining samples from the radwaste sample sink, following accident conditions.

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5.2 Criteria For Use

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- 5.2.1 This procedure shall be implemented when a Liquid Radwaste sample shall be taken from the Radwaste Sample Sink during an emergency situation.
- 5.2.2 Planned radiation exposures should be limited to the administrative guide levels in Appendix EP-230-1 Emergency Exposure Guidelines.
- 5.3 Special Equipment
- 5.3.1 4 oz sample bottle with lid.
- 5.3.2 Tongs, remote tooling and/or lead carrying container for holding the sample.
- 5.3.3 Eye Protection.
- 5.3.4 Plastic bags.
- 5.3.5 Sample stati. key.

5.4 References

- 5.4.1 EP-230 Chemistry Sampling and Analysis Team Activation
- 5.4.2 M-23 P&ID, Sh. 1 Rev. 9 Process Sampling
- 5.4.3 M-100 General Arrangement Plan at El. 177'-0"
- 5.4.4 M-102 General Arrangement Plan at El. 217'-0"
- 5.4.5 EP-241 Sample Preparation and Handling of Highly Radioactive Liquids

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APPENDIX EP-238-1

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DATA SHEET

Liquid Radwaste Grab Samples

DATE:	
TIME:	
SAMPLE LOCATION:	
SAMPLE POINT:	and the second s
VOLUME:	
INITIAL CONTACT DOSE RATE:	
ANALYSES REQUIRED:	

NAME :

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Section in the

PHILADELPHIA ELECTRIC COMPANY LIMERICK GENERATING STATION EMERGENCY PLAN IMPLEMENTING PROCEDURE

EP-241 SAMPLE PREPARATION AND HANDLING OF HIGHLY RADIOACTIVE LIQUID SAMPLES.

1.0 PARTICIPANTS

- 1.1 Chemistry Sampling and Analysis Group Leader determines the method and location of sample processing storage and/or disposal as required and ensures that the Administrative Exposure Guidelines are not exceeded.
- 1.2 <u>Health Physics Technician</u> provides constant coverage, monitors the extremity dose during sample handling, and monitors laboratory habitability.
- 1.3 <u>Chemistry Sampling and Analysis Group</u> members prepare the hot lab post accident sample preparation station, performs sample dilution and analysis.

2.0 ACTIONS - IMMEDIATE

- Determination of processing procedure.
 - 2.1.1 <u>Chemistry Sampling and Analysis Group Leader</u> shall obtain the appropriate EP-Sample Data Sheet and select one of the following processing procedures based on the radiation levels of the sample.
 - 2.1.1.1 Send the sample off-site for analysis per EP-244 Offsite Analysis of High Activity Samples.
 - 2.1.1.2 Place the sample in temporary storage for future analysis.
 - 2.1.1.3 Analyze the sample on-site.

COMPLETE SECTION I OF APPENDIX EP-241-1

2.1.2 The Chemistry Sampling and Analysis Group Leader shall determine the following sample parameters based on sample dose rates and analysis requirements.

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- 2.1.2.1 Analysis to be performed.
- 2.1.2.2 Order of analysis
- 2.1.2.3 Number and magnitude of dilutions
- 2.1.2.4 Analysis sample volume desired

PH DETERMINATION CANNOT BE PERFORMED ON DILUTED SAMPLES.

COMPLETE SECTION II OF APPENDIX EP-241-1.

- 2.2 Pre-Job Briefing
- 2.2.1 The Chemistry Sampling and Analysis Group Leader, Health Physics Technician and the Chemistry Sampling and Analysis Group Members shall assemble and review this procedure.
- 2.2.2 The Chemistry Sampling and Analysis Group Leader shall direct group members to perform the necessary steps of this procedure.

SECTION 2.3 AND 2.4 SHOULD BE PERFORMED AS EARLY AS POSSIBLE. THE SAMPLE MAY NOT BE PLACED IN THE SAMPLE PREPARATION STATION UNTIL THESE SECTIONS HAVE BEEN COMPLETED.

- 2.2.3 The Health Physics Technician shall brief group members on:
 - a. RWP requirements
 - b. Radiological concerns and precautions(ALARA)
 - c. Staytimes and exposure limits

CAUTION

KEEP EXPOSURE ALARA

2.3

Preparation of sample preparation station for liquid samples.

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2.3.1

The Chemistry Sampling and Analysis Group Member(s) shall prepare the dilution vials (with appropriate labels) per appendix EP-241-1 and place the vials in the appropriate dilution vial positions in the sample preparation station. Place lead caps over the vials (liquid position).

THE LEAD CAPS MAY BE POSITIONED FOR GAS OR LIQUID SAMPLES. FOR THE PURPOSE OF THIS PROCEDURE THEY SHALL BE IN THE LIQUID POSITION.

2.3.2

The Chemistry Sampling and Analysis Group Member(s) shall ensure that the necessary liquid micro syringes (with needles), sample handling tongs and sample analysis containers are in place and available to fulfill dilution and analysis requirements per appendix EP-241-1.

CAUTION

IF THE NEEDLE AND THE SYRINGES ARE NOT CONNECTED TIGHTLY THEY MAY SEPARATE WHEN WITHDRAWING FROM THE SAMPLE VIAL.

- 2.3.3 The Chemistry Sampling and Analysis Group Member(s) shall ensure that at least one pair of plastic gloves and two plastic sample bags are available for each gamma analysis to be performed.
- 2.4 Preparation of analysis instrumentation.
- 2.4.1 The Chemistry Sampling and Analysis Group Member(s) shall insure that the appropriate analysis procedures specified in appendix EP-241-1 are available and have been performed to the point that each analysis instrument is ready to accept the sample for analysis.

THE FOLLOWING STEPS ARE TO BE PERFORMED BY THE CHEMISTRY SAMPLING AND ANALYSIS GROUP MEMBER(S) (UNLESS OTHERWISE SPECIFIED) AND REQUIRE CONSTANT HEALTH PHYSICS MONITORING.

LEAD BRICKS IN THE SAMPLE PREPARATION STATION HAVE BEEN MODIFIED TO ACCEPT THE SAMPLE. THE LEAD BRICK LABELED "SAMPLE VIAL A" HAS BEEN MODIFIED TO ACCEPT A GAS OR LIQUID SAMPLE FROM THE PASS. THE LEAD BRICK LABELED "SAMPLE VIAL B" HAS BEEN MODIFIED TO ACCEPT A LIQUID SAMPLE FROM THE REACTOR COOLANT SAMPLE STATION.

2.5 Transport of sample from transport cask to sample preparation station.

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- 2.5.1 Remove the lead cap from the lead brick to accept the sample.
- 2.5.2 Position the sample transport cask as close to the Sample Preparation Station as possible.
- 2.5.3 As quickly and carefully as possible, remove the sample from the transport cask and place it in the lead brick.
- 2.5.4 Quickly place the lead cap over the sample in the "liquid" position.
- 2.5.5 Retreat from the Sample Preparation Station and allow the Health Physics Technician to take dose rate readings.

THE HEALTH PHYSICS TECHNICIAN SHALL INFORM THE CHEMISTRY SAMPLING AND ANALYSIS GROUP MEMBER OF THE SAMPLE PREPARATION STATION DOSE RATES AND STAY TIME.

2.6 Sample Dilution (if dilutions are not to be performed, proceed to step 2.7).

> DILUTIONS TO BE MADE ARE DESCRIBED IN APPENDIX EP-241-1. ALL ACCESSORIES USED IN THE DILUTION PROCESS SHALL BE MAINTAINED BEHIND THE LEAD SHIELD WALL ONCE THEY HAVE BEEN CONTAMINATED. ENSURE THAT THE SYRINGE AND NEEDLE ARE CONNECTED TIGHTLY OR THEY MAY SEPARATE WHEN WITHDRAWING FROM THE SAMPLE VIAL.

- 2.6.1 Insert the syringe thru the sample access hole in the lead cap then thru the sample vial septum and into the sample to be diluted. Withdraw the predetermined (appendix EP-241-1) aliquot from the sample vial.
- 2.6.2 Withdraw the syringe from the sample and insert it in the predescribed method into the next sequential dilution vial to accept the sample (Dilution Vial #1, #2 etc.). Inject the aliquot into the dilution vial.
- 2.6.3 Withdraw the syringe from the sample. Separate the needle and the syringe and discard them in the shielded waste container.
- 2.6.4 Remove the lead cap over the diluted sample. Grasp the sample vial securely with the sample handling tongs and raise the vial out of the lead brick (but not above the lead shield wall).

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- 2.6.5 Using the tongs, swirl the sample vial enough to ensure adequate mixing, replace the vial. Replace the lead cap (liquid position).
- 2.6.6 If further dilutions are necessary (per appendix EP-241-1) repeat steps 2.6.1 thru 2.6.5, always beginning with the last dilution vial to accept a sample aliguot.
- 2.6.7 When desired dilution is reached, the Health Physics Technician shall determine the dose rate of the diluted sample.
- 2.6.8 If the diluted sample dose rate is unacceptable, repeat steps 2.6.1 thru 2.6.5 until dose rate is acceptable. Indicate additional dilutions on appendix EP-241-1.
- 2.7 Sample Cup Preparation

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2.7.1 For each analysis to be performed (appendix EP-241-1) use the syringe transfer method (step 2.6.1) to sequentially obtain the volume of sample required (Appendix EP-241-1) from the appropriate diluted/undiluted sample source (appendix EP-241-1).

> DUE TO THE AMOUNT OF SAMPLE BEING REMOVED FROM THE BOTTLE IT MAY BE NECESSARY TO INJECT AN EQUAL AMOUNT OF AIR INTO THE BOTTLE.

2.7.2 Inject the appropriate sample aliquot into its analysis cup.

DUE TO THE SMALL VOLUME OF SAMPLE USED TO PERFORM PH AND THE EFFECTS CO2 ABSORBTION WILL HAVE ON THE ANALYSIS, THE PH SHOULD BE DETERMINED IMMEDIATELY AFTER THE SAMPLE IS PLACED IN ITS SAMPLE CUP.

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3.0 ACTIONS-FOLLOW-UP

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- 3.1 Perform the predetermined analysis (Appendix EP-241-1) in the predetermined sequence (Appendix EP-241-1).
- 3.2 Disposal of samples and contaminated materials

THE STORAGE AND/OR DISPOSAL OF THE UNUSED PORTION OF THE ORIGINAL SAMPLE WILL BE AT THE DISCRETION OF THE CHEMISTRY SAMPLING AND ANALYSIS GROUP LEADER AND THE HEALTH PHYSICS TECHNICIAN.

- 3.2.1 The remaining samples and contaminated sample cups shall be disposed of in the shielded waste container. The sample handling tongs shall be used in the transfers. The samples and sample cups should be kept behind the lead shield wall as much as possible.
- 3.2.2 Transfer and disposal of the shielded waste container will be at the discretion of the Health Physics Technician and the Chemistry Sampling and Analysis Group Leader.

4.0 APPENDICES

4.1 EP-241-1 Data Sheet

5.0 SUPPORTING INFORMATION

5.1 Purpose

The purpose of this procedure is to provide guidelines for sample preparation and handling of highly radioactive liquid samples following accident conditions.

- 5.2 Criteria for Use
- 5.2.1 This procedure shall be implemented when preparing or handling highly radioactive liquid samples during an emergency situation.
- 5.2.2 Ventilation in the sample preparation hood is operating.

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- 5.3 Special Equipment
- 5.3.1 Liquid sample vials with septum.
- 5.3.2 Appropriate liquid microsyringes.
- 5.3.3 Rubber gloves

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- 5.3.4 Plastic sample bags.
- 5.3.5 Sample handling tongs.
- 5.3.6 0.01N nitric acid solution(500 ml).
- 5.3.7 Eye protection
- 5.4 References
- 5.4.1 CH-901 Determination of Ions by Ion Chromatograph during Post Accident Conditions.
- 5.4.2 CH-903 Determination of PH in Low Volume Water Samples during Post Accident Conditions.
- 5.4.3 Ch-904 Determination of Metals by DCP during Post Accident Conditions.
- 5.4.4 CH-905 Determination of Gamma Isotopic Activity during Post Accident Conditions.
- 5.4.5 EP-230 Chemistry Sampling and Analysis Team
- 5.4.6 LGS FEAR 11.5.5, Post-Accident Sampling System

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Appendix EP-241-1 Data Sheet

I. Sample Source Grab Sample Point Initial Sample Volume Initial Contact Dose Rate Sample Date/Time /			Processing Procedure: A. Sent Offsite for Analysis(1) B. Placed in Temporary Storage (1),(2) C. Analyzed on Site				(x). () ()
11.				(4)	(5)		
Order of	Procedure	(3) Magnitude	Number of	Total Dilution	Analysis Sample	Acceptable Analysis	
Analysis Analysis	Number	of Dilutions	Dilutions	Factor	Volume	Dose Rate	
3							
5							
6							
 (1) If this method (2) The Chemistry S 							
(3) Magnitude of Di	lutions		(4) If orig a small vol	inal sample	e is (5)	Analysis Sam	ple Volume
	sample: 9 ml o c Acid	51 0.01N	sample, thi			0.5ml Cl (IC) 4 ml
100X's = 0.1 m	l sample: 9.9 c Acid	ml of 0.01N	factor must considered	be			
1000X's = 0.01		99 ml of 0.01 N			В (1	DCP) <u>4 m1</u>	
Due to the complexi							

and analysis process, it is recommended that the same magnitude of dilution be used for all of the analysis.

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PHILADELPHIA ELECTRIC COMPANY LIMERICK GENERATING STATION EMERGENCY PLAN IMPLEMENTING PROCEDURE

EP-243 SAMPLE PREPARATION AND HANDLING OF HIGHLY RADIOACTIVE GAS SAMPLES

1.0 PARTICIPANTS

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- 1.1 Chemistry Sampling and Analysis Group Leader determines the method and location of sample processing storage and/or disposal as required, and ensures that the Administrative Exposure Guidelines are not exceeded.
- 1.2 <u>Health Physics Technician</u> provides constant coverage, monitors the extremity dose during sample handling, and monitors laboratory habitability.
- 1.3 <u>Chemistry Sampling and Analysis Group Members</u> prepares the hot lab post-accident sample preparation station to accept the sample and performs the appropriate analysis, as required.

2.0 ACTIONS - IMMEDIATE

- 2.1 Determination of Processing Procedure
- 2.1.1 The Chemistry Sampling and Analysis Group Leader shall obtain the appropriate EP-Sample Data Sheet and select one of the following processing procedures based on the radiation levels of the sample.
- 2.1.1.1 Send the sample offsite for analysis per EP-244, Offsite Analysis of High Activity Samples.
- 2.1.1.2 Place the sample in temporary storage for future analysis.
- 2.1.1.3 Analyze the sample on-site.

COMPLETE SECTION I OF APPENDIX EP-243-1.

Vill Contraction

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- 2.1.2 The Chemistry Sampling and Analysis Group Leader shall determine the following sample parameters based on sample dose rates and analysis requirements.
- 2.1.2.1 Analysis to be performed 5 2.1.2.2 Order of analysis
- 2.1.2.3 Number and magnitude of dilutions
- 2.1.2.4 Analysis sample volume required.

SAMPLES FOR HYDROGEN AND OXYGEN DETERMINATION BY GAS CHROMATOGRAPHY MUST NOT BE DILUTED.

COMPLETE SECTION II OF APPENDIX EP-243-1.

- 2.2 Pre-Job Briefing
- 2.2.1 The Chemistry Sampling and Analysis Group Leader, Health Physics Technician and the Chemistry Sampling and Analysis Group Members shall assemble and review this procedure.
- 2.2.2 The Chemistry Sampling and Analysis Group Leader shall direct group members to perform the necessary steps of this procedure.

SECTION 2.3 AND 2.4 SHOULD BE PERFORMED AS EARLY AS POSSIBLE. THE SAMPLE MAY NOT BE PLACED IN THE SAMPLE PREPARATION STATION UNTIL THESE SECTIONS HAVE BEEN COMPLETED.

- 2.2.3 The Health Physics Technician shall brief group members on:
- 2.2.3.1 RWP requirements
- 2.2.3.2 Radiological concerns and precautions (ALARA)
- 2.2.3.3 Staytimes and exposure limits
- 2.3 Preparation of Sample Preparation Station for Gas Samples
- 2.3.1 The Chemistry Sampling and Analysis Group Member(s) shall prepare the dilution vials per Appendix EP-243-1 and place the vials in the appropriate dilution vial positions in the Sample Preparation Station. Each dilution vial shall have the predetermined (EP-243-1) aliquot volume withdrawn from it. Place lead caps over the vials (gas position).

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THE LEAD CAPS MAY BE POSITIONED FOR GAS OR LIQUID SAMPLES. FOR THE PURPOSE OF THIS PROCEDURE THEY SHALL BE IN THE GAS POSITION.

2.3.2 The Chemistry Sampling and Analysis Group Member(s) shall ensure that the necessary gas micro syringes (with needles), sample handling tongs and sample analysis containers are in place and available to fulfill dilution and analysis requirements per Appendix EP-243-1.

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IF THE NEEDLE AND THE SYRINGES ARE NOT CONNECTED TIGHTLY THEY MAY SEPARATE WHEN WITHDRAWING FROM THE SAMPLE VIAL.

- 2.3.3 The Chemistry Sampling and Analysis Group Member(s) shall ensure that at least one pair of plastic gloves and two plastic sample bags are available for each gamma analysis to be performed.
- 2.4 Preparation of Analysis Instrumentation
- 2.4.1 The Chemistry Sampling and Analysis Group Member(s) shall ensure that the appropriate analysis procedures specified in Appendix EP-243-1 are available and have been performed to the point that each analysis instrument is ready to accept the sample for analysis.

THE FOLLOWING STEPS ARE TO BE PERFORMED BY THE CHEMISTRY SAMPLING AND ANALYSIS GROUP MEMBER (UNLESS OTHERWISE SPECIFIED) AND REQUIRE CONSTANT HEALTH PHYSICS MONITORING.

LEAD BRICKS IN THE SAMPLE PREPARATION STATION HAVE BEEN MODIFIED TO ACCEPT THE SAMPLE. THE LEAD BRICK LABELED "SAMPLE VIAL A" HAS BEEN MODIFIED TO ACCEPT A GAS OR LIQUID SAMPLE FROM THE PASS!

- 2.5 Transport of Sample from Transport Cask to Sample Preparation Station
- 2.5.1 Remove the lead cap from the lead brick to accept the sample.
- 2.5.2 Position the sample transport cask as close to the Sample Preparation Station as possible.
- 2.5.3 As quickly and carefully as is possible, remove the sample from the transport cask and place it in the lead brick.

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2.5.4 Quickly place the lead cap over the sample in the "gas position".

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2.5.5 Retreat from the Sample Preparation Station and allow the Health Physics Technician to take dose rate readings.

> THE HEALTH PHYSICS TECHNICIAN SHALL INFORM THE CHEMISTRY SAMPLING AND ANALYSIS GROUP MEMBERS OF THE SAMPLE PREPARATION STATION DOSE RATES AND STAY-TIME.

2.6 Sample Dilutions (If dilutions are not to be performed or if analysis are to be performed prior to dilution, proceed to 3.1.2).

> DILUTIONS TO BE MADE ARE PRESCRIBED IN APPENDIX EP-243-1. ALL ACCESSORIES USED IN THE DILUTION PROCESS SHALL BE MAINTAINED BEHIND THE LEAD SHIELD WALL ONCE THEY HAVE BEEN CONTAMINATED. ENSURE THAT THE SYRINGES AND NEEDLE ARE CONNECTED TIGHTLY OR THEY MAY SEPARATE WHEN WITHDRAWING FROM THE SAMPLE VIAL.

- 2.6.1 Insert the syringe through the sample access hole in the lead cap, then through the sample vial septum and into the sample to be diluted.
- 2.6.2 Mix the gas in the sample vial by pumping the syringe in and out.
- 2.6.3 Set the syringe to the volume of sample to be transferred per Appendix EP-243-1.
- 2.6.4 Withdraw the syringe form the sample and insert it in the predescribed method into the next sequential dilution vial to accept the sample. Inject the aliguot into the dilution vial.
- 2.6.5 Mix the gas in the sample vial by pumping the syringe in and out.
- 2.6.6 Withdraw the syringe from the sample. Separate the needle and the syringe and discard them in the shielded waste container.
- 2.6.7 If further dilutions are necessary (per Appendix EP-243-1) repeat steps 2.6.1 through 2.6.6, always beginning with the last dilution vial to accept a sample aliquot.

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- 2.6.8 When the desired dilution is reached, the Health Physics Technician shall determine the dose rate of the dilution sample.
- 2.6.9 If the dilution sample dose rate is unacceptable repeat steps 2.6.1 through 2.6.6 until the dose rate is acceptable. Indicate additional dilutions on Appendix EP-241-1.
- 3.0 ACTIONS FOLLOW-UP

3.1 Sample Analysis

- 3.1.1 Perform gamma isotopic analysis if directed by Appendix EP-243-1. Proceed to step 3.2.
- 3.1.2 Perform oxygen and hydrogen analysis if directed by Appendix EP-243-1. Proceed back to step 2.6.1 if dilutions are necessary for gamma isotopic analysis per Appendix EP-243-1.
- 3.2 Disposal of Samples and Contaminated Materials
- 3.2.1 The remaining samples shall be disposed of in the shielded waste container. The sample handling tongs shall be used in the transfer. The samples should be kept behind the lead shield wall as much as is possible.
- 3.2.2 Transfer and disposal of the shielded waste container will be at the discretion of the Health Physics Technician and the Chemistry Sampling and Analysis Group Leader.

4.0 APPENDICES

4.1 EP-243-1 Data Sheet

5.0 SUPPORTING INFORMATION

5.1 The purpose of this procedure is to provide guidelines for sample preparation and handling of highly radioactive gas samples following accident conditions.

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5.2 Criteria for Use

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- 5.2.1 This procedure shall be implemented when preparing or handling highly radioactive gas sample during an emergency situation.
- 5.2.2 In all steps of this procedure keep exposures ALARA.

IF THE NEEDLE AND THE SYRINGES ARE NOT CONNECTED TIGHTLY THEY MAY SEPARATE WHEN WITHDRAWING FROM THE SAMPLE VIAL.

- 5.2.3 Ventilation in the sample preparation hood is operating.
- 5.3 Special Equipment
- 5.3.1 Gas sample vials
- 5.3.2 Appropriate gas syringes
- 5.3.3 Rubber gloves
- 5.3.4 Plastic sample bags
- 5.3.5 Sample handling tongs
- 5.3.6 Eye protection
- 5.4 References
- 5.4.1 CH-905 Determination of Gamma Isotopic Activity During Post Accident Conditions
- 5.4.2 CH-902 Determination of Hydrogen and Oxygen Using a Gas Chromatograph During Post Accident Conditions
- 5.4.3 EP-230 Chemistry Sampling and Analysis Team Activation

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APPENDIX EP-243-1

DATA SHEET

1.	Sample Source Grab Sample Po	int
	Initial Sample Volume Initial	l Contact Dose Rate
	Sample Date/Time/	
	Processing Procedure:	(x)
	(*) A. Sent offsite for analyses	()
	(*)(**) B. Placed in temporary storage	()
	C. Analyzed on-site	()
	날 같이 집안 비슷 것같은 것이 많은 것 같았다.	

- (*) If this method is used, sign and date this data sheet and terminate this procedure.
- (**) The Chemistry Sampling and Analyses Group Leader shall determine the place of storage.

II.

Order of Analysis	Analysis	Procedure Number	Aliquot Size	*** Magnitude of Dilutions	**** Total Dilution Factor	***** Analysis Sample Volume	Acceptable Analysis Dose Rate
1				_!_!_!_			
2				_!_!_!_			
3				_!_!_!_			
4				_1_1_1_			

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DATA SHEET (CONT'D)

(***) Due to the complexity of the dilution and analysis process it is recommended that the same magnitude of dilution be used for all of the analyses. To calculate the magnitude of dilution use the following tables: (****) Recommended sample volumes: GC - 100 micro liters

Aliquot Size	1st dilution	2nd dilution	3rd dilution	4th dilution
1 ml	14.4	207	2.99 P3	4.30 P4
.1 ml	144	2.07 P4	2.99 P6	4.30 P8

Total Dilution Factor = $\frac{14.4}{VS}$ X Magnitude of Dilution

(This correction factor is to be used for activity determinations and is not to be used for hydrogen and oxygen analyses.)

Vs = Volume of original sample (from the appropriate EP Sample Data Sheet)

Signature

Date Time



UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

May 21, 1986

50-352/353 Limerick

MEMORANDUM FOR: Chief, Document Management Branch, TIDC

FROM: Director, Division of Rules and Records, ADM

SUBJECT: REVIEW OF UTILITY EMERGENCY PLAN DOCUMENTATION

The Division of Rules and Records has reviewed the attached document and has determined that it may now be made publicly available.

Donne H Hundy

Donnie H. Grimsley, Director Division of Rules and Records Office of Administration

Attachment: As stated