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CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-001

TITLE: MANUAL PURPOSE AND USE

REVISION 0

APPROVED: _____ 7/18/84
Signature Date

TITLE: Asst to Gen Mgr

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1.0 PURPOSE

The purpose of this portion of the plant operating manual is to provide a set of Plant Emergency Procedures (PEPs) to implement the emergency actions described in the Emergency Plan for the Shearon Harris Nuclear Power Plant (SHNPP), Plant Program PLP-201. This portion of the manual provides the SHNPP staff and supporting agencies with specific instructions, forms and data to ensure prompt actions, proper notifications, and effective communications during potential and actual emergency conditions. It also denotes the means by which emergency preparedness is maintained by periodic training, exercises, and equipment inventories and checks. During and subsequent to an emergency, this manual will provide a means for recording the actions completed in fulfillment of established emergency response requirements.

2.0 REFERENCES

This section contains a list of documents used in the development of the Plant Emergency Procedures (PEPs). By adhering to the requirements of the Plant Emergency Procedures, compliance is achieved for applicable portions of the Controlling References. The guidance and recommendations contained in the other references have been incorporated into the Plant Emergency Procedures as considered useful and appropriate.

2.1 CONTROLLING REFERENCES

1. Shearon Harris Nuclear Power Plant Emergency Plan, PLP-201
2. Carolina Power & Light Company Corporate Emergency Plan
3. Code of Federal Regulations, Part 50, Section 50.47, "Emergency Plans."
4. Code of Federal Regulations, Part 50, Section 50.54(g), "Conditions of License."
5. Code of Federal Regulations, Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."
6. SHNPP Plant Administrative Manual, Sections 4 and 5.2.5.
7. AP-002, "Plant Conduct of Operations"
8. AP-006, "Procedure Review and Approval"

2.2 OTHER REFERENCES

1. NUREG-0654, FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

2.0 REFERENCES

2.2 OTHER REFERENCES (Cont'd)

2. NUREG-0737, Supplement 1, "Requirements for Emergency Response Capability."

3.0 RESPONSIBILITIES

This section presents responsibilities for development of Plant Emergency Procedures. Specific responsibilities for implementing the PEPs are assigned in individual procedures.

3.1 PLANT GENERAL MANAGER

The Plant General Manager has overall responsibility for assuring the development, review, approval, maintenance, testing, and implementation, when necessary, of the Plant Emergency Procedures.

3.2 ASSISTANT TO THE PLANT GENERAL MANAGER

The Assistant to the Plant General Manager is responsible for maintaining, controlling, and distributing the Plant Emergency Procedures. He reviews the Plant Emergency Procedures against the controlling reference documents to determine if procedure revisions are needed in accordance with Section 5.0 of the Emergency Plan, AP-002 and AP-006. He approves all Plant Emergency Procedures and approves the list for distribution.

3.3 PLANT EMERGENCY PREPAREDNESS SPECIALIST

The Plant Emergency Preparedness Specialist is responsible for developing, implementing, and maintaining an Emergency Preparedness Program for the Harris Plant which ensures that a "State of Readiness" is maintained in accordance with the plant and corporate emergency plans and regulatory requirements by:

- Reviewing and revising the plant Emergency Plan to ensure regulatory compliance, incorporating provisions of the Corporate and plant plans into the program;
- Supporting the licensing process by addressing NRC questions, SER open items and ASLB hearing contentions;
- Planning, scheduling, and conducting on-site and outside agency training;
- Preparing, executing, and evaluating drill plans and exercises to test preparedness;
- Ensuring that emergency facilities, equipment, and supplies are available and in operational readiness;
- Developing plant specific implementation procedures to ensure procedural control;
- Effectively interfacing with federal, state, and local governmental and law enforcement agencies and plans.

3.0 RESPONSIBILITIES

3.4 USERS

Emergency Organization members are responsible for suggesting or recommending constructive improvements to the Plant Emergency Procedures based on operating experience or on use during drills and exercises. Users should make recommendations known through their supervisors or directly to the Plant Emergency Preparedness Specialist.

4.0 DEFINITIONS/ABBREVIATIONS

4.1 TERMINOLOGY

The following procedural terminology is used throughout the Plant Emergency Procedures:

1. "Will" or "Shall" denotes a requirement. The action will be accomplished in the manner stated.

2. "Should" denotes a recommendation. The action will be accomplished in the manner stated or by an equally effective alternate method.

3. "May" denotes permission - neither a recommendation nor a requirement.

4. Statements of fact in the active present tense are used to assign responsibilities or to describe actions required by procedures or documents external to this manual. Examples of active present tense verbs are; maintain, review, analyze, prepare, and distribute.

4.2 ACRONYMS

Acronyms and abbreviations common to emergency planning use are provided as Attachment to this procedure.

5.0 GENERAL

5.1 MANUAL ORGANIZATION

The Plant Emergency Procedures are organized to facilitate immediate use by both on-site and off-site emergency response personnel.

1. Section 0, "Plant Emergency Procedures Introduction," denoted by procedures numbered 001-099, is the Introduction. This section describes the proper use of the manual.

5.0 GENERAL

5.1 MANUAL ORGANIZATION (Cont'd)

2. Section 1, "Emergency Classifications and Control Procedures," denoted by procedures numbered 100-199, consists of step-by-step immediate action procedures for the Control Room, Technical Support Center, and the Site Emergency Coordinator. These include the classification scheme used by plant personnel in reporting potential emergency events, evaluating their extent, classifying them as an Unusual Event, Alert, Site Emergency, General Emergency or as an event of lesser safety significance, and some methods for controlling the situation.

3. Section 2, "Emergency Management Guides," denoted by procedures numbered 200-299, consists of management guidelines. These procedures provide guidance on performing the key emergency organization positions.

4. Section 3, "Emergency Action Procedures," denoted by procedures numbered 300-399, contains the specific procedures required to monitor, control and mitigate the consequences of classified emergencies. This section provides step-by-step instructions to direct specific personnel activities during an emergency.

5. Section 4, "Supplemental Procedures," denoted by procedures numbered 400-499, includes the supplemental procedures required to assure the appropriate emergency personnel and equipment are prepared for the onset of emergency conditions.

5.2 INDEX TABS

The controlled copies of this manual are indexed by section with white tabs.

5.0 GENERAL

5.3 MISCELLANEOUS

For informational blanks and checkoffs, the use of "N.A." is permitted rather than spelling out none available or none applicable.

6.0 INITIATING CONDITIONS

None Applicable

7.0 PRECAUTIONS/LIMITATIONS

None Applicable

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

None Applicable

10.0 DIAGRAMS AND ATTACHMENTS

1. Acronyms

ATTACHMENT 1
ACRONYMS

Acronym	Description
AP	Administrative Procedure
ARD	Automatic ring down (Phone to County and State)
CP	Chemistry Procedure
DP	Dosimetry Procedure
EALs	Emergency Action Levels
EOP	Emergency Operating Procedure
EOP-EPP	Emergency Operating Procedure - End Path Procedure
EOP-PATH	Emergency Operating Procedure - Flow Path Procedure
ERC	Environmental and Radiation Control Procedure
EPZ	Emergency Planning Zone
ERFIS	Emergency Response Facility Information System
FPP	Fire Protection Procedure
FSAR	Final Safety Analysis Report
HPP	Health Physics Procedure
NRC	Nuclear Regulatory Commission
PEP	Plant Emergency Procedure
PLP	Plant Program Procedure
RCP	Radio Chemistry Procedure
SER	Safety Evaluation Report
SERT	State Emergency Response Team
SHE&EC	Shearon Harris Energy & Environmental Center
SHNPP	Shearon Harris Nuclear Power Plant
SIC	Survey Instrument Calibration Procedure
SP	Security Procedure

Note: If definitions of above terms are needed, see SHNPP Emergency Plan, Annex C. Glossary of Terms.

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-101

TITLE: INITIAL EMERGENCY ACTIONS

REVISION 0

APPROVED: C R Gibson (Signature) 8/27/84 (Date)

TITLE: Asst to General Manager

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(INITIAL EMERGENCY ACTIONS)

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1.0 PURPOSE

The purpose of this procedure is to implement Section 4.1 of the SHNPP Emergency Plan, "Emergency Classification."

This procedure is to be used by the Shift Foreman or his alternate in the Control Room upon recognition of an off-normal condition (as determined by instrument readings, direct observation, or reported events) to assist in determining whether an event should be categorized as an emergency.

Once implemented, this procedure shall remain in effect until either:

1. An emergency is declared in accordance with an Emergency Action Level.

2. The off-normal condition is resolved.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 4.1, "Emergency Classification"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-102, "Site Emergency Coordinator - Control Room"

2. PEP-103, "Site Emergency Coordinator - Technical Support Center"

3. PEP-301, "Notification and Communications"

4. PEP-403, "Performance of Training"

2.3 OTHER REFERENCES

1. AP-605, "Licensee Event Reports"

3.0 RESPONSIBILITIES

3.1 AUTHORITY

The Shift Foreman on duty (or his designated alternate) has immediate and unilateral authority to initiate and conduct this procedure. He may delegate specific steps as necessary, but shall not delegate the final classification decision.

3.2 RELIEF OF POSITION

The Shift Foreman may be relieved by a designated alternate trained (in accordance with procedure PEP-403) to conduct this procedure.

3.0 RESPONSIBILITIES

3.3 DESIGNATED ALTERNATES

In order of succession, the designated alternates for the Shift Foreman are as follows:

1. Control Room Senior Control Operator

2. Roving Senior Control Operator

3.4 DUTIES

Until an emergency is declared, the Shift Foreman has the following responsibilities relating to the Emergency Plan:

1. Direct the activities of the Control Room staff.

2. Recognize an off-normal condition as indicated by instrument readings or observation.

3. Implement any Emergency Operating Procedures.

4. Determine whether personnel injuries have occurred.

4.0 DEFINITIONS

Fission Product Barrier- The fuel cladding, reactor coolant system boundary, or the containment boundary.

5.0 GENERAL

None Applicable

6.0 INITIATING CONDITIONS

1. Entry into the Emergency Action Level network has been directed by any of the Emergency Operating Procedures, Fire Protection Procedures, Abnormal Operating Procedures, or Security Procedures listed in Attachment 3.

or

2. A Critical Safety Function Status Tree on the Safety Parameter Display System has produced a red or orange output.

or

3. Conditions exist which, in the judgement of the Shift Foreman, could be classified as an emergency.

7.0 PRECAUTIONS AND LIMITATIONS

1. Implementation of this procedure does not constitute an emergency. This procedure serves as a guideline to assist in comparison of plant conditions with Emergency Action Levels to evaluate whether an Emergency should be declared.

2. The highest emergency class for which an emergency action level is currently met should be declared. If an action level for a higher classification was exceeded but currently has abated or been resolved, the higher classification should be reported to the state, county, and Nuclear Regulatory Commission in accordance with PEP-301, but should not be declared.

3. Priority should be placed on saving lives and/or preventing excessive exposure to personnel over saving equipment or preventing the spread of contamination.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

9.1. Enter the Emergency Action Level Network, Attachment 1, at the appropriate point:

1. If you were directed to enter the network by another plant procedure, enter at the point specified by that procedure.

2. If you are entering the network because a Critical Safety Function Status Tree on the Safety Parameter Display System has produced a red or orange output, enter at point W.

3. In all other cases, enter at point X.

9.2. Proceed through the Emergency Action Level Network (Attachment 1) until the network directs you to either declare or not declare an emergency.

1. If the network directs you to "UPDATE CSF STATUS BOARD," enter the output color of each Critical Safety Function Status Tree currently indicated on the Safety Parameter Display System in the data table provided on the network immediately below the instruction. Use the data in this table to answer subsequent questions in the network logic.

9.0 PROCEDURE STEPS (Cont'd)

2. When the network directs you to "UPDATE FPB STATUS BOARD," enter the status of each fission product barrier in the data table provided on the network immediately below the instruction. If you entered the network at points T, U, or V, use the stated condition(s) for the entry point(s). If you entered at point W, use the conditions from the immediately preceding logic.

3. When the network asks the question "ANY OTHER PLANT PARAMETER THAT INDICATES BREACH OF THE FPB", refer to Attachment 4, "Fission Product Barrier Status Indications" for general guidance on instrumentation that may be useful in answering this question.

4. If the answer to the network question "EAL FLOWPATH REVIEWED" is NO, enter the logic of Attachment 2, "Emergency Action Level Flowpath" at point Z. Proceed through the flowpath logic, re-enter the network (Attachment 1) at point Y,then enter the category (such as fire, loss of power, etc.), if any, that resulted in the highest classification in the appropriate blank in the table provided on the network immediately below the "EAL FLOWPATH REVIEWED" question.

5. Use the data entered in the fission product barrier and flowpath tables to answer the subsequent network questions.

6. If the network directs you to "EVALUATE AGAINST UNUSUAL EVENT MATRIX," proceed through the "Unusual Event Matrix" at the bottom of Attachment 1, then continue with the network.

7. If the network directs you to "DECLARE" any class of emergency, implement PEP-102, "Site Emergency Coordinator - Control Room," or PEP-103, "Site Emergency Coordinator - Technical Support Center," whichever is appropriate, and enter the time below that point on the Attachment.

8. If the network result is "NO EMERGENCY DECLARED," consult AP-605, "Licensee Event Reports," to determine whether the condition constitutes a reportable event other than an emergency.

9.3 If conditions dictate a continued evaluation or re-evaluation of Emergency Action Levels, re-enter the network at point W and repeat Section 9.2.

10.0 DIAGRAMS AND ATTACHMENTS

1 Emergency Action Level Network

2 Emergency Action Level Flowpath

3 List of Plant Procedures that Direct Emergency Action Level Network Entry

4 Fission Product Barrier Status Indications

ATTACHMENT 3

LIST OF PLANT PROCEDURES THAT DIRECT
EMERGENCY ACTION LEVEL NETWORK ENTRY

Procedure Number	Title
AOP-001	Malfunction of Reactor Control System
AOP-002	Emergency Boration
AOP-003	Malfunction of Rx MU Cont
AOP-004	Control Room Inaccessibility
AOP-005	Radiation Monitoring System
AOP-006	Turbine Vibration
AOP-007	Turbine Trip Without Reactor Trip Below P-7
AOP-008	Accidental Release of Liquid Waste
AOP-009	Accidental Release of Gaseous Waste
AOP-010	Inadequate Feedwater Flow
AOP-011	Loss of Circulating Pump
AOP-012	Partial Loss of Condenser Vacuum
AOP-013	Fuel Handling Accident
AOP-014	Loss of Component Cooling Water
AOP-015	Secondary Load Rejection
AOP-016	Excessive Primary Plant Leakage
AOP-017	Loss of Instrument Air
AOP-018	Reactor Coolant Pump Abnormal Condition
AOP-019	Malfunction of RCS Pressure Control
AOP-020	Loss of Residual Heat Removal (Shutdown Cooling)
AOP-021	Seismic Disturbances
AOP-022	Loss of Service Water
AOP-023	Loss of Containment Integrity
AOP-024	Loss of Instrument Bus
AOP-025	Loss of Emergency AC Buss (6.9KV) or One Emergency DC (125VDC) Buss
AOP-026	Loss of Essential Chilled Water System
AOP-027	Response to Acts Against Plant Equipment
EOP-EPP-001	Loss of All AC Power to 1A-5A and 1B-5B Busses
EOP-EPP-002	Loss of All AC Power Recovery Without SI Required
EOP-EPP-003	Loss of All AC Power Recovery With SI Required
EOP-EPP-004	Reactor Trip Response
EOP-EPP-005	Natural Circulation Cooldown
EOP-EPP-006	Natural Circulation Cooldown With Steam Void in Vessel - Without RVLIS
EOP-EPP-007	Natural Circulation Cooldown With Steam Void in Vessel-Without RVLIS
EOP-EPP-008	SI Termination
EOP-EPP-009	Post-LOCA Cooldown and Depressurization
EOP-EPP-010	Transfer to Cold Leg Recirculation
EOP-EPP-011	Transfer to Hot Leg Recirculation
EOP-EPP-012	Loss of Emergency Coolant Recirculation
EOP-EPP-013	LOCA Outside Containment

ATTACHMENT 3 (Cont'd)

LIST OF PLANT PROCEDURES THAT DIRECT
EMERGENCY ACTION LEVEL NETWORK ENTRY

Procedure Number	Title
EOP-EPP-014	Faulted Steam Generator Isolation
EOP-EPP-015	Uncontrolled Depressurization of All Steam Generators
EOP-EPP-016	SGTR Isolation
EOP-EPP-017	Post-SGTR Cooldown Using Backfill
EOP-EPP-018	Post-SGTR Cooldown Using Blowdown
EOP-EPP-019	Post-SGTR Cooldown Using Steam Dump
EOP-EPP-020	SGTR With Loss of Coolant Accident: Subcooled Recovery
EOP-EPP-021	SGTR With Loss of Coolant Accident: Saturated Recovery
EOP-EPP-022	SGTR Without Pressurizer Pressure Control
EOP-FRP-C1	Response to Inadequate Core Cooling
EOP-FRP-C2	Response to Degraded Core Cooling
EOP-FRP-C3	Response to Saturated Core Dooling
EOP-FRP-H1	Response to Loss of Secondary Heat Sink
EOP-FRP-H2	Response to Steam Generator Overpressure
EOP-FRP-H3	Response to Steam Generator High Level
EOP-FRP-H4	Response to Loss of Normal Steam Release Capability
EOP-FRP-H5	Response to Steam Generator Low Level
EOP-FRP-I1	Response to High Pressurizer Level
EOP-FRP-I2	Response to Low Pressurizer Level
EOP-FRP-I3	Response to Voids in Reactor Vessel
EOP-FRP-J1	Response to High Containment Press
EOP-FRP-J2	Response to Containment Flooding
EOP-FRP-J3	Response to High Containment Radiation Level
EOP-FRP-P1	Response to Imminent Pressurized Thermal Shock Conditions
EOP-FRP-P2	Response to Anticipated Pressurized Thermal Shock Conditions
EOP-FRP-S1	Response to Nuclear Power Generation/ATWS
EOP-FRP-S2	Response to Loss of Core Shutdown
EOP-PATH-1	PATH-1
EOP-PATH-2	PATH-2
FPP-002	Fire Emergency
SP-017	Reporting of Physical Security Events

ATTACHMENT 4

FISSION PRODUCT BARRIER STATUS INDICATIONS

Barrier Status	Indication
All Intact	All area and process radiation monitors indicate within their normal Operating Range
Fuel Breached	Gross Failed Fuel Detection System indicates ›(later) CPM, which corresponds to 5% failed fuel, or is increasing › (later) CPM/hour, which corresponds to 2% failed fuel/hour
	Particulate, Iodine, and/or Noble Gas airborne radiation monitors for any area where there are normally small amounts of reactor coolant leakage, or in the Fuel Handling Building, indicate an increase greater than (later) times their normal reading
	Area radiation monitors in the vicinity of any piping or equipment through which reactor coolant is flowing indicate an increase greater than (later) times their normal reading
	RVLIS indicates that reactor vessel water level is below the top of active irradiated fuel, or Spent Fuel Pool level drops below the top of irradiated fuel.
	Reactor coolant sample indicates ›100µCi/ml equivalent I-131
Reactor Coolant System Breached	Charging flow is more than 50 gpm greater than letdown flow
	Decreasing pressurizer level with maximum charging flow
	Decreasing reactor coolant system pressure with maximum charging flow and all pressurizer heaters energized
	Steam Generator pressure corresponds to Reactor Coolant System pressure or Reactor Coolant System Saturation pressure, whichever is greater
	Containment sump level is increasing

ATTACHMENT 4 (Cont'd)

FISSION PRODUCT BARRIER STATUS INDICATIONS

Barrier Status	Indication
Reactor Coolant System Breached (Cont'd)	Containment air or normal range area, and/or Condenser vacuum pump exhaust radiation monitors indicate an increase greater then (later) times their normal reading
	Steam Generator level is increasing with feed flow isolated
Containment Breached	Containment pressure ≥45 psig or Hydrogen concentration ≥4%
	Containment isolation failure
	Discovery of failure to conform with Technical Specification requirements for containment integrity
	Indicated steam and/or feedwater flow ≥15 seconds after a containment isolation signal
	One or more Main Steam Safety valves, Isolation valves, power-operated relief valve, or dump valves indicate failed open
Fuel and Reactor Coolant System Breached	Containment high-range (post-accident) area radiation monitor indicates ≥(later) R/hour
	Main Steam line radiation monitor(s) indicate greater than (later) µCi/cc
	A Steam Generaor sample indicates activity ≥100µCi/ml
	A combination of the indications for breach of the individual barriers as listed above
Reactor Coolant System Containment Breached	Radiation levels throughout the plant and/or plant site are abnormally high but do not exceed (later) Rem/hour
	A combination of the indications for breach of the individual barriers as listed above

ATTACHMENT 4 (Cont'd)

FISSION PRODUCT BARRIER STATUS INDICATIONS

Barrier Status	Indication
Containment and Fuel Breached	A combination of the indications for breach of the individual barriers as listed above
All three breached	Plant Vent Stack 1 radiation monitor indicates activity '(later) µCi/cc with maximum ventilation flow
	A combination of the indications for breach of the individual barriers as listed above
	Environmetal Monitoring indicates whole body dose rates of 1 Rem/hour or a child thyroid dose committment rate of 5 Rem/hour at the Exclusion Area boundary

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: Plant Emergency Procedure (PEP)

NUMBER: PEP-102

TITLE: Site Emergency Coordinator - Control Room

REVISION 0

APPROVED: _____ 8/28/84
Signature Date

TITLE: J. L. WILLIS, PLANT GENERAL MANAGER

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1.0 PURPOSE

The purpose of this procedure is to implement Sections 2.3 "Command and Control" and 2.4.2 "Site Emergency Coordinator" of the SHNPP Emergency Plan while the emergency is managed from the Control Room. This procedure describes the actions of the Site Emergency Coordinator from the time an emergency is declared to the time when the emergency is terminated or when the Site Emergency Coordinator function is transferred to the Technical Support Center.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.3, "Command and Control"
2. Section 2.4.2, "Site Emergency Coordinator"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-101, "Initial Emergency Actions"
2. PEP-103, "Site Emergency Coordinator - Technical Support Center"
3. PEP-104, "Protective Action Recommendations"
4. PEP-217, "Emergency Communicator"
5. PEP-301, "Notification and Communications"
6. PEP-302, "Communication Activities"
7. PEP-303, "Use of Communications Equipment"
8. PEP-321, "Notification of Emergency Personnel"
9. PEP-322, "Mobilization of Outside Organizations"
10. PEP-341, "Manual Dose Projection"
11. PEP-342, "Automation of Dose Projection Procedure - ERFIS"
12. PEP-343, "Automation of Dose Projection Procedure - IBM PC"
13. PEP-351, "Emergency Plant Environmental Monitoring"
14. PEP-381, "Evacuation"
15. PEP-382, "Personnel Accountability"
16. PEP-391, "First Aid and Medical Care"
17. PEP-401, "Record Keeping and Documentation"
18. PEP-403, "Performance of Training,"
19. PEP-405, "Preparation of Activity Logs"

2.3 CORPORATE EMERGENCY PLAN AND IMPLEMENTATION PROCEDURES REFERENCES

1. CEPIP-1 - Corporate Emergency Plan Notification
2. CEPIP-3 - Emergency Response Manager
3. CEPIP-8 - Corporate Emergency Operations Center Activation and Operations

2.0 REFERENCES

2.4 OTHER REFERENCES

1. AP-002, "Plant Conduct of Operations"
2. AP-007, "Temporary Procedure, Revision, Review and Approval"
3. OMM-001, "Operations - Conduct of Operations"

3.0 RESPONSIBILITIES

3.1 AUTHORITY

The Site Emergency Coordinator is delegated the authority to act on behalf of the Company to manage and direct all emergency operations involving SHNPP.

3.2 RELIEF OF POSITION

1. The Site Emergency Coordinator may be relieved by a designated alternate trained (in accordance with procedure (PEP-403) to perform the duties of this position.

2. The primary person assigned to the position of Site Emergency Coordinator - Control Room is the Shift Foreman.

3. If the Shift Foreman is unavailable, the designated alternates in order of succession, until transfer of the Site Emergency Coordinator position to the Technical Support Center, are:

3.3 DUTIES - PRIOR TO ACTIVATION OF THE TECHNICAL SUPPORT CENTER

Until transfer of the Site Emergency Coordinator position to the Technical Support Center, the Site Emergency Coordinator - Control Room performs the following duties:

1. Requests assistance from Immediate Emergency Response Organizations as needed.

2. Classifies the emergency and announces it in the Control Room.

3. Designates personnel to fill the positions of Operations Leader and the Emergency Communicator.

4. Coordinates and directs the activities of emergency response personnel in the Control Room, Operational Support Center, and elsewhere on the plant site.

3.0 RESPONSIBILITIES

3.3 DUTIES - PRIOR TO ACTIVATION OF THE TECHNICAL SUPPORT CENTER (Cont'd)

5. Orders the alerting of on-site personnel and the assembly and evacuation of nonessential personnel from local areas, the Protected Area, or the site when conditions warrant. He also orders the return of personnel to their work places after assembly for accountability purposes when evacuation is unnecessary or the emergency condition is over.

6. Orders the activation of the Technical Support Center, the Operational Support Center, the Emergency Operations Facility, and the Plant Media Center when required.

7. Ensures required notifications are made in a timely fashion.

8. Recommends to off-site government authorities protective actions which should be taken by the public until relieved of this responsibility by the Site Emergency Coordinator - Technical Support Center or the Emergency Response Manager (see Section 3.5).

9. In the absence of the Plant General Manager and the Manager-Environmental and Radiation Control, approves planned personnel exposures in excess of 3 rem or entry into radiation fields greater than 100 rem/hr.

10. Reviews and approves deviations from Technical Specifications or license conditions.

11. When contacted by the State after an initial notification of an emergency, briefs the State on plant conditions and actions being taken.

12. Until the Emergency Operations Facility is activated, provides updates to the State on the emergency conditions and recommendations for protective actions at approximately 60 minute intervals or if necessary, more frequently.

13. Declares the emergency terminated when the situation is under control (see Section 3.5).

3.0 RESPONSIBILITIES

3.3 DUTIES - PRIOR TO ACTIVATION OF THE TECHNICAL SUPPORT CENTER (Cont'd)

NOTE: After the Technical Support Center is activated, the function of the Site Emergency Coordinator transfers from the Control Room in the person of the Site Emergency Coordinator-Control Room (Shift Foreman) to the Technical Support Center in the person of the Site Emergency Coordinator-Technical Support Center (Plant Manager). The Site Emergency Coordinator-Control Room (Shift Foreman) may then assume the position of Operations Leader in charge of the Control Room. For duties of the Site Emergency Coordinator after the Technical Support Center is activated see PEP-103.

3.4 DUTIES RELINQUISHED UPON ACTIVATION OF THE EMERGENCY OPERATING FACILITY

Upon activation of the Emergency Operations Facility (EOF), the Emergency Response Manager will assume responsibility for off-site notifications, and interface with the Corporate Emergency Operation Center and the State and County Governments for environmental monitoring and for off-site dose projection.

3.5 DELEGATION OF AUTHORITY

The Site Emergency Coordinator shall not delegate the responsibilities of:

- Classifying the emergency,

or

- Recommending off-site protective actions to authorities responsible for off-site emergency measures,

or

- Declaring the emergency terminated.

Other responsibilities may be delegated as necessary to expedite response to the emergency.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

None Applicable

6.0 INITIATING CONDITIONS

1. Implementation of PEP-101 is a prerequisite to implementation of this procedure. Each time an emergency condition is declared, reclassified (upgraded or downgraded), or terminated, this procedure is implemented. All, or only selected portions of this procedure, may be implemented, as necessary.

2. This procedure is terminated under the following conditions:

- The functions of the Site Emergency Coordinator-Control Room are properly turned over to the primary Site Emergency Coordinator-Technical Support Center who implements PEP-103, "Site Emergency Coordinator - Technical Support Center."

- The Site Emergency Coordinator-Control Room declares that the Emergency is terminated.

7.0 PRECAUTIONS AND LIMITATIONS

None Applicable

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Emergency Log

9.0 PROCEDURE STEPS

9.1 GENERAL

1. Initiate an Emergency Log. Record in this log significant decisions or actions. As a minimum, record actions in this procedure denoted by a star "*" before the step number.

2. Maintain this log per PEP-405 until you declare the emergency terminated or are relieved by the Site Emergency Coordinator Technical Support Center.

3. After the emergency, records are to be delivered to the Senior Specialist-Emergency Preparedness.

9.0 PROCEDURE STEPS

9.2 IMMEDIATE RESPONSE ORGANIZATION ASSISTANCE

If assistance from an immediate response organization (Fire, Ambulance, Police, etc.) is needed, proceed as follows, otherwise go to Section 9.3. After a request for assistance from an immediate response organization has been received in the Control Room:

1. Fill out Attachment 1 to procedure PEP-301 (Immediate Response Organization Notification Form), call the organization (or have the Emergency Communicator call) and request the specific assistance needed as per procedure PEP-301.

2. If off-site assistance is requested, verify security is notified and instructed to:

- o Prepare the appropriate number of security badges.
- o Prepare the appropriate number of dosimetry devices (if needed for the final destination).
- o Have sufficient security personnel ready as escorts at the responding unit's initial arrival point.
- o Notify you and the requestor when the responding unit has arrived at the initial arrival point and at their destination.

*3. If off-site assistance is requested, verify that the requestor (or person who will use their assistance) is notified of the following:

- o Type of assistance responding (Fire, Ambulance, Sheriff if security is requestor).
- o Number of vehicles and personnel expected.
- o Estimated time of arrival.
- o Where they were instructed to respond initially.
- o Where they were instructed to go on site.
- o Security will provide an escort to the final destination.

4. If the off-site assistance involves calling an ambulance refer to PEP-391 for details on medical care, personnel decontamination and transportation of contaminated injuries.

*5. If the off-site assistance requires taking an injured person to the hospital, confirm with the ambulance personnel, First Aid Team, and/or Personnel Protection and Decontamination Team personnel whether the patient is contaminated, to which hospital he will be taken, and how

9.2 IMMEDIATE RESPONSE ORGANIZATION ASSISTANCE (Cont'd)

soon he will be transported. Notify the hospital of the information as per procedure PEP-301.

9.3 DECLARATION OF EMERGENCY, CHANGE OF CLASSIFICATION, OR TERMINATION

*1. When an emergency classification is determined in accordance with PEP-101, declare aloud in the Control Room that:

- o An emergency exists;

  or

- o The emergency classification has changed,

  or

- o The emergency has terminated,

as follows:

NOTE: Use only those parts of the following message which coincide with the current conditions.

*** EXAMPLE MESSAGE ***

- o ATTENTION IN THE CONTROL ROOM! (Repeat if necessary)

- o AS SITE EMERGENCY COORDINATOR I AM DECLARING:
  - AN EMERGENCY CONDITION EXISTS AS OF: _____ (Give time) AND THE CLASSIFICATION IS: _____ (Give classification: Unusual Event, Alert, Site Emergency or General Emergency).

    or

  - THE PREVIOUS EMERGENCY CLASSIFICATION HAS CHANGED AS OF: _____ (Give time) AND THE CLASSIFICATION IS NOW: _____ (Give present classification).

    or

  - THE EMERGENCY IS TERMINATED AS OF: _____ (Give time).

- o THE CLASSIFICATION (or RECLASSIFICATION) IS BASED UPON EXCEEDING (or FALLING BELOW) THE EMERGENCY ACTION LEVEL OF:
  - o _____ (State Emergency Action Level)

9.3 DECLARATION OF EMERGENCY, CHANGE OF CLASSIFICATION, OR TERMINATION (Cont'd)

(For initial declaration only, continue announcement:)

- o I AM ASSUMING THE POSITION OF SITE EMERGENCY COORDINATOR.
- o I AM DESIGNATING: _____ (Name) TO BE THE OPERATIONS LEADER AND TO BE IN CHARGE OF THE CONTROL ROOM. YOU ARE TO FOLLOW THE EMERGENCY OPERATIONS PROCEDURES AND TAKE OTHER ACTIONS AS NECESSARY TO BRING THE PLANT INTO A SAFE CONDITION UNTIL PROPERLY RELIEVED OF THAT POSITION BY ME OR A QUALIFIED REPLACEMENT.
- o I AM DESIGNATING: _____ (Name) TO BE THE EMERGENCY COMMUNICATOR.

(For all cases, if appropriate:)

- o AT PRESENT I ANTICIPATE ACTIVATING (DEACTIVATING) THE FOLLOWING EMERGENCY FACILITIES:
  (Specify which ones):
  - None
  - Technical Support Center
  - Operational Support Center
  - Emergency Operations Facility

(For terminations only, of the accident conditions:)

- o EMERGENCY COMMUNICATOR, NOTIFY ON-SITE PERSONNEL AS PER PEP-321 AND ALL OFF-SITE AGENCIES AND PERSONNEL THAT HAVE BEEN CONTACTED AS PER PEP-301 THAT THE EMERGENCY IS NOW TERMINATED.
- o AFTER FINISHING YOUR CURRENT TASKS ALL PERSONNEL ARE RELIEVED FROM YOUR EMERGENCY POSITIONS. CLOSE OUT ANY EMERGENCY LOGS, TURN THEM IN TO ME; AND RESUME YOUR NORMAL POSITIONS.

(To end all announcements:)

- o PLEASE! CARRY ON!

2. If the declared emergency is a result of emergency action level(s) indicating a high classification (i.e., Site Emergency) that after a brief period is downgraded to a lower classification (i.e., Alert), the off-site notification must indicate the current classification, and it must also indicate the period(s) of time that the higher classification occurred and the mitigating conditions that caused the emergency classification to be downgraded.

9.0 PROCEDURE STEPS

9.3 DECLARATION OF EMERGENCY, CHANGE OF CLASSIFICATION, OR TERMINATION (Cont'd)

For example, the emergency action levels in PEP-101 will show a site emergency due to a relief valve failure to reseat concurrent with significant primary to secondary system leakage. Before the emergency operating procedures have been completed, and before the off-site notification begins, the valve seats and an Alert condition exists. State that the emergency classification is an Alert, that the initiating condition was a failure of a valve to reseat, and that a Site Emergency existed from (time) to (time).

NOTE: If the downgrading of the emergency class occurs during an initial notification immediately change the notification to state the new emergency class.

9.4 INITIAL ACTIONS

1. Instruct the Operations Leader to follow appropriate operations procedures (or emergency operations procedures) applicable to the specific situation.

2. Designate an available reactor operator as the Dose Projection Team Leader, if needed.

3. Instruct the Dose Projection Team Leader to immediately initiate PEP-342 or PEP-343 (or a manual calculation, if necessary, as in PEP-341) to obtain an estimate of the off-site dose, both as an input to assist in determining what protective action recommendations will be made in the initial off-site warning message, and for comparison with Emergency Action Levels.

4. Determine if an evacuation of personnel at the site is necessary. (The basis whether to evacuate and the types of evacuation are discussed in PEP-381.) Select one of the following:

   - o Assembly and Shelter
   - o Protected Area Evacuation
   - o Plant Site Evacuation (Protected Area, Other Operations Areas, and any of the construction Areas)

9.0 PROCEDURE STEPS

9.5 DIRECT ACTIVATION OF EMERGENCY RESPONSE FACILITIES

1. Decide what emergency facilities, if any, should be activated for the emergency condition. Guidance for activation is as follows:

NOTE: "Activation" means fully operational and functional. To direct activation of a facility does not constitute activation of the facility until the Manager of the facility announces that the facility is activated and functioning.

- o If an UNUSUAL EVENT is declared, activation of the following emergency facilitaies are not required but may be considered as an optional item:

  -Technical Support Center
  -Operational Support Center
  -Emergency Operating Facility

- o If an ALERT is declared, activate the following facilities:

  -Technical Support Center
  -Operational Support Center

The Emergency Operating Facility may optionally be activated if desired.

- o If a SITE OR GENERAL EMERGENCY is declared, activate all of the following facilities:

  -Technical Support Center
  -Operational Support Center
  -Emergency Operating Facility

NOTE: Activation of the Emergency Operations Facility is performed by contacting the Emergency Response Manager (Vice President - Harris Nuclear Project or his alternate) and requesting activation of the facility as specified in the Corporate Emergency Plan and Corporate Emergency Plan Implementation Procedure CEPIP-1. Activation of other emergency response facilities, such as the Plant Media Center or Corporate Emergency Operating Center is usually performed by corporate personnel as specified in CEPIP-1 and CEPIP-8. If it is desired to activate any of these facilities, contact the Emergency Response Manager. General Information on organization, notification, emergency measures, and facilities can be found in Section 4 through 7 of the Corporate Emergency Plan.

9.0 PROCEDURE STEPS

9.5 DIRECT ACTIVATION OF EMERGENCY RESPONSE FACILITIES (Cont'd)

2. Inform the Control Room personnel and the Emergency Communicator of what facilities you have decided to activate.

9.6 INITIAL WARNINGS AND NOTIFICATIONS ON-SITE AND OFF-SITE

NOTE: Steps 1 through 7 can be performed concurrently or in the order decided best by the Site Emergency Coordinator.

*1. Fill out the "Emergency Organization Notification Form," Attachment 1 of PEP-321, identifying CP&L personnel needed for the class of emergency declared.

*2. Have the Emergency Communicator (or another individual you designate) notify on-shift personnel (and others on site needed for the emergency) of their emergency assignments via the plant Public Address system (or other expeditious means) as per PEP-321.

NOTE: Step 2 can be combined with Step 3.

*3. Warn, or assign someone to warn on-site personnel via siren, Public Address System, radio, pager, and/or telephone that an emergency has been declared. Specify the following in the announcement:

- The classification of the emergency.
- That personnel report in to their supervisors in assembly areas.
- That supervisors account for their personnel and report the names and possible location of any unaccounted personnel within 20 minutes to the Assembly Area Leaders. Assembly Area Leaders report results to the Emergency Security Team Leader at extension (specify)
- What on-site emergency facilities are being activated (Operational Support Center, Technical Support Center).
- other necessary information.

*4. Decide what protective actions you will recommend to the off-site agencies. See procedure PEP-104.

NOTE: THE DECISION AS TO WHAT PROTECTIVE ACTION TO RECOMMEND TO OFF-SITE AGENCIES CANNOT BE DELEGATED. The initial notification must be made to the five off-site agencies within 15 minutes after the declaration of an emergency.

9.0 PROCEDURE STEPS

9.6 INITIAL WARNINGS AND NOTIFICATIONS ON-SITE AND OFF-SITE (Cont'd)

*5. Prepare (or assign an available individual in the Control Room to prepare) the initial notification message (Part I of Attachments 2 and 3) as described in PEP-301.

*6. Review the initial notification messages, make changes if necessary, and approve them for release by signing your name, the time, and the date.

*7. Give the approved initial notification messages to the Emergency Communicator and instruct him to notify the five off-site agencies within 15 minutes and the NRC and INPO within one hour after the declaration of an emergency.

NOTE: Refer him to PEP-217, PEP-301, PEP-302, and PEP-303.

8. After on shift personnel have reported in (physically or by telephone) notify the Emergency Security Team Leader.

9. If the on-shift personnel must be augmented to properly respond to the emergency, augment them as specified in PEP-321 by filling out Attachment 1 of PEP-321, "Emergency Organization Notification Form."

10. If personnel from Westinghouse, Ebasco, INPO, or other organizations are required, indicate on the "Mobilization of Outside Organizations Form" (Attachment 1 to PEP-322).

*11. If personnel augmentation is required, give the completed and approved call-in lists (prepared in steps 9 and/or 10) to the Emergency Communicator (or other available person) and instruct him to call in these personnel as quickly as possible and to report when everyone has been notified and when they have arrived.

*12. If the Emergency Security Team Leader has not called within 30 minutes of the declaration, contact him to determine if all personnel are accounted for in accordance with PEP-382 and, if not, what actions are being taken. Also ascertain if the assembled personnel have provided any information on injuries, fires, or damage to equipment.

9.0 PROCEDURE STEPS.

9.7 HABITABILITY OF ASSEMBLY AREA SHELTERS AND THE OPERATIONAL SUPPORT CENTER

1. Instruct the Personnel Protection and Decontamination Team Leader to perform a radiological survey }(and/or toxic gas survey depending upon the type of emergency) of the assembly areas which are also being used to shelter personnel.

*2. If the Operational Support Center has been activated, also instruct the Personnel Protection and Decontamination Team Leader to perform a radiological survey of the Operational Support Center after surveying the Assembly Area Shelters, and inform you of the results when it is complete.

*3. If the radiological conditions reported in the Assembly Area Shelters or Operational Support Center will result in personnel exposure in excess of 5 mrem/hr or a projected dose in excess of 100 mrem whole body, and/or airborne radioactivity in excess of 1 MPC, or 40 MPC-hours/week, consider moving the Operational Support Center to a new location (such as the health physics area of the Waste Processing Building).

*4. If radiological conditions in the assembly areas exceed levels in step 3 or if toxic gas levels exceed threshold level values non-essential personnel should be evacuated (as per PEP-381) or if this is not reasonable to do at the time, moved to a better shelter if one exists. If the emergency is classified as an unusual event or alert, and if all or most work areas have not been affected, consider instructing personnel to return to work areas that have not been affected.

*5. If you are considering moving the shelters or Operational Support Center, instruct the Personnel Protection and Decontamination Team Leader to survey possible new locations (give suggestions) and report the results to you.

*6. If surveys of alternate Operational Support Center locations have been reported, evaluate the results, decide whether to move all, some, or none of the Operational Support Center personnel and instruct the Personnel Protection and Decontamination Team Leader as to what further actions to take.

9.0 PROCEDURE STEPS

9.7 HABITABILITY OF ASSEMBLY AREA SHELTERS AND THE OPERATIONAL SUPPORT CENTER (Cont'd)

NOTE: Depending upon the radiological conditions at the current Operational Support Center, the radiological conditions at the proposed Operational Support Center(s), the wind direction and stability class, the distance from the area where personnel will be used, availability of communications equipment and other equipment, adequacy of the facility and overall adequacy of the response from alternate locations, you may not want to transfer personnel. An alternative would be to transfer all personnel to an alternate Operational Support Center except those expected to be used shortly; as people are needed, bring them to the old Operational Support Center to get dressed and obtain equipment.

7. If an alternate Operational Support Center is activated, announce this decision (and whether the old Operational Support Center is closed) over the Public Address System.

8. Notify security to instruct incoming personnel to report to an alternate Operational Support Center if an alternate is used.

9.8 DOSE PROJECTION

1. If a General Emergency has been declared, immediately determine a protective action recommendation based upon plant conditions and wind direction (as per PEP-104) and then have dose projections performed as per the following steps. If an Unusual Event, Alert or Site Emergency has been declared, there should be no off-site effects by definition and therefore no immediate protective actions recommendations are required. Procede with step 2.

*2. Once the initial dose projection has been performed as indicated in PEP-341, PEP-342, or PEP-343 by the Dose Projection Team Leader, verify that the Radiological Control Director (if available) has checked the results and agrees with them.

*3. Verify that the Radiological Control Director (if available) has sent out the Environmental Monitoring Team, based upon the initial dose projection calculation, to confirm the initial projection as per PEP-351. Obtain the time the team was dispatched and the time they are expected to report.

9.0 PROCEDURE STEPS

9.8 DOSE PROJECTION (Cont'd)

NOTE: Not required for Unusual Event and Alert.

*4. Obtain recommendations from the Radiological Control Director (if available or Dose Projection Team Leader) based upon the initial dose projection calculations and protective action guides as to what protective actions, if any, should be recommended to the off-site agencies. Compare with the results from PEP-104.

*5. Once the Environmental Monitoring Team has reported their readings and the Radiological Control Director (if available or Dose Projection Team Leader) has evaluated the readings, discuss with him whether the results confirm the initial dose projection calculations and recommended protective actions or whether he recommends new protective actions based upon these results.

*6. Based upon the Environmental Monitoring Team results, the recommendations of radiological control personnel, the evaluation by the Operations Leader of plant conditions and the protective action guides, decide what protective actions to recommend to the off-site agencies. See procedure PEP-104 for details.

NOTE: The Site Emergency Coordinator cannot delegate this responsibility. By definition there should be no off-site effects and, therefore no protective action recommendations required for Unusual Event, Alert or Site Emergency.

9.9 FOLLOW-UP NOTIFICATIONS

1. Once protective action recommendations have been decided upon, have Part II of the Emergency Notification forms in PEP-301 completed (Part I should already be complete) by the Radiological Control Director (or Dose Projection Team Leader).

*2. Review the follow-up notification messages (Parts I & II), add information or make changes if necessary, and approve them for release by signing your name, the time, and the date.

*3. Give the approved follow-up notification messages to the Emergency Communicator and instruct him to notify the off-site agencies and the Nuclear Regulatory Commission.

9.0 PROCEDURE STEPS

9.10 TEMPORARY PROCEDURES AND DEPARTURE FROM LICENSE CONDITIONS OR TECHNICAL SPECIFICATIONS

The Site Emergency Coordinator is required to authorize reasonable action that departs from a license condition or a Technical Specification in an emergency when this action is immediately needed to protect the public health and safety and no action, consistent with license conditions and Technical Specifications, is immediately apparent that can provide adequate or equivalent protection.

*1. All deviations from Technical Specifications or license condition (e.g., Quality Assurance Program, Control Room Staffing, Containment Leakage Rate, Security Plan, Safeguards Contingency Plan, State Local and SHNPP Emergency Plans, or unauthorized disclosure of Safeguards information) shall be approved by the Site Emergency Coordinator-Control Room in accordance with procedures AP-002 and OMM-001.

*2. The Nuclear Regulatory Commission shall be notified via the Emergency Notification System (Red phone) of actions that deviate from license conditions or Technical Specifications. The Nuclear Regulatory Commission will be notified prior to performing the action, if time permits; otherwise, the notification shall be made as soon as possible thereafter.

*3. All temporary changes to procedures shall be approved by the Site Emergency Coordinator-Control Room in accordance with procedure AP-007. If prudence dictates immediate action, verbal approval will be given and documentation completed as time permits.

9.11 POSITION CHANGEOVER FOR SITE EMERGENCY COORDINATOR

*1. When relinquishing the position of Site Emergency Coordinator - Control Room brief your successor on the emergency and emergency actions status using Attachment 1.

*2. If you are relieving a Site Emergency Coordinator-Control Room, request and obtain from the current position holder a briefing on the emergency and emergency actions status.

*3. Upon assuming the position of Site Emergency Coordinator-Control Room, notify all appropriate personnel of your name, the position you are assuming, and the name of the person you replace.

9.0 PROCEDURE STEPS

9.11 POSITION CHANGEOVER FOR SITE EMERGENCY COORDINATOR (Cont'd)

*4. If activation of the Emergency Operations Facility by the Emergency Response Manager should occur prior to activation of the Technical Support Center, transfer the responsibility for off-site related activities to the Emergency Response Manager. This includes a briefing of the Emergency Response Manager using Attachment 1 and transfer of the Emergency Communicator position to the Emergency Operations Facility.

*5. Transfer of the position of Site Emergency Coordinator from the Control Room to the Technical Support Center will occur after the person who is to assume the Site Emergency Coordinator - Technical Support Center position has arrived in the Technical Support Center. The transfer may occur before the Technical Support Center is fully operational at the discretion of the Site Emergency Coordinator-Technical Support Center. Upon transfer, PEP-103 will go into effect and this procedure will terminate.

10.0 DIAGRAMS/ATTACHMENTS

1. Site Emergency Coordinator Turnover Check list.

ATTACHMENT 1

Site Emergency Coordinator Turnover Checklist

1. Review status of major plant safety equipment and systems. _____

2. Review cause and history of the emergency condition. _____

   a. Initiating events

   b. Sequence of follow-up events

   c. Other details

3. Review and determine emergency actions initiated. _____

   a. Plant-specific

   b. Off-site

4. Review resources available on site and resources needed. _____

5. Review off-site notifications made. _____

   a. Corporate

   b. State

   c. NRC

   d. Westinghouse

   e. Ebasco Services

   f. Other: Duke, VEPCO, SCE&G, INPO, ANI, FEMA

6. Determine what other notifications should be made. _____

7. Determine other resources needed. _____

8. Identify key personnel on duty. _____

   a. Site Emergency Coordinator

   b. Plant Operations Director

   c. Emergency Repair Director

   d. Logistics Support Director

   e. Radiological Control Director

   f. SERT Representative

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-103

TITLE: SITE EMERGENCY COORDINATOR - TECHNICAL SUPPORT CENTER

REVISION 0

APPROVED: _____ 8/29/84
Signature Date

TITLE: J. L. WILLIS, PLANT GENERAL MANAGER

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1.0 PURPOSE

This procedure implements Section 2.4.2 of the SHNPP Emergency Plan. It specifies actions to be taken by the Site Emergency Coordinator - Technical Support Center.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.3, "Command and Control"
2. Section 2.4.2, "Site Emergency Coordinator"
3. Section 4.0, "Emergency Measures and Operations"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-101, "Initial Emergency Actions"
2. PEP-104, "Protective Action Recommendations"
3. PEP-301, "Notification and Communications"
4. PEP-302, "Communications Activities"
5. PEP-321, "Notification of Emergency Personnel"
6. PEP-322, "Mobilization of Outside Organizations"
7. PEP-323, "Set-up and Operation of Emergency Facilities"
8. PEP-371, "Emergency Response in Radiological Areas"
9. PEP-381, "Evacuation"
10. PEP-405, "Preparation of Activity Logs"
11. PEP-500, "Recovery"

2.3 OTHER REFERENCED PLANT PROCEDURES

1. AP-002, "Plant Conduct of Operations"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

The Site Emergency Coordinator - Technical Support Center reports to the Emergency Response Manager after the Emergency Operations Facility is manned.

3.0 RESPONSIBILITIES

3.2 ASSIGNMENT AND RELIEF OF POSITION

The Plant General Manager, Manager - Start-up, Manager - Operations, or Manager - Maintenance, in that order of succession, reports to the Control Room when notified of an Alert, Site Emergency, or General Emergency. After a briefing by the Site Emergency Coordinator-Control Room, and when he has determined that the Technical Support Center is sufficiently manned and activated to assume command responsibilities, he formally assumes the position of Site Emergency Coordinator-Technical Support Center.

3.3 DUTIES

The Site Emergency Coordinator - Technical Support Center is responsible for:

1. Maintaining a record of his activities.
2. Coordinating and directing the activities of all personnel on the plant site.
3. Designating an individual to be in charge of the Control Room.
4. Classifying the emergency.
5. Ensuring that required notifications are made in a timely manner.
6. Ordering evacuations from on-site areas and/or on-site sheltering when necessary.
7. Activating the Emergency Operations Facility if the event escalates to a Site or General Emergency.
8. Performing the functions of the Emergency Response Manager until that position is manned at the Emergency Operations Facility, and informing the Emergency Response Manager of actions being planned and taken.
9. Ensuring that provisions are made for 24 hour continuity of the on-site emergency response effort.
10. In the absence of the Plant General Manager and the Manager - Environmental and Radiation Control, approving planned radiation exposures in excess of 3 Rem or entry into radiation fields greater than 100 R/hr.

3.0 RESPONSIBILITIES

3.3 DUTIES (Cont'd)

11. Authorizing distributing of Potassium Iodide to on-site emergency workers.

12. Ensuring that he is relieved only by an individual trained to perform the duties of Site Emergency Coordinator-Technical Support Center.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

The Site Emergency Coordinator - Technical Support Center exercises overall command and control of on-site activities.

6.0 INITIATING CONDITIONS

6.1 The Shift Foreman has declared an Alert, Site Emergency, or General Emergency, and has assumed the position of Site Emergency Coordinator - Control Room.

or

6.2 The Plant General Manager has determined that activation of this position is warranted.

7.0 PRECAUTIONS AND LIMITATIONS

7.1 The following actions shall not be delegated:

1. Classification of an emergency.

2. Deciding to notify authorities responsible for off-site actions.

3. Deciding what protective actions to recommend to authorities responsible for off-site actions.

7.2 Planned radiation exposures in excess of regulatory limits are appropriate only for lifesaving activities, or to prevent additional damage to the plant and/or radiological releases.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

9.1 If you are relieving the Site Emergency Coordinator-Control Room, report your arrival to the Emergency Communicator-Control Room. Obtain a briefing from the Site Emergency Coordinator-Control Room on the status of the emergency. When satisfied that the Technical Support Center is sufficiently manned and operational, inform the Site Emergency Coordinator-Control Room that you are relieving him as Site Emergency Coordinator and direct him to assume the responsibilities of Operations Leader in the Control Room. Use the public address system to notify all on-site personnel that the Technical Support Center has been activated and that you have assumed the responsibilities of Site Emergency Coordinator in the Technical Support Center.

9.2 If you are relieving another Site Emergency Coordinator-Technical Support Center, obtain a briefing on the status of the emergency and all actions taken and planned. Announce that you have relieved the Site Emergency Coordinator-Technical Support Center to those individuals who report to you.

9.3 Initiate and maintain a record of your activities in accordance with PEP-405 and ensure that your staff are also maintaining activity logs.

9.4 Conduct all communications activities in accordance with PEP-302 and PEP-303, and ensure that your staff are following proper communications' procedures.

9.5 Ensure that the Plant Operations Director is implementing Abnormal and/or Emergency Operation Procedures and Fire Protection Procedures as dictated by the situation.

9.6 Ensure that the Logistics Support Director has:

1. directed the implementation of access control in accordance with PEP-384, and security contingency procedures as appropriate to the situation.

2. directed the implementation of personnel accountability in accordance with PEP-382.

3. provided for access control and set up of the Emergency Operations Facility (if the emergency classification is Site Emergency or higher, or if discretionary activation of the Emergency Operations Facility has been directed.)

9.7 Ensure that the Emergency Communicator is implementing the necessary procedures to notify:

1. CP&L response personnel in accordance with PEP-321.

9.0 PROCEDURE STEPS

2. local fire departments and/or rescue squads, the Nuclear Regulatory Commission, State and local authorities and INPO in accordance with PEP-301.

9.8 Ensure that the Radiological Control Director has:

1. directed that all occupied emergency facilities and assembly areas be surveyed for habitability.

2. directed that samples of the containment atmosphere and/or plant systems be taken as appropriate.

3. directed the continuous monitoring of Radiation Monitoring System Data, and is ensuring that other Directors and their team leaders are being kept aware of changing radiological conditions.

4. directed the implementation of emergency radiation exposure control and personnel protection procedures.

9.9 Ensure that the Emergency Repair Director has dispatched damage control teams to investigate reports of out of service or malfunctioning equipment that is necessary to place the plant in a safe condition.

9.10 If a gaseous release of radioactive material is known or suspected to have occurred or is imminent, ensure that:

1. the Plant Operations Director has directed the isolation of the potable water system.

2. the Logistics Support Director has directed the isolation of foodstuffs.

3. the Radiological Control Director has directed the implementation of dose projection and environmental monitoring procedures, and the analysis of potable water for radioactivity.

9.11 Based on data and recommendations provided by the Plant Operations Director and Radiological Control Director, continuously assess and reclassify the accident as appropriate in accordance with PEP-101.

9.12 Whenever the emergency is reclassified, consult with the Radiological Control Director to determine whether protective actions are necessary for personnel responding to the site, then direct the Emergency Communicator to notify additional CP&L response personnel as appropriate in accordance with PEP-321. Until relieved of this responsibility by the Emergency Response Manager, direct the Logistics Support Director to request

additional off-site assistance as needed in accordance with PEP-322, determine any change to recommended protective actions in accordance with PEP-104, and direct the notification of off-site authorities in accordance with PEP-301. If appropriate, direct the Logistics Support Director to activate the Emergency Operations Facility in accordance with PEP-323.

9.13 As soon as data on radiological releases, off-site dose projection and/or environmental monitoring become available, and until relieved of this responsibility by the Emergency Response Manager, direct the Emergency Communicator to perform follow-up notifications to off-site authorities in accordance with PEP-301.

9.14 When personnel accountability is complete, ensure that the Plant Operations Director implements search and rescue efforts as required. Based on recommendations from the Radiological Control Director, direct protective actions for on-site personnel in the assembly areas as appropriate.

9.15 If necessary to save a life or prevent further plant damage and/or radiological releases, and in the absence of the Plant General Manager and the Manager - Environmental and Radiation Control, authorize planned radiation exposures in excess of regulatory limits and/or entry into radiation fields in excess of 100R/hr in accordance with PEP-371.

9.16 Based on recommendations from the Radiological Control Director, authorize the distribution of Potassium Iodide to designated on-site emergency workers in accordance with PEP-383 if warranted.

9.17 After the on-site response organization is fully manned, ensure that the Logistics Support Director is coordinating the preparation of shift schedules adequate to ensure 24 hour continuity of the emergency response effort, identifying the need for augmentation, and dismissing unnecessary personnel so that they will be adequately rested to relieve the initial responders.

9.18 Direct the Logistics Support Director to request assistance from the Emergency Operations Facility, Corporate Emergency Operations Center, and/or contractors and agreement organizations in accordance with PEP-322 as necessary to augment the shift schedules.

9.19 When damage reports are made, ensure that the Emergency Repair Director, Plant Operations Director, and Radiological Control Director are developing a course of corrective action, and that the Logistics Support Director is directing the issuance or procurement of any required materials or supplies.

9.0 PROCEDURE STEPS

9.20 When the Emergency Response Manager and his staff are ready to be briefed on the emergency, you may designate a qualified alternate to relieve you in accordance with Step 9.2 of this procedure if one is available. Using Attachment 1 as a guide, brief the Emergency Response Manager and his staff on the status of the emergency and all actions taken or planned. If you were relieved by an alternate, relieve your alternate in accordance with Step 9.2 of this procedure to reassume the position of Site Emergency Coordinator after the briefing is complete.

NOTE: If the Emergency Response Manager and his staff came to the Technical Support Center for a face-to-face briefing, the Emergency Response Manager will telephone the Site Emergency Coordinator to be updated on any change in conditions or actions that have occurred since the briefing after they arrive at the Emergency Operations Facility. The Emergency Response Manager will then activate the Emergency Operations Facility and relieve the Site Emergency Coordinator-Technical Support Center of off-site responsibilities.

9.21 Periodically throughout the emergency, inform the entire plant emergency organization of the status of the plant and actions taken by making announcements over the public address system.

9.22 When the emergency is downgraded to a lower classification, request the emergency directors to recommend which positions, if any, are no longer needed to manage the emergency. If the Emergency Operations Facility is activated, obtain concurrence from the Emergency Response Manager, then direct the dismissal of those plant emergency personnel who are no longer required.

9.23 When the emergency is terminated, direct the transition to recovery in coordination with the Emergency Response Manager and in accordance with PEP-500. Deliver your activity log and any other documentation generated during the emergency to the Senior Specialist-Emergency Preparedness.

10.0 DIAGRAMS/ATTACHMENTS

1. Site Emergency Coordinator Turnover Checklist

ATTACHMENT 1

Site Emergency Coordinator Turnover Checklist

ON-SITE SITUATION

1. Review status of major plant safety equipment and systems, specificly including the status of the fission product barriers. _____

2. Reviews cause and history of the emergency condition. _____

   a. Initiating events

   b. Sequence of follow-up events

   c. Other details (specificly review any suspect instrumentation that could possibly be an indication that a release is occurring).

3. Review and determine emergency actions initiated. _____

   a. Plant-specific

   b. On-site protective actions

   c. Exclusion Area

4. Review resources available on site and resources needed. _____

5. Identify key personnel on duty. _____

   a. Site Emergency Coordinator

   b. Plant Operations Director

   c. Emergency Repair Director

   d. Logistics Support Director

   e. Radiological Control Director

   f. SERT Representative

OFF-SITE SITUATION

1. Review off-site notifications made. _____

   a. Corporate

   b. State

c. NRC

d. Westinghouse

e. Ebasco Services

f. Other: Duke, VEPCO, SCE&G, INPO, ANI, FEMA

2. Determine what other notifications should be made. _____

3. Review Protective Action Recommendations made for the public. _____

4. Review current status of off-site (local/state government) activation, readiness, actions,etc. _____

5. Review current status of any off-site evacuations, sheltering, and reception/decontamination centers. _____

6. Review progress and location of any radiological plume. _____

7. Determine other resources needed. _____

8. Review the time and content of the most recent media briefing. _____

APRO15

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE

NUMBER: PEP-104

TITLE: PROTECTIVE ACTION RECOMMENDATIONS

REVISION 0

APPROVED: _____ 8/27/84
Signature Date

TITLE: Asst To General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement section 4.5 of the SHNPP Emergency Plan, "Protective Actions for the Public."

This procedure provides guidelines for determining protective action recommendations to be made to the State, and Chatham, Harnett, Lee and Wake Counties, during a General Emergency.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 4.5, "Protective Actions for the Public"
2. Annex G, "Interfacing Information from Supporting Emergency Plans"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-101, "Initial Emergency Action"
2. PEP-102, "Site Emergency Coordinator - Control Room"
3. PEP-103, "Site Emergency Coordinator - Technical Support Center
4. PEP-204, "Radiological Control Director"
5. PEP-216, "Dose Projection Team Leader"
6. PEP-301, "Notification and Communications"
7. PEP-341, "Manual Dose Projection"
8. PEP-342, "Automation of Dose Projection-ERFIS"
9. PEP-344, "Automation of Dose Projection-IBM PC"

2.3 OTHER REFERENCES

1. USEPA 520/1-75-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents"
2. Title 10, Code of Federal Regulations, Part 50 Appendix E.
3. NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."
4. NRC IE Information Notice No. 83-28, "Criteria for Protective Action Recommendations for General Emergencies."

3.0 RESPONSIBILITIES

1. SITE EMERGENCY COORDINATOR

The Site Emergency Coordinator recommends to off-site government authorities, protective actions which should be taken by the public until relieved of this responsibility by the Emergency Response Manager. After the Emergency Operations Facility is activated, the Site Emergency Coordinator is responsible for advising the Emergency Response Manager as to what fission product barrier conditions exist in order to determine that portion of the off-site protective action recommendation based on plant conditions.

3.0 RESPONSIBILITIESS

2. EMERGENCY RESPONSE MANAGER
After the Emergency Operations Facility is activated, the Emergency Response Manager relieves the Site Emergency Coordinator of the responsibility to recommend to government authorities what protective actions should be taken by the public.

3. RADIOLOGICAL CONTROL DIRECTOR
The Radiological Control Director is responsible for determining what recommendations for continuing protective action based upon plume conditions should be taken by the public and for advising the Site Emergency Coordinator concerning radiological conditions when the Technical Support Center is activated.

4. RADIOLOGICAL CONTROL MANAGER
The Radiological Control Manager is responsible for determining what recommendations for continuing protective action based upon plume conditions should be taken by the public and for advising the Emergency Response Manager when the Emergency Operations Facility is activated.

5. PLANT OPERATIONS DIRECTOR
The Plant Operations Director (or in his absence the Shift Technical Advisor) is responsible for informing the Site Emergency Coordinator of the existing fission product barrier status to allow the Site Emergency Coordinator to make a determination of off-site protective action recommendations when a General Emergency is first declared.

4.0 DEFINITIONS

Fission Product Barrier - The fuel cladding, reactor coolant system boundary, or the containment boundary. A "Fission Product Barrier Status Board" is used to determine Emergency Action Levels and to determine recommendations for protective actions offsite based on plant conditions.

Protective Actions - Actions taken to afford dose savings to a population at risk when the benefits derived from such action are sufficient to offset any undesirable features of the actions taken.

5.0 GENERAL

5.1 PROTECTIVE ACTION GUIDELINES

The guidance below is based upon the provisions of NUREG-0654 and the North Carolina Emergency Response Plan in Support of the Shearon Harris Nuclear Power Plant.

5.0 GENERAL

The protective actions in this procedure are limited to minimizing the exposure of the public from external and internal radiation exposure from passage of, deposition from or inhalation of, an airborne radioactive plume. Other protective actions for minimizing public exposure via the ingestion pathway (food and water consumption) are described in Table 4.5.2 of the SHNPP Emergency Plan.

5.2 DESCRIPTION OF PROTECTIVE ACTION OPTIONS

5.2.1 Evacuation

Timely evacuation of members of the population is the most effective protective action. There are, however, disadvantages and constraints that may make evacuation inappropriate. An estimate of the time necessary to effect an evacuation of SHNPP emergency planning zones is shown in Attachment 1 of this procedure.

5.2.2 Sheltering

Sheltering is a protective action which involves members of the general public taking cover in a building or home that can be made relatively airtight. The representative protection factors for surface deposited radionuclides and for a gamma cloud source are as follows:

Shelter	PF(Surface Contamination)	PF(Cloud)
Wood Frame Home (No Basement)	2.5	1.1
Masonry Home (No Basement)	5	1.7

Sheltering is suitable as a protective action alone or may be used in lieu of evacuation for:

- Severe incidents in which an evacuation cannot be implemented because of inadequate lead time due to the rapid passage of the plume ("puff" release).
- When an evacuation is indicated, but local constraints, such as inclement weather, road conditions, etc., dictate that directing the public to seek shelter is a more feasible and effective protection measure than evacuation.

5.0 GENERAL

5.3 PROTECTIVE ACTION GUIDELINES BASED UPON PLANT CONDITIONS

When a General Emergency is first declared, protective action recommendations shall be made based upon the plant fission product barrier conditions stated in Appendix 1 to NUREG-0654 for General Emergency, pages 1-17 and 1-18.

A flow chart depicting protective action recommendations based on plant conditions is provided as Attachment 2.

5.4 PROTECTIVE ACTION GUIDELINES BASED UPON PROJECTED DOSES

As radiological release information becomes available, increase the zones affected by the recommendations in accordance with wind speed and direction, and dose projections, as compared against the following guidelines:

5.4.1 No additional protective actions should be recommended for members of the general public in incidents involving actual or potential radioactivity releases to additional zones which are projected to result in the following doses:

a. whole body: less than 1 Rem
b. thyroid doses: less than 5 Rem

5.4.2 Sheltering of members of the general public within additional affected zones should be recommended in incidents involving actual or potential radioactivity releases which are projected to result in the following doses:

a. Whole Body: 1 to 5 Rem

b. Child Thyroid: 5 to 25 Rem

5.4.3 Recommend evacuation (or sheltering if evacuation is not possible or fast enough) in additional affected areas if projected offsite doses exceed the following doses:

- Whole Body: 5 rem
- Child Thyroid: 25 rem

5.5 IDENTIFICATION OF AFFECTED AREA

The designation of the area requiring protective actions will depend on several variables, each of which will have to be evaluated at the time of the incident. Major variables include the plant condition and existing meterological conditions.

5.0 GENERAL

Generally, the affected area will consist of local emergency planning zones that are intersected by a keyhole consisting of a circle with a 90° (or larger) wedge shaped sector attached in the downwind direction.

As a result of uncertainty, three general evacuation bands are to be considered. The first is a two-mile radius circle surrounding the plant. If any offsite protective action is necessary, this initial two-mile band will be included in the recommended area in which protective actions are to be implemented. The second band is the area between two miles and five miles and may be zones intersected by as little as a 90° wedge,or up to a complete circle. The third band is the area between five miles and ten miles, and as before may range from 90° to a complete circle.

County and State authorities have been provided with maps having sector designations showing the emergency planning subzones.

For reference, affected local plume exposure pathway emergency planning subzones can be grouped as follows:

2 Miles:	Zone A
5 Miles:	Zones A, B, C, D, K and L
10 Miles:	All zones

These zones are shown on Attachment 3.

6.0 INITIATING CONDITIONS

1. An emergency has been declared at SHNPP in accordance with the SHNPP Emergency Plan and implementing procedures PEP-102 or PEP-103, and the emergency has been classified as a General Emergency.

7.0 PRECAUTIONS AND LIMITATIONS

1. Protective action recommendations could be influenced by factors not considered here, and consequently the actual protective actions taken by the State and Local Governments may vary from those recommended here. Such factors may include inclement weather, existence of other emergencies, hazardous conditions, or timing.

2. The Site Emergency Coordinator (or Emergency Response Manager when Emergency Operations Facility is activated), must approve a protective action before the recommended action is communicated to offsite authorities.

7.0 PRECAUTIONS AND LIMITATIONS

3. SHNPP should not generally recommend the downgrading of a protective action when an emergency classification is downgraded. The state should be informed when plant conditions are stabilized and have subsided and the State should decide when and to what level protective action will be downgraded.

4. The Site Emergency Coordinator may consult with the Emergency Response Manager, if available, (before the Emergency Operations Facility is activated), or the Emergency Response Manager may consult with the Site Emergency Coordinator (Emergency Operations Facility activated) prior to the decision for offsite protective action recommendations.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

1. Consult the Emergency Action Levels (Fission Product Barrier Status Trees) in PEP-101 to determine the status of the fuel, primary system, and containment barriers, if known.

2. Consult the Protective Action Recommendation Decision Tree (Attachment 2) to determine the offsite protective action recommendation for the public.

NOTE: The recommendations based upon plant conditions will result in an offsite protective action for either 2 miles radius and 5 miles downwind, or 5 mile radius and 10 miles downwind, plus sheltering in other zones in most cases.

a. Determine the offsite protective action recommendations based upon plant conditions.

b. If an automated offsite dose projection is available, determine if any protective action guidelines are exceeded (in accordance with Section 5.4) in any emergency planning subzones. Record affected zones here:

	LIST ZONES
No Action:	
Shelter:	
Evacuate:	

9.0 PROCEDURE STEPS

3. Determine wind direction (from) and speed using one of the following methods, which are listed in order of preferred use:

   a. Access the meterological data on the Emergency Response Facility Information System to determine wind speed and direction.

   b. Call Radiation Control and request the wind speed and wind direction from the Radiation Monitoring System report processor (RM-21).

   c. Call the Corporate Meteorology Center and request the current wind speed and wind direction for the Harris plant.

   d. Determine wind speed and wind direction from visual observations outdoors.

4. Using the information obtained from Steps 2a and 3 above, consult Attachment 4 to determine the affected emergency planning subzones based upon plant conditions. List them here:

   No Action:

   Shelter:

   Evacuate:

5. Compare subzones in Step 2b with subzones identified in Step 4. If a subzone has conflicting recommendations choose evacuation over sheltering and sheltering over no action. List the compared affected subzones here:

   Shelter:

   Evacuate:

6. Consult the evacuation time estimates (Attachment 1) and consider weather conditions to determine whether recommended evacuations will occur during plume passage. If evacuation cannot be accomplished before plume arrival in an affected zone, recommend sheltering for that zone unless the plume is a result of a continuous release of duration greater than the evacuation time for that subzone. If the preferred recommendation is sheltering versus evacuation, list the affected subzones to be evacuated after plume passage.

9.0 PROCEDURE STEPS

NOTE: Concentrate on evacuation of subzones near the plant. For example, there may be time to evacuate Subzone A (100-160 minutes) but not one or more subzones within five miles(minimum of 160 minutes).

7. List the affected emergency planning subzones with the appropriate recommendation in Section 10 of Part I of the "North Carolina Emergency Notification Form", Attachment 2 to PEP-301. Complete initial notifications per PEP-301.

NOTE: A dose projection can be used in Step 2b at this time.

8. Once the initial protective action recommendations have been communicated per procedure PEP-301, continue assessment by reviewing the fission product barriers status, dose projections and environmental monitoring results to determine (by performing Steps 2 through 5) if any protective action recommendations should change. If any recommendations are changed, issue a follow-up emergency notification per PEP-301 listing the affected subzones and the appropriate protective action recommendation.

9. Utilizing dose projections and field monitoring data, recommend, in a follow-up communication, evacuation of emergency planning subzones that are sheltering where plume passage has resulted in ground contamination.

10.0 DIAGRAMS/ATTACHMENTS

1. Evacuation Times - SHNPP Plume Exposure Emergency Planning Zone
2. Protective Action Recommendations Decision Tree (Based on Plant Conditions)
3. Local Emergency Planning Zones Map
4. Determination of Affected Subzones based upon wind direction and speed

ATTACHMENT 1

Evacuation Times - SHNPP Plume Exposure Emergency Planning Zone [a]

Case	Local Planning Zones Evacuated [b]	Description	Evacuation Time (minutes) [c,d]	Resident Population
1	A	2-mile radius	100-160 [e]	0 [e]
2	A,B,C	5-mile 90° NE	160-200	1,049
3	A,C,D	5-mile 90° SE	160-180	257
4	A,K	5-mile 90° SW	170	640
5	A,B,K,L	5-mile 90° NW	170-200	2,042
6	A,B,C,D,K,L	5-mile radius	170-200	2,299
7	A,B,C,D,E,F,G	10-mile 90° NE	172-236	14,576
8	A,C,D,G,H,K	10-mile 90° SE	172-190	7,540
9	A,K,J,I	10-mile 90° SW	170-180	1,740
10	A,B,K,L,M,N	10-mile 90° NW	172-200	3,635
11	All	Entire EPZ	172-236	19,832

Notes

a. From: Evacuation Time Estimates for the Plume Exposure Pathway Emergency Planning Zone, Shearon Harris Nuclear Power Plant, HMM Associates, Inc., Raleigh, NC (October 1983).

b. Attachment 3 shows the boundaries of each local planning zone

c. This range of evacuation times covers four conditions: Good Weather - summer weekday, summer weekend, and summer evening; and Adverse Weather- late fall weekday.

d. Evacuation time includes public alerting and notification (15 minutes),preparation for movement, and time to travel out of the local planning zone(s) being evacuated.

e. There are no permanent residents in Local Planning Zone A. The evacuation time estimate applies to the transient population that may be present in recreation areas, and the working population.

T

FUEL FPB BREACH

U

RCS FPB BREACH

V

CONTAINMENT FPB BREACH

W

UPDATE CSF STATUS BOARD

CSF-1 SUBCRITICALITY	CSF-2 CORE COOLING	CSF-3 HEAT SINK	CSF-4 INTEGRITY	CSF-5 CONTAINMENT
○ ___	○ ___	○ ___	○ ___	○ ___
○ ___	○ ___	○ ___	○ ___	○ ___
○ ___	○ ___	○ ___	○ ___	○ ___
○ ___	○ ___	○ ___	○ ___	○ ___

CSF-1 RED OR MAGENTA? YES → FUEL JEOPARDY; NO → CSF-2 RED? YES → FUEL JEOPARDY; NO → FUEL FPB OK

CSF-3 RED OR MAGENTA? YES → RCS JEOPARDY; NO → CSF-4 RED? YES → RCS JEOPARDY; NO → RCS FPB OK

CSF-5 RED? YES → CONTAINMENT JEOPARDY; NO → CSF-5 MAGENTA? YES → CONTAINMENT JEOPARDY; NO → CONTAINMENT FPB OK

UPDATE FPB STATUS BOARD

FUEL FPB	RCS FPB	CONTAINMENT FPB
INTACT ___	INTACT ___	INTACT ___
BREACHED/ JEOPARDY ___	BREACHED/ JEOPARDY ___	BREACHED/ JEOPARDY ___

ANY ADDITIONAL FPBs BREACHED/ JEOPARDIZED? YES → UPDATE FPB STATUS BOARD; NO → EAL FLOWPATH REVIEWED? NO → Z; YES →

HIGHEST LEVEL EMERGENCY AS DETERMINED BY EAL FLOWPATH		
ALERT	SITE EMERGENCY	GENERAL EMERGENCY
___	___	___

Y

ATWS? YES → MANUAL REACTOR TRIP SUCCESSFUL? NO → FUEL FPB BREACHED/ JEOPARDIZED? YES → ATWS GENERAL EMERGENCY; NO → ATWS SITE EMERGENCY; YES → ATWS ALERT

GENERAL EMERGENCY (FROM FLOWPATH OR ATWS)? YES → DECLARE GENERAL EMERGENCY ___ TIME; NO → 3 FPB's BREACHED/ JEOPARDIZED? YES → DECLARE GENERAL EMERGENCY ___ TIME; NO →

SITE EMERGENCY (FROM FLOWPATH OR ATWS)? YES → DECLARE SITE EMERGENCY ___ TIME; NO → 2 FPB's BREACHED/ JEOPARDIZED? YES → DECLARE SITE EMERGENCY ___ TIME; NO →

ALERT (FROM FLOWPATH OR ATWS)? YES → DECLARE ALERT ___ TIME; NO → 1 FPB BREACHED/ JEOPARDIZED? YES → DECLARE ALERT ___ TIME; NO →

EVALUATE AGAINST UNUSUAL EVENT MATRIX

ANY UNUSUAL EVENT CONDITION? YES → DECLARE UNUSUAL EVENT ___ TIME; NO → NO EMERGENCY DECLARATION ___ TIME

X

GO TO PEP-101

8409170398-01

E

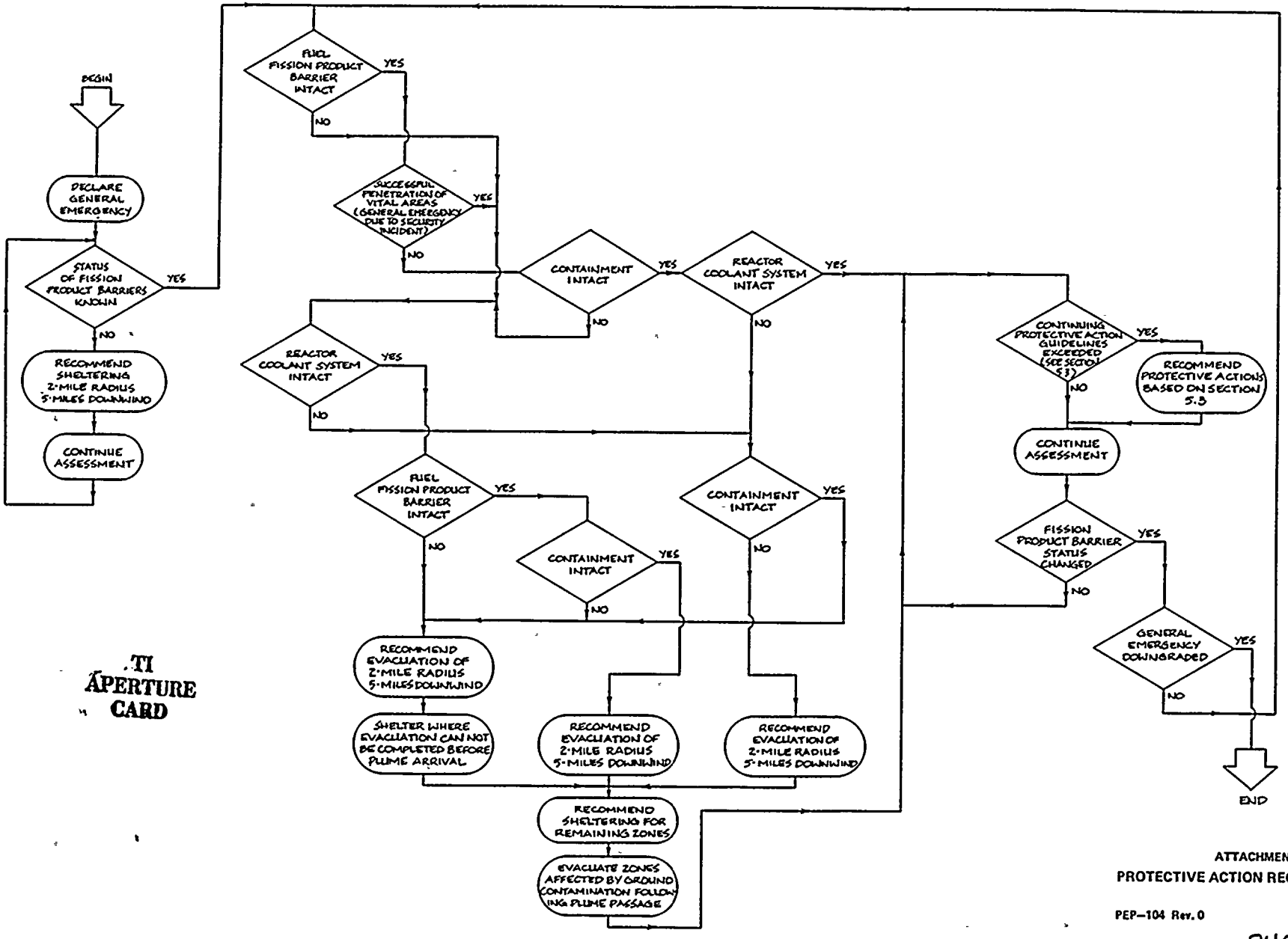
UNUSUAL EVENT MATRIX

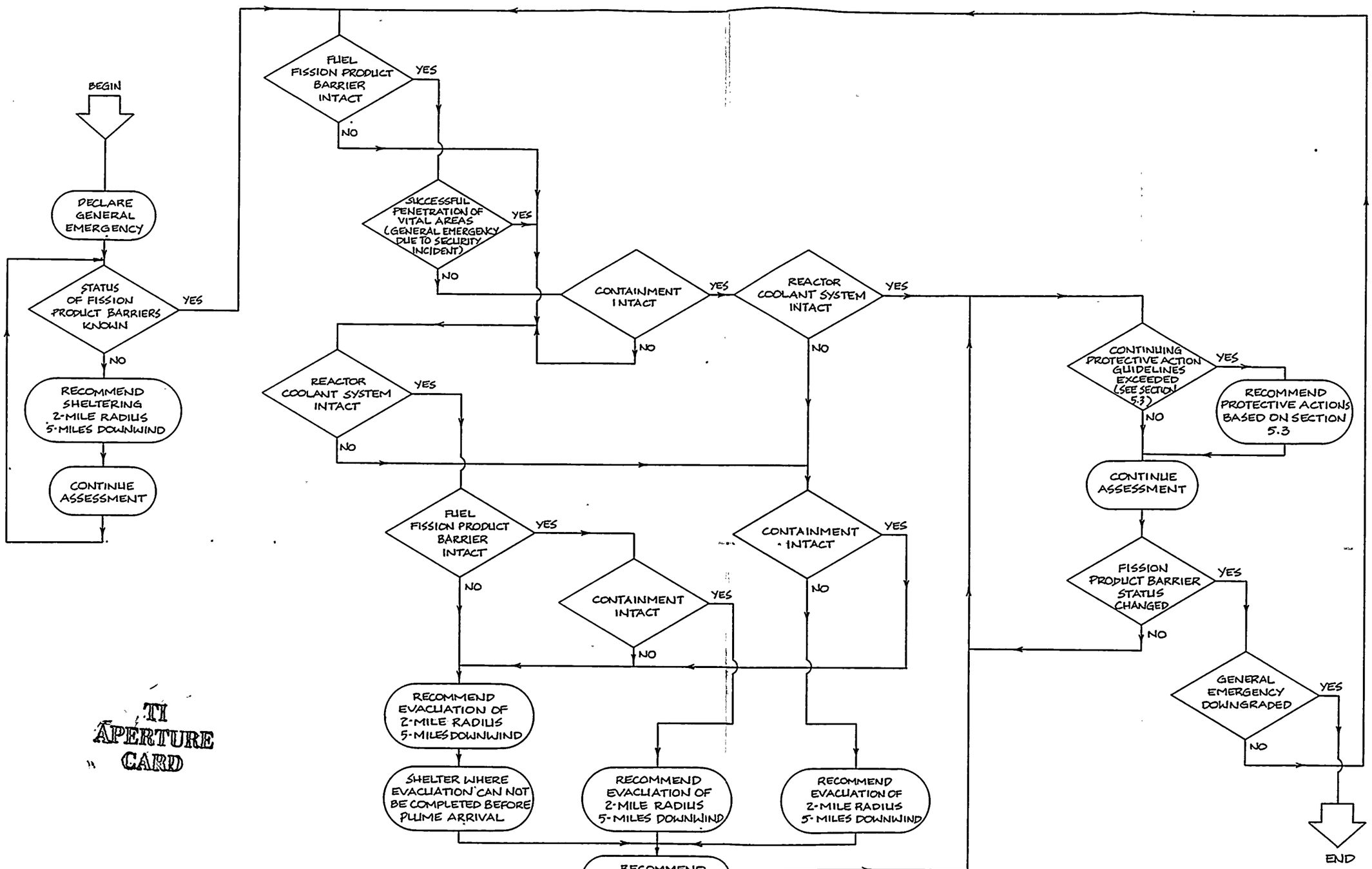
GASEOUS OR LIQUID EFFLUENT(s) EXCEEDING TECHNICAL SPECIFICATIONS	LOSS OF A FISSION PRODUCT BARRIER	LOSS OF SECONDARY COOLANT OR COOLING	PRIMARY SYSTEM TO SECONDARY SYSTEM LEAKAGE	LOSS OF PRIMARY SYSTEM COOLANT	LOSS OF SHUTDOWN FUNCTIONS (DECAY HEAT) OR ACCIDENT MITIGATION FUNCTIONS	REACTOR PROTECTION AND REACTIVITY INCIDENTS	LOSS OF POWER OR CONTROL BOARD ALARM INDICATIONS	FIRE	SECURITY THREAT	NATURAL PHENOMENA AND OTHER PLANT HAZARDS	SITE EMERGENCY COORDINATOR JUDGEMENTS	OTHER EVENTS OR SPECIFIC LCOs EXCEEDED
LIQUID EFFLUENT CONCENTRATION TECHNICAL SPECIFICATION LIMITS EXCEEDED FOR 15 MINUTES. GASEOUS EFFLUENT TECHNICAL SPECIFICATION INSTANTANEOUS LIMITS EXCEEDED FOR ONE HOUR.	FUEL DAMAGE INDICATION. PRIMARY COOLANT SAMPLE ACTIVITY (LATER).	MAIN STEAM OR FEEDWATER BREAK: 1) INSIDE CONTAINMENT, 2) OUTSIDE CONTAINMENT. FAILURE OF A STEAM GENERATOR SAFETY OR RELIEF VALVE TO RESEAT AFTER OPERATION. STEAM GENERATOR BLOWDOWN LINE BREAK.	PRIMARY-TO-SECONDARY LEAKAGE GREATER THAN TECHNICAL SPECIFICATIONS.	PRIMARY SYSTEM COOLANT LEAKAGE GREATER THAN TECHNICAL SPECIFICATIONS. FAILURE OF A PRESSURIZER SAFETY OR RELIEF VALVE TO RESEAT AFTER OPERATION.	LOSS OF CONTAINMENT INTEGRITY REQUIRING SHUTDOWN BY TECHNICAL SPECIFICATIONS. LOSS OF ESF OR FIRE PROTECTION FUNCTIONS REQUIRING SHUTDOWN BY TECHNICAL SPECIFICATIONS.	UNCONTROLLED RCCA WITHDRAWAL, UNCONTROLLED RCCA BANK WITHDRAWAL, IMPROPER STARTUP OF REACTOR COOLANT PUMP. MALFUNCTION RESULTING IN BORON DILUTION: 1) HOT STANDBY (MODE 3) GREATER THAN 17 MINUTES, 2) STARTUP (MODE 2) GREATER THAN 19 MINUTES, 3) POWER OPERATION (MODE 1) GREATER THAN 30 MINUTES AFTER REACTOR TRIP.	LOSS OF ALL OFFSITE POWER. LOSS OF ALL ON-SITE AC POWER (INCLUDING ESF POWER) FOR GREATER THAN 5 MINUTES.	FIRE LASTING MORE THAN 10 MINUTES WITHIN THE CONTAINMENT, REACTOR AUXILIARY, FUEL HANDLING, WASTE PROCESSING, DIESEL, OR TURBINE BUILDING WHICH MAY AFFECT SAFETY-RELATED EQUIPMENT.	A SECURITY ALERT HAS BEEN DECLARED, BUT THERE IS NOT AN IMMINENT THREAT TO VITAL EQUIPMENT. THE SECURITY THREAT MUST BE THE RESULT OF ANY ADVERSARY-INITIATED INCIDENT OR MUST HAVE THE POTENTIAL TO THREATEN VITAL EQUIPMENT.	NATURAL PHENOMENON OR MAN-MADE EVENT HAVING POTENTIAL FOR DEGRADING PLANT SAFETY, INCLUDING: a) ANY ALARM ON SEISMIC MONITOR AND CONFIRMATION OF AN EARTHQUAKE IN THE REGION, b) ANY TORNADO CROSSING THE SITE BOUNDARY (EXCLUSION AREA BOUNDARY) (BY OBSERVATION OR EVIDENCE), c) ANY ICE STORM CAUSING LOSS OF ONE OF THE REDUNDENT OFF-SITE POWER SOURCES, d) ANY AIRCRAFT CRASH OR TRAIN DERAILMENT WITHIN THE SITE BOUNDARIES, e) ANY UNPLANNED EXPLOSION WITHIN THE SITE BOUNDARIES, f) ANY RELEASE OF TOXIC OR FLAMMABLE GAS THAT COULD ENDANGER SITE PERSONNEL.	OTHER PLANT CONDITIONS EXISTING WHICH WARRANT INCREASED AWARENESS ON THE PART OF THE PLANT STAFF, CHATHAM, HARNETT, LEE, AND WAKE COUNTIES, THE STATE OF NORTH CAROLINA, AND THE NUCLEAR REGULATORY COMMISSION.	SAFETY INJECTION SYSTEM DISCHARGES TO RCS. TRANSPORTATION OF CONTAMINATED, INJURED INDIVIDUAL TO HOSPITAL. INADVERTENT DISCHARGE OF CONTAINMENT SPRAYS. ANY INCIDENT INVOLVING LICENSED NUCLEAR MATERIAL WHICH CAUSES A LOSS OF 24 HOURS OR MORE OF PLANT OPERATION OR $2000 IN PROPERTY DAMAGE.

FUNCTIONS REQUIRED FOR SHUTDOWN		
	COLD S/D	HOT S/D
AFW PUMPS	X	X
BORIC ACID TRANSFER PUMPS		X
S/G PORVs		X
RHR PUMPS	X	X
CCW SYSTEM	X	X
SERVICE WATER SYSTEM	X	X
ON-SITE POWER SUPPY SYSTEM	X	X
D/G FUEL OIL STORAGE AND TRANSFER SYSTEM	X	X
HVAC SYSTEMS (IN REQUIRED EQUIPMENT AREAS)	X	X
CONTROL ROOM PANEL AND AUXILIARY CONTROL PANEL	X	X
EMERGENCY LIGHTING	X	X

ATTACHMENT 2

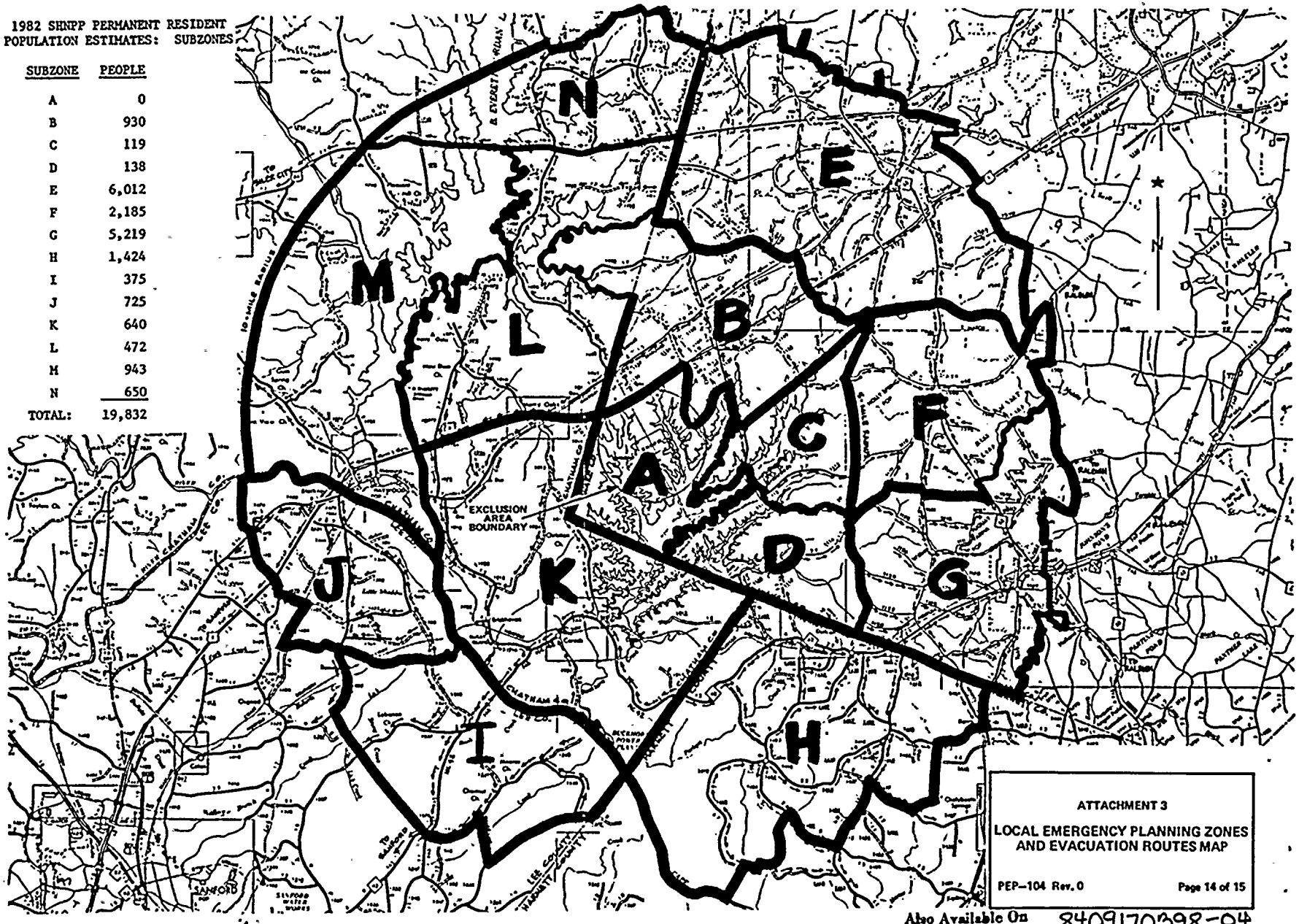
EMERGENCY ACTION LEVEL FLOWPATH





1982 SHNPP PERMANENT RESIDENT POPULATION ESTIMATES: SUBZONES

SUBZONE	PEOPLE
A	0
B	930
C	119
D	138
E	6,012
F	2,185
G	5,219
H	1,424
I	375
J	725
K	640
L	472
M	943
N	650
TOTAL:	19,832



TI APERTURE CARD

ATTACHMENT 3

LOCAL EMERGENCY PLANNING ZONES AND EVACUATION ROUTES MAP

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Also Available On Aperture Card

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ATTACHMENT 4

DETERMINATION OF AFFECTED SUBZONES
BASED UPON WIND DIRECTION
AND SPEED

WIND DIRECTION	AFFECTED DOWNWIND SUBZONES													
(FROM)°	A	B	C	D	K	L	E	F	G	H	I	J	M	N
349-11	X		X	X	X				O	X	X	O		
11-34	X		O	X	X					X	X	X	O	
35-56	X			O	X	O				O	X	X	X	
57-79	X					X	X				X	X	X	
80-101	X	O				X	X				X	X	X	O
102-124	X	X				X	X				O	X	X	X
125-146	X	X				X	X	O				O	X	X
147-169	X	X				X	X	X					X	X
170-191	X	X	O			O	X	X	O				X	X
192-214	X	X	X				X	X	X	O			O	X
215-236	X	X	X	O			X	X	X	X				X
237-259	X	X	X	X			O	X	X	X				O
260-281	X	X	X	X				X	X	X	O			
282-304	X	O	X	X	O			X	X	X	X			
305-326	X		X	X	X			O	X	X	X	O		
327-346	X		X	X	X				O	X	X	X		

LEGEND:

X = UNDER ALL WIND CONDITIONS

O = IF WIND SPEED IS LESS THAN 9 MILES PER HOUR

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-201

TITLE: PLANT OPERATIONS DIRECTOR

REVISION 0

APPROVED: _____ 5/22/84
Signature Date

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement section 2.4.3 "Plant Operations Director" of the SHNPP Emergency Plan.

This procedure describes the actions of the Plant Operations Director when the Technical Support Center is activated.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.3, "Plant Operations Director"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-101, "Initial Emergency Actions"
2. PEP-104, "Protective Action Recommendations"
3. PEP-218, "Accident Assessment Team Leader"
4. PEP-301, "Notification and Communications"
5. PEP-302, "Communication Activities"
6. PEP-303, "Use of Communications Equipment"
7. PEP-321, "Notification of Emergency Personnel"
8. PEP-323, "Setup and Operations of Emergency Facilities"
9. PEP-382, "Personnel Accountability"
10. PEP-391, "First Aid and Medical Care"
11. PEP-394, "Search and Rescue"
12. PEP-401, "Record Keeping and Documentation"
13. PEP-405, "Preparation of Activity Logs"

2.3 OTHER REFERENCED PLANT PROCEDURES

1. AP-002, "Plant Conduct of Operations"
2. AP-006, "Procedure Review and Approval"
3. AP-007, "Temporary Procedure Revision Review/Approval"
4. FPP-002, "Fire Emergency"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

1. The Plant Operations Director reports to the Site Emergency Coordinator-Technical Support Center

2. The Accident Assessment Team Leader, Fire Brigade Leader, Operations Leader (in Control Room), and First Aid Team Leader report to the Plant Operations Director.

3.2 ASSIGNMENT AND RELIEF OF POSITION

The on-shift person who fills the position of Plant Operations

3.0 RESPONSIBILITIES

Director is the Site Emergency Coordinator (Shift Foreman) until relieved in the Technical Support Center by the Manager Operations, Operating Supervisor, or Principal Engineer-Operations.

3.3 DUTIES

The Plant Operations Director is responsible to the Site Emergency Coordinator for providing direction to the Accident Assessment Team, the Control Room Staff, the Fire Brigade, and the First Aid Team. Specifically, the Plant Operations Director:

1. Directs the Accident Assessment Team and Control Room personnel in determining the nature and extent of emergencies pertaining to equipment and plant facilities.

2. Ensures immediate corrective actions are carried out by Control Room personnel to minimize the consequences of the emergency.

3. Ensures adequate manning of the Control Room.

4. Coordinates recommendations to the Site Emergency Coordinator from the Accident Assessment Team.

5. Designates a trained computer console operator for the Technical Support Center. Ensures that data plotters are stationed at the status boards in the Technical Support Center.

6. Organizes and directs rescue operations of injured personnel.

7. Ensures Fire Brigade actions are in accordance with the Fire Plan and Fire Area Preplans.

8. Requests support from the Technical Analysis Manager, as necessary, after the Emergency Operations Facility is activated.

9. He is also responsible for ensuring that he is relieved only by an alternate trained for duty as Plant Operations Director, and for maintaining a record of his activities.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

None Applicable

6.0 INITIATING CONDITIONS

The Site Emergency Coordinator has declared an emergency and activated the Technical Support Center.

7.0 PRECAUTIONS AND LIMITATIONS

7.1 Immediately inform the Site Emergency Coordinator if it is necessary to deviate from any existing plant procedure or to perform an action for which no procedure exists, but which would normally require a procedure in accordance with AP-002.

7.2 The Site Emergency Coordinator is responsible for overall control of the plant. No action shall be taken without his concurrence that could affect the operability of a plant system.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

9.1 INITIAL ACTIONS

1. If you are relieving another individual, review the activity log and obtain a briefing from your predecessor on the emergency and any actions that have been completed or are in progress; otherwise, obtain a briefing from the Site Emergency Coordinator.

2. Conduct all communications in accordance with PEP-302 and PEP-303.

3. Report your arrival in the Technical Support Center to the Emergency Communicator-Technical Support Center (Emergency Communicator-Control Room if the Emergency Communicator-Technical Support position is not yet manned) and inform the Site Emergency Coordinator that you are assuming (or relieving if appropriate) the position of Plant Operations Director.

4. Initiate and maintain a record of your activities in accordance with PEP-405.

5. Verify that the operations area is set up per PEP-323, Contact the Operations Leader to verify that the Control Room is adequately manned. Designate available members of the operations staff to assist in the Control Room, if required.

9.0 PROCEDURE STEPS

9.1 INITIAL ACTIONS (Cont'd)

6. Verify that the Accident Assessment Team Leader, Fire Brigade Leader, and the First Aid Team Leader are present and that their teams are adequately staffed, have been accounted for according to PEP-382, and are standing by.

7. Designate an available member of the operations staff as a Phone Talker - Operations. Verify that a trained computer console operator is available to man the Emergency Response Facility Information System console in the Technical Support Center Site Emergency Coordinator and Staff Room, and inform the Emergency Communicator-Technical Support Center.

8. Notify the Site Emergency Coordinator-Technical Support Center that you and your staff are present and ready to support the Site Emergency Coordinator.

9. When directed to do so, notify the alternate for your position specified by the Site Emergency Coordinator to arrange for relief at the end of the present shift in accordance with Section 9.2 of PEP-321. Notification messages shall be given only to the specified individual, and not to their spouse, children, babysitter, etc. If the designated alternate cannot be contacted, notify the Logistics Support Director.

9.2 OPERATIONS LEADER

9.2.1 Check with the Operations Leader to determine the current status:

1. What is the current emergency classification and what is the basis for the classification?
2. Is the reactor in a stable condition? If not, what actions are being taken to place it in a stable condition?
3. Are all systems necessary for a safe shutdown operational? If not, what actions are being taken?
4. Have any fisson product barriers (core, reactor coolant system, or containment) been breached or are any close to being breached? (Notify Site Emergency Coordinator and Radiological Control Director as input to PEP-104 Protective Action Recommendations)
5. Has anyone been reported injured or missing? If so, has the First Aid Team been notified?
6. Have any fires been reported? If so, has the Fire Brigade been notified? Is the fire in an area containing safety related equipment?

9.0 PROCEDURE STEPS

9.2 OPERATIONS LEADER (Cont'd)

7. What emergency operating procedures (EOP'S), flow path procedures, and/or abnormal operating procedures are currently being used?
8. Are there any critical tasks with which the Accident Assessment Team can assist you (such as reviewing blueprints to determine alternate flow paths or performing calculations to ascertain if any limits have been exceeded)?

9.2. 2. Based upon the report from the Operations Leader, provide assistance by performing the following actions as necessary:

1. If First Aid or Search and Rescue services are needed (or are in progress) go to section 9.3.
2. If fire fighting services are needed (or are in progress) go to section 9.4.
3. If Accident Assessment services are needed go to section 9.5.
4. If any additional operations personnel are needed contact the assembly area or Operational Support Center or have them called in.
5. If maintenance assistance or radiation control assistance is needed, notify the Emergency Repair Director or Radiological Control Director, as appropriate, of the request.

9.2. 3. Provide technical and administrative direction to the Operations Leader as needed.

9.3 FIRST AID TEAM (SEARCH AND RESCUE TEAM) LEADER

1. If personnel are injured or are missing, notify the First Aid Team Leader (if not previously notified) as per PEP-391 or 394 and brief him on the situation. (Attachment 1 to PEP-394 "Search and Rescue Briefing Form" may be used if appropriate.)
2. Determine from the team leader what personnel are available to compose the team. For Search and Rescue teams (or for First Aid Teams who must enter locked High Radiation areas), select personnel who best meet the requirements of Section 7.1 of PEP-394.
3. Check with the Radiological Control Director to obtain available information on radiological conditions in the rescue area or area to be searched, and recommend the best routes to use to the First Aid Team Leader (Search and Rescue Leader).

9.0 PROCEDURE STEPS

9.3 FIRST AID TEAM LEADER(Cont'd)

4. Request that the Radiological Control Director provide a Personnel Protection and Decontamination Team member to assist the team if they will be entering radiologically controlled areas.
5. Notify all personnel where to assemble (normally the Operational Support Center).
6. Instruct the First Aid Team Leader to keep you posted.
7. If additional personnel or equipment are needed for rescue operations, request them from the appropriate Director or Assembly Area Leader and have them dispatched from the Operational Support Center.
8. If off-site medical personnel, rescue personnel or an ambulance are needed, notify the Site Emergency Coordinator and have him request the off-site assistance as per PEP-301.
9. If a contaminated injured person is to be taken to the hospital, notify the Site Emergency Coordinator because this constitutes an unusual event and must be reported to the NRC within 1 hour as per PEP-301 unless a higher level emergency classification has already been reported.
10. Provide technical and administrative direction to the First Aid Team Leader, as needed.
11. When time permits, provide assistance to Regulatory Compliance in the description of events if a report to the Nuclear Regulatory Commission is required.

9.4 FIRE BRIGADE LEADER

9.4. 1. If a fire or explosion has occurred have the plant fire alarm sounded and the location announced.

9.4. 2. Contact the Fire Brigade Leader:

1. Brief him on the situation.
2. Instruct him to follow FPP-002 and the Fire Area Preplans.
3. Instruct him to brief you after he has evaluated the situation at the fire scene.
4. Also direct him to notify you of the approach or exceeding of an Emergency Action level caused by the fire or fire fighting efforts.

9.4.3. If the fire lasts more than 10 minutes and may affect safety related equipment, notify the Site Emergency Coordinator that this may constitute an Unusual Event which he must report to the NRC within 1 hour as per PEP-301 unless if a higher level of emergency classification has already been reported.

9.0 PROCEDURE STEPS

9.4 FIRE BRIGADE LEADER (Cont'd)

9.4 4. If additional personnel or equipment are needed at the fire scene, request them from the appropriate director and have them dispatched from the Operational Support Center.

9.4.5. If off-site fire personnel are needed, fill out the Immediate Response Organizations Notification Form (Attachment 1 to PEP-301), have the Site Emergency Coordinator approve it and have the Emergency Communicator request the off-site assist as per PEP-301.

9.4.6. Provide additional technical and administrative directions to the Fire Brigade Leader, as needed.

9.5 ACCIDENT ASSESSMENT TEAM LEADER

9.5.1. Direct the Accident Assessment Team Leader to have his team continuously monitor plant parameters and system status indicators (via System Parameter Data and Status sheets and the Emergency Response Facilities Information System console) and assist the Control Room personnel in determining the nature and extent of the emergency.

9.5.2. Direct the Accident Assessment Team Leader to monitor and evaluate vital plant parameters during the emergency to determine the overall conditions of safety related systems, the core and fission product barriers.

9.5.3. Direct the Accident Assessment Team Leader to evaluate the parameters and indicators being monitored against Emergency Action Levels in accordance with PEP-101 and recommend changes in the emergency classification when so indicated.

9.5.4. When accident assessment reports are received, develop a course of corrective or preventive actions as follows:

1. Determine whether or not any actions are actually necessary to place or maintain the plant in a safe shutdown condition, to prevent or reduce the release of radioactive material, to prevent or reduce further damage to the Plant, or to prevent personnel injuries and/or overexposure to radiation.
2. Evaluate available alternatives to determine which will have the least impact on eventual full recovery of the Plant, including potential requirements for rework, testing, and certification.
3. Determine the feasibility of the considered action(s) based on availability of resources.

9.0 PROCEDURE STEPS

9.5 ACCIDENT ASSESSMENT TEAM LEADER (Cont'd)

9.5 5. Determine whether or not procedures and/or instructions are required in accordance with AP-002. If required, existing plant procedures should be used to the maximum extent possible. If necessary, direct the Accident Assessment Team Leader to develop new procedures and/or changes to existing procedures as required in accordance with AP-006 and AP-007, respectively.

NOTE: In accordance with AP-002, authorize reasonable action that departs from license conditions, Technical Specifications, or the Plant Operating Manual in an emergency when this action is immediately needed to protect the public health and safety, and no action, consistent with license conditions, Technical Specifications, or the Plant Operating Manual is immediately apparent that can provide adequate or equivalent protection.

9.5.6. Provide technical and administrative direction to the Accident Assessment Team Leader as needed.

9.6 GENERAL

1. Request any needed material or supplies not on the plant site from the Logistics Support Director.
2. Periodically report to the Site Emergency Coordinator the status of plant systems and whether the plant is in a safe shutdown condition.
3. When the emergency has been terminated, deliver your activity log and copies of all records generated during the emergency to the Emergency Preparedness Specialist as per PEP-401.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-202

TITLE: EMERGENCY REPAIR DIRECTOR

REVISION 0

APPROVED: _____ 8/15/84
Signature Date

TITLE: Asst to General Manager

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1.0 PURPOSE

This procedure implements Section 2.4.4 of the SHNPP Emergency Plan. It specifies actions to be performed by the Emergency Repair Director.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.4, "Emergency Repair Director"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-211, "Damage Control Team Coordinator"
2. PEP-212, "Operational Support Center Leader"
3. PEP-302, "Communications Activities"
4. PEP-303, "Use of Communication Equipment"
5. PEP-321, "Notification of Emergency Personnel"
6. PEP-323, "Setup and Operation of Emergency Facilities"
7. PEP-382, "Personnel Accountability"
8. PEP-405, "Preparation of Activity Logs"

2.3 OTHER REFERENCED PLANT PROCEDURES

1. AP-002, "Plant Conduct of Operations"
2. AP-006, "Procedure Review and Approval"
3. AP-007, "Temporary Procedure Revision Review/Approval"
4. MMM-001, "Maintenance Conduct of Operations"
5. MMM-002, "Corrective Maintenance"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

1. The Emergency Repair Director reports to the Site Emergency Coordinator in the Technical Support Center.
2. The Operations Support Center Leader and Damage Control Team Coordinator report to the Emergency Repair Director.

3.0 RESPONSIBILITIES

3.2 ASSIGNMENT AND RELIEF OF POSITION

Until relieved by the Manager-Maintenance, Mechanical Maintenance Supervisor, or Electrical Maintenance Supervisor, the Site Emergency Coordinator assumes the responsibilities of Emergency Repair Director.

3.3 DUTIES - The Emergency Repair Director is responsible for:

1. Directing the overall maintenance and equipment restoration effort.
2. Identifying and developing instructions and procedures for reducing the consequences of and recovering from an emergency.
3. Defining preferred and alternate ingress and egress routes in coordination with the Radiological Control Director.
4. Ensuring that equipment is maintained during an emergency.
5. Maintaining a record of his activities.
6. Ensuring that he is relieved only by an individual trained for duty as Emergency Repair Director.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

During an emergency, unusual and expeditious actions to restore vital equipment to operability may be required. The Emergency Repair Director directs the implementation of necessary actions such that their impact on the subsequent full recovery of the plant is minimized.

6.0 INITIATING CONDITIONS

The Site Emergency Coordinator has activated the site emergency organization, including the position of Emergency Repair Director.

7.0 PRECAUTIONS AND LIMITATIONS

7.1 Approval must be obtained from the Site Emergency Coordinator prior to deviating from any existing plant procedure or prior to performing an action for which no procedure exists, but which would normally require a procedure in accordance with MMM-002.

7.2 The Site Emergency Coordinator is responsible for overall control of the plant. No action shall be taken that could adversely affect the operability of a plant system without his concurrence.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

1. If you are relieving another individual, review the activity log and obtain a briefing on the emergency and any actions that have been completed or are in progress.

2. Conduct all communications in accordance with PEP-302 and PEP-303.

3. Report your arrival in the Technical Support Center to the Emergency Communicator-Technical Support Center (Emergency Communicator - Control Room if the Emergency Communicator-Technical Support Center position is not yet manned) and inform the Site Emergency Coordinator that you are assuming (or relieving if appropriate) the position of Emergency Repair Director.

4. Initiate and maintain a record of your activities in accordance with PEP-405.

5. Ensure that the Operations Support Center Leader and Damage Control Team Coordinator have implemented PEP-382, "Personnel Accountability," and that the Operational Support Center Leader is setting up the Operations Support Center in accordance with PEP-323.

6. Ensure that the Damage Control Team Coordinator dispatches teams to investigate out of service or malfunctioning equipment which may be contributing to or could help mitigate the emergency.

7. When damage assessment reports are received, develop a course of corrective or preventive actions as follows:

   - In consultation with the Plant Operations Director and Radiological Control Director, determine whether or not any actions are actually necessary to place or maintain the plant in a safe shutdown condition, to prevent or reduce the release of radioactive material, to prevent or reduce further damage to the plant, or to prevent personnel injuries and/or over exposure to radiation.

   - Evaluate available alternatives to determine which will have the least impact on eventual full recovery of the plant, including potential requirements for rework, testing, and certification.

   - Determine the feasibility of the considered action(s) based on availability of resources.

9.0 PROCEDURE STEPS

8. Determine whether or not procedures and/or instructions are required in accordance with MMM-001. If required, existing plant procedures should be used to the maximum extent possible. Develop new procedures and/or changes to existing procedures as required in accordance with AP-006 and AP-007, respectively.

NOTE: In accordance with AP-002, the Site Emergency Coordinator may authorize reasonable action in an emergency that departs from license conditions, Technical Specifications, or the Plant Operating Manual when this action is immediately needed to protect the public health and safety, and no action, consistent with license conditions, Technical Specifications, or the Plant Operating Manual is immediately apparent that can provide adequate or equivalent protection.

9. Inform the Damage Control Team Coordinator or Operations Support Center Leader, as appropriate, of the instructions or procedures to be followed in accomplishing required actions, and direct him to implement them.

10. Request any needed material or supplies not on the plant site from the Logistics Support Director.

11. Report to the Site Emergency Coordinator the status of repair, damage assessment and restoration work being performed.

12. When directed to do so, contact the alternate specified by the Site Emergency Coordinator in accordance with Section 9.2 of PEP-321 to arrange for relief at the end of the present shift. Notification messages shall be given to the specified individual only, and not to the individual's spouse, children, babysitter, etc. If the specified alternate cannot be contacted, inform the Logistics Support Director.

13. When the emergency has been terminated, deliver your activity log and copies of all records generated during the emergency by the Operations Support Center Leader, Damage Control Team Coordinator and the Damage Control Teams to the Senior Specialist-Emergency Preparedness.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-203

TITLE: LOGISTICS SUPPORT DIRECTOR

REVISION 0

APPROVED: _____ 8/21/84
Signature Date

TITLE: Asst to General Manager

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1.0 PURPOSE

This procedure implements Section 2.4.5, "Logistics Support Director," of the SHNPP Emergency Plan. It specifies actions to be taken by the Logistics Support Director.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.5, "Logistics Support Director"
2. Section 4.2, "Notification"
3. Section 4.3, "Activation"
4. Section 4.6, "Protective Actions for On-Site Personnel"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-210, "Emergency Security Team Leader"
2. PEP-215, "Assembly Area Leader"
3. PEP-302, "Communication Activities"
4. PEP-303, "Use of Communications Equipment"
5. PEP-321, "Notification of Emergency Personnel"
6. PEP-322, "Mobilization of Outside Organizations"
7. PEP-323, "Setup and Operation of Emergency Facilities"
8. PEP-382, "Personnel Accountability"
9. PEP-384, "Access Control"
10. PEP-394, "Search and Rescue"
11. PEP-405, "Preparation of Activity Logs"

2.3 OTHER REFERENCES

1. SP-016, "Emergency Plan Support"

3.0 RESPONSIBILITIES

3.1. REPORTING RESPONSIBILITIES

3.1.1. The Logistics Support Director reports to the Site Emergency Coordinator.

3.0 RESPONSIBILITIES

3.1. REPORTING RESPONSIBILITIES (Cont'd)

3.1.2. The Site Communications Systems Coordinator, Support Services Coordinator, Emergency Security Team Leader, and Assembly Area Leaders report to the Logistics Support Director.

3.2 ASSIGNMENT AND RELIEF OF POSITION

3.2.1. Upon arrival in the Technical Support Center the Assistant to the Plant General Manager, Administrative Supervisor, or Office Services Supervisor assumes the responsibilities of Logistics Support Director.

3.2.2. When the Emergency Operations Facility is activated, the Administrative and Logistics Manager relieves the Logistics Support Director of the responsibility for contacting offsite agencies to request assistance.

3.3 DUTIES

The Logistics Support Director is responsible for:

3.1. Ensuring that the Technical Support Center and Emergency Operations Facility are set up and made operational if activation has been directed.

3.2. Directing the implementation of administrative functions during an emergency.

3.3. Assisting the Site Emergency Coordinator in arranging for shift reliefs and continuous manning of the plant emergency staff.

3.4. Arranging for food and sleeping facilities for on-site emergency workers.

3.5. Coordinating requests for material, equipment, and supplies from members of the on-site emergency organization.

3.6. Arranging for additional services and providing new and/or modified contracts for services to be procured.

3.7. Ensuring that communications equipment is used to support the emergency, and that all non-emergency communications are terminated.

3.8. When the Emergency Operations Facility is activated, coordinating plant logistical requests through the Administrative and Logistics Manager.

3.9. Ensuring that potentially contaminated on-site foodstuffs are not consumed.

3.0 RESPONSIBILITIES

3.3 Duties (Cont'd)

3.10. Ensuring that he is relieved only by an alternate trained for duty as Logisties Support Director.

3.11. Maintaining a record of his activities.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

The Logistics Support Director provides personnel and material resource augmentation as necessary and as authorized by the Site Emergency Coordinator.

6.0 INITIATING CONDITIONS

The Site Emergency Coordinator has activated the site emergency organization, including the position of Logistics Support Director.

7.0 PRECAUTIONS AND LIMITATIONS

None Applicable

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Institute for Nuclear Power Operations Emergency Response Manager's Resource Manual.

9.0 PROCEDURE STEPS

9.1. If you are relieving another individual, review the activity log and obtain a briefing on the emergency and any actions that have been completed or are in progress.

9.2. Conduct all communications in accordance with PEP-302 and PEP-303.

9.3. Report your arrival in the Technical Support Center to the Emergency Communicator-Technical Support Center(or the Emergency Communicator-Control Room if the Emergency Communicator-Technical Support Center position is not yet manned), and inform the Site Emergency Coordinator that you are assuming (or relieving if appropriate) the position of Logistics Support Director.

9.4. Initiate and maintain a record of your activities in accordance with PEP-405.

9.0 PROCEDURE STEPS

9.5. Verify that your staff positions have been manned.

9.6. Ensure that the Technical Support Center is set up in accordance with PEP-323.

9.7. Verify that the Emergency Security Team Leader is taking appropriate action according to the SHNPP Industrial Security Plan, Safeguards Contingency Plan and security procedures.

9.8. Verify that the Emergency Security Team leader is implementing PEP-384 Access Control, SP-016, "Emergency Plan Support" and PEP-210, "Emergency Security Team Leader."

9.9. Verify that the Assembly Area Leader is implementing PEP-215, "Assembly Area Leader".

9.10. If activation of the Emergency Operations Facility has been directed, ensure that it is set up in accordance with PEP-323 and that the Emergency Security Team Leader provides access control in accordance with PEP-384.

9.11. Within 30 minutes after the emergency is declared, obtain a list of any unaccounted for personnel from the Emergency Security Team Leader as per PEP-382 and 384. Report the name(s) and suspected location(s) of missing personnel to the Site Emergency Coordinator and Plant Operations Director, who will direct the implementation of search and rescue efforts in accordance with PEP-394.

Note: The 30 minute requirement to accomplish personnel accountability is satisfied when the Logistics Support Director is notified of the names of missing persons.

9.12. If necessary to man all emergency positions, direct the Assembly Area Leader(s) to dispatch available personnel to the appropriate emergency facilities.

9.13. When directed to do so, notify the alternate for your position specified by the Site Emergency Coordinator to arrange for relief at the end of the present shift in accordance with Section 9.2 of PEP-321. Notification messages shall be give only to the specified individual, and not to their spouse, children, babysitter, etc. If the designated alternate cannot be contacted, inform the Site Emergency Coordinator. Coordinate the preparation of shift schedules for all other onsite emergency personnel.

9.14. If an evacuation is to be performed, notify the Emergency Security Team Leader and Assembly Area Leaders, inform them where the Personnel Protection and Decontamination Teams will be setting up monitoring and decontamination areas (if this is

9.0 PROCEDURE STEPS

to be done), and instruct them to direct people to the appropriate areas and control personnel there.

9.15. If additional personnel resources are needed to support the on-site response, request assistance from outside agencies in accordance with PEP-322. Refer to the Institute for Nuclear Power Operations Emergency Response Manager's Resource Manual for general guidance on resources available from other utilities.

9.16. If an atmospheric release has occurred, direct the Support Services Coordinator and Assembly Area Leaders to isolate potentially contaminated foodstuffs by disabling vending machines and prohibiting access to refrigerators until it can be verified that the food is not contaminated or is discarded.

9.17. Direct the Support Services coordinator to arrange for a supply of uncontaminated food and, if required, sleeping facilities for on-site emergency workers.

9.18. Ensure that the site Communications System Coordinator is responding to communications equipment problems, if any. If necessary to ensure that communications equipment is being properly used to support the emergency, direct him to dispatch personnel to the Administration Building telephone equipment room to modify software and/or hardware as required. Consult with the Radiological Control Director to determine personnel protection requirements prior to directing the dispatch of personnel.

9.19. When the need for materials or supplies are identified, direct the Support Services Coordinator to identify whether or not they are available on site and to procure materials or supplies as required. Ensuring that the Support Services Coordinator has stores personnel available to issue parts and supplies from the Service Building Storeroom, Warehouse, and/or Receiving Building. Consult with the Radiological Control Director to determine personnel protection requirements prior to directing the Support Services Coordinator to dispatch personnel to those locations.

9.20. Keep the Site Emergency Coordinator informed of any non-routine security procedures and/or contingency conditions that are in effect or that require a response and of any activities being conducted by local law enforcement agencies in support of the emergency response.

9.0 PROCEDURE STEPS

9.21. Ensure that the Emergency Security Team Leader is kept informed of radiological conditions and personnel protection requirements in all site areas.

9.22. When the emergency is terminated, deliver your activity log and copies of all records generated during the emergency by the Site Communications System Coordinator, Support Services Coordinator, Emergency Security Team Leader, and Assembly Area Leaders to the Senior Specialist - Emergency Preparedness.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-204

TITLE: RADIOLOGICAL CONTROL DIRECTOR

REVISION 0

APPROVED: _____ 6/22/84
Signature

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 2.4.6, "Radiological Control Director" of the SHNPP Emergency Plan.

This procedure describes the actions of the Radiological Control Director during an emergency.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.6, "Radiological Control Director"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-101, "Emergency Classification"
2. PEP-103, "Site Emergency Coordinator - Technical Support Center"
3. PEP-104, "Protective Action Recommendations"
4. PEP-206, "Environmental Monitoring Team Leader"
5. PEP-207, "Plant Monitoring Team Leader"
6. PEP-208, "Personnel Protection and Decontamination Team Leader"
7. PEP-216, "Dose Projection Team Leader"
8. PEP-301, "Notification and Communications"
9. PEP-302, "Communication Activities"
10. PEP-303, "Use of Communications Equipment"
11. PEP-321, "Notification of Emergency Personnel"
12. PEP-323, "Setup and Operation of Emergency Facilities"
13. PEP-331, "Emergency Plant Monitoring"
14. PEP-341, "Manual Dose Projection"
15. PEP-342, "Automation of Dose Projection - ERFIS"
16. PEP-343, "Automation of Dose Projection - IBM-PC"

2.0 REFERENCES

2.2 REFERENCED PLANT EMERGENCY PROCEDURES (Cont'd)

17. PEP-351, "Emergency Environmental Monitoring"

18. PEP-371, "Emergency Response in Radiological Areas"

19. PEP-382, "Personnel Accountability"

20. PEP-383, "Administration of Potassium Iodide"

21. PEP-391, "First Aid and Medical Care"

22. PEP-394, "Search and Rescue"

23. PEP-401, "Record Keeping and Documentation"

24. PEP-405, "Activity Logs"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

1. The Radiological Control Director reports to the Site Emergency Coordinator in the Technical Support Center upon activation of the Technical Support Center.

2. The Dose Projection Team Leader, the Environmental Monitoring Team Leader, the Personnel Protection and Decontamination Team Leader, and the Plant Monitoring Team Leader report to the Radiological Control Director.

3.2 ASSIGNMENT AND RELIEF OF POSITION

The primary person assigned to the position of Radiological Control Director is the Manager - Environmental and Radiation Control. If he is not available, the designated alternates in order of succession are:

1. Supervisor - Radiation Control
2. Supervisor - Environmental and Chemistry
3. Project Specialist - Radiation Control

3.3 DUTIES

The Radiological Control Director performs the following duties:

1. Maintains a record of his activities.

3.0 RESPONSIBILITIES

3.3 DUTIES (Cont'd)

2. Provides technical and administrative direction to the Plant Monitoring Team, Personnel Protection and Decontamination Team, Environmental Monitoring Team, and Dose Projection Team .

3. Coordinates initial off-site environmental monitoring and dose assessment efforts until such activities can be directed by the Emergency Operations Facility.

4. Directs the Dose Projection Team and Plant Monitoring Team to accumulate, tabulate, and evaluate data on plant conditions such as meteorological and radiation monitoring readings, hazardous material surveys, and other pertinent data.

5. Ensures use of protective clothing, respiratory protection, and access control within the plant as deemed appropriate to control personnel exposures.

6. Ensures that appropriate bioassay procedures have been implemented for on-site personnel when a radioactivity incident has occurred. .

7. Ensures that personnel are decontaminated, if necessary.

8. Assists in the transfer of contaminated injured personnel and nonessential personnel.

9. Determines appropriate on-site personnel evacuation routes and alternate assembly areas when deemed necessary.

10. Coordinates and compares dose-assessment and monitoring results with the State (Department of Human Resources - State Emergency Response Team) until the Emergency Operations Facility is activated.

11. Assists the counties by providing Thermoluminescent Dosimeters and providing a representative to assist in reading and analyzing dosage, when requested.

12. Assures planned exposures in excess of 3Rem or entry into radiation fields greater than 100R/hr are approved by the Plant General Manager, Manager - Environmental and Radiation Control or the Site Emergency Coordinator, in that order.

3.0 RESPONSIBILITIES

3.3 DUTIES (Cont'd)

13. Ensures that he is relieved only by an alternate trained for duty as Radiological Control Director.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

None Applicable

6.0 INITIATING CONDITIONS

1. An emergency has been declared and the Site Emergency Coordinator has activated the emergency organization including the Radiological Control Director position.

7.0 PRECAUTIONS AND LIMITATIONS

None Applicable

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

9.1 INITIAL ACTIONS

1. If you are relieving another individual, review the activity log and obtain a briefing from your predecessor on the emergency and any actions that have been completed or are in progress; otherwise, obtain a briefing from the Site Emergency Coordinator.

2. Conduct all communications in accordance with PEP-302 and PEP-303.

3. Report your arrival in the Technical Support Center to the Emergency Communicator - Technical Support Center (or to the Emergency Communicator - Control Room if the former position is not yet manned) and inform the Site Emergency Coordinator that you are assuming (or relieving, if appropriate) the position of Radiological Control Director.

4. Initiate and maintain a record of your activities in accordance with PEP-405.

9.0 PROCEDURE STEPS

9.1 INITIAL ACTIONS (Cont'd)

5. Verify that the Plant Monitoring Team Leader, Personnel Protection and Decontamination Team Leader, Environmental Monitoring Team Leader, and Dose Projection Team Leader are present, their teams are adequately staffed, have been accounted for according to PEP-382, and are standing by.

6. Verify that the radiological areas (Radiological Control Director position, Dose Projection Room, Environmental Monitoring Room, and Plant Monitoring Team Room) are set up per PEP-323.

7. Notify the Site Emergency Coordinator - Technical Support Center that you and your staff are present and ready to support him.

8. When directed to do so, notify the alternate for your position specified by the Site Emergency Coordinator to arrange for relief in accordance with Section 9.2 of PEP-321. Notification messages shall be given only to the specified individual, and not to their spouse, children, babysitter, etc. If the specified alternate cannot be contacted, inform the Logistics Support Director.

9.2 PERSONNEL PROTECTION

1. Check with the Personnel Protection and Decontamination Team Leader that he has assigned personnel to perform habitability surveys in the Assembly Areas, Security Building, and Operational Support Center.

2. Based upon the type of emergency and the radiological conditions in the Radiologically Controlled Area or other area (as determined by readings from Area Radiation Monitors, Airborne Radiation Monitors and Surveys, or known or suspected releases) advise the Site Emergency Coordinator and Emergency Security Team Leader whether to temporarily withdraw security personnel from a particular area.

3. After the Personnel Protection Team Leader has evaluated the habitability surveys and made recommendations regarding any protective equipment requirements, evaluate his recommendations and concur or set alternate requirements.

4. Based upon the habitability surveys obtained from the Personnel Protection and Decontamination Team Leader, the meteorological conditions and dose projections obtained from Dose Projection Team Leader and the plant conditions

9.0 PROCEDURE STEPS

9.2 PERSONNEL PROTECTION (Cont'd)

obtained from the Plant Operations Director, recommend to the Site Emergency Coordinator whether to shelter on-site personnel in the assembly areas or to evacuate them. Also advise evacuation routes to be used, locations for monitoring and decontamination areas, if needed, and/or assembly areas to be used.

5. Based upon the Site Emergency Coordinator's decision regarding the protective action recommendations in Step 4, provide the appropriate directions to the Personnel Protection and Decontamination Team Leader.

NOTE: If it is determined that cars will have to be decontaminated with fire hoses, request the Plant Operations Director to supply Fire Brigade personnel to man the hoses.

6. If personnel are missing in the Radiologically Controlled Area, verify that the Personnel Protection and Decontamination Team Leader has assigned an individual to accompany the search and rescue team as per PEP-394.

7. If the Plant Operations Director or the Personnel Protection and Decontamination Team Leader notifies you that a contaminated injured patient is to be sent to the hospital, verify that the hospital has been notified prior to transporting the patient and that a Personnel Protection and Decontamination Team Member accompanies the injured to the hospital and/or is waiting at the hospital.

NOTE: If the injured's condition allows him to be decontaminated prior to transport or allows his treatment on-site by one of the agreement physicians, this should be done since transporting a contaminated injured person to an off-site medical facility constitutes an Unusual Event and must be reported to the NRC.

8. Verify with the Personnel Protection and Decontamination Team Leader that any contaminated personnel are being decontaminated.

9. If a radioactivity incident has occurred where personnel on-site have or are likely to have internal contamination verify that appropriate bioassay procedures have been or will be implemented for the affected personnel.

9.0 PROCEDURE STEPS

9.2 PERSONNEL PROTECTION (Cont'd)

10. Ensure that Radiation Work Permits and Exposure Control are being properly implemented according to PEP-371, that appropriate emergency personnel monitoring and dosimetry issuance is being conducted, and that appropriate protective equipment is being specified.

11. If personnel in the emergency organization are likely to receive a significant dose (25 rem) to the thyroid from radioiodine, and alternative protective actions are not feasible or would be ineffective, contact the agreement physician to obtain approval, obtain authorization from the Site Emergency Coordinator, and direct the Personnel Protection and Decontamination Team Leader to administer the potassium iodide as per PEP-383.

12. If personnel will incur planned exposures in excess of 3 rem or will enter into radiation fields greater than 100R/hr, ensure approval is obtained from the Plant General Manager, Manager - Environmental and Radiation Control or the Site Emergency Coordinator, in that order.

13. When requested by the Counties provide thermoluminescent dosimeters to emergency response personnel and arrange to have the dosimeters evaluated when they are returned.

9.3 PLANT MONITORING

1. Assist the Plant Monitoring Team Leader in selecting the proper monitoring and sample collection points, selecting the data required and assessing the radiological conditions at these sample points. (See PEP-207 and 331)

2. If the radiation and airborne activity levels for the Post Accident Sample System panel area, other sample areas and the access routes to these areas are not reasonably known, direct the Personnel Protection and Decontamination Team Leader to have a survey performed or send an individual with the plant monitoring team.

3. Verify that the Plant Monitoring Team Leader is continuously monitoring the plant Radiation Monitoring System data with the Emergency Response Facility Information System. Instruct him to notify his team, the Personnel Protection and Decontamination Team Leader, and you if any significant or unusual changes occur and maintain a record of these changes.

9.0 PROCEDURE STEPS

9.3 PLANT MONITORING (Cont'd)

4. Review the plant monitoring data that is obtained and verify that appropriate data is being transmitted to the Dose Projection Team Leader and Accident Assessment Team Leader.

5. Direct that additional sampling be conducted to determine source terms, with the frequency based upon the need for calculation dose projections, performing accident assessment evaluations, and changing plant conditions which may effect personnel exposure.

9.4 DOSE PROJECTION

NOTE: Off-site dose projections will be performed in the Emergency Operations Facility after it is fully activated and staffed. Dose projections may continue in the Technical Support Center to provide information on off-site conditions and input to the Emergency Action Levels.

1. Verify the Dose Projection Team Leader is performing dose projections via the best method currently available. (See PEP-341, 342, 343, and 216)

2. If informed by the Dose Projection Team Leader that Radiation Monitoring System data being used is suspect, direct that substitute values be entered in the Emergency Response Facility Information System data base.

3. Evaluate the results and confer with the Dose Projection Team Leader on recommendations for environmental monitoring (to confirm the dose projections) and on recommendations for protective actions. (See PEP-104)

4. If the projected dose is greater than 1 rem whole body or 5 rem thyroid at the site boundary (2500 feet) have the doses calculated at the Exclusion Area Boundary (1.3 miles) and beyond.

5. Confer with the Site Emergency Coordinator and provide the dose projection results and a protective action recommendation to him (as per PEP-104) to be transmitted to the counties, State, and NRC using the notification form in PEP-301.

NOTE: The initial notification must be performed within 15 minutes of the declaration of the emergency.

9.0 PROCEDURE STEPS

9.4 DOSE PROJECTION (Cont'd)

6. Verify the plume is being plotted and kept current on the map board in the Technical Support Center.

7. Determine how often the calculation should be repeated and instruct the Dose Projection Team Leader. (Once per hour or upon any significant change in release rate or meteorological conditions.)

8. When the Emergency Operations Facility is manned, have the Dose Projection Team Leader brief the Dose Assessment Team Leader, brief the Radiological Control Manager, and notify the Site Emergency Coordinator that the dose projections function is being transferred to the Emergency Operations Facility Staff.

9. Notify the Site Emergency Coordinator of projected on-site doses and off-site doses, and how the results calculated at the Technical Support Center and at the Emergency Operations Facility (when available) compare.

9.5 EMERGENCY ENVIRONMENTAL MONITORING

NOTE: Environmental monitoring will be controlled by the Emergency Operations Facility after it is fully activated and staffed. The Environmental Monitoring Team Leader in the Technical Support Center will remain to provide information and liaison to the Emergency Operations Facility's environmental monitoring efforts.

1. Verify the Environmental Monitoring Team Leader has consulted with the Dose Projections Team Leader and the Personnel Protection and Decontamination Team Leader to determine what sectors should be monitored initially and what personnel protection equipment should be used by the Environmental Monitoring Teams. (See PEP-206 and 351)

2. Verify the Dose Projection Team Leader and Environmental Monitoring Team Leader are comparing the calculated values to the actual readings.

3. Confer with the Dose Projection Team Leader and Environmental Monitoring Team Leader and set priorities for obtaining more data.

4. Provide instructions as to which laboratory to deliver iodine collection cartridges and have the Environmental Monitoring Team Leader inform his teams.

9.0 PROCEDURE STEPS

9.5 EMERGENCY ENVIRONMENTAL MONITORING (Cont'd)

5. Based upon the monitoring results have the Dose Projection Team Leader perform additional dose projections and notify the Site Emergency Coordinator of the results.

6. Coordinate and compare the initial dose assessment and environmental monitoring efforts with the State (Department of Human Resources - State Emergency Response Team) until the Emergency Operations Facility is activated.

7. When requested by responsible State officials, arrange for an analyses of environmental samples by the Harris Energy and Environmental Center (or other laboratory).

8. When the Emergency Operations Facility is manned have the Environmental Monitoring Team Leader brief the Environmental Monitoring Supervisor who will then take control of the Environmental Monitoring Teams.

9.6 GENERAL

1. Request any needed material or supplies not on the plant site from the Logistics Support Director.

2. Periodically report to the Site Emergency Coordinator the radiological status on-site and off-site and any protective action recommendations.

3. When the emergency has been terminated, deliver your activity log and copies of all records generated by yourself and your subordinates during the emergency to the Senior Specialist-Emergency Preparedness as per PEP-401.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-205

TITLE: REPRESENTATIVE TO THE STATE EMERGENCY RESPONSE TEAM

REVISION 0

APPROVED: _____ 8/21/84
Signature

TITLE: Asst. to General Manager

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1.0 PURPOSE

This procedure implements Section 2.4.9, "Representative to the State Emergency Response Team," of2. the SHNPP Emergency Plan. It specifies actions to be taken by the Representative to the State Emergency Response Team.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.9, "Representative to the State Emergency Response Team"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-101, "Emergency Classification"
2. PEP-104, "Protective Action Recommendations"
3. PEP-351, "Emergency Environmental Monitoring"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

1. The Representative to the State Emergency Response Team reports to the Site Emergency Coordinator until the Emergency Operations Facility is activated, after which time he reports to the Emergency Response Manager.

3.2 ASSIGNMENT AND RELIEF OF POSITION

1. The Manager - Technical Support is assigned to the position of Representative to the State Emergency Response Team.
2. If the Manager - Technical Support is not available, the position is filled by one of the designated alternates who are the Manager - Start-Up and the Senior Specialist - Emergency Preparedness.

3.3 DUTIES

The Representative to the State Emergency Response Team (SERT), located at the State Emergency Response Team Headquarters in Raleigh, shall:

1. Maintain a record of his activities.
2. Report to the State Emergency Response Team Headquarters after a briefing by the Site Emergency Coordinator.

3.0 RESPONSIBILITIES

3.3 DUTIES (Cont'd)

3. Inform government agency representatives of plant conditions and provide technical guidance on recommendations of the Emergency Response Manager for protective actions for the public.

4. Confirm that copies of emergency procedures for environmental monitoring and analysis are available for inspection and review in the State Emergency Response Team Headquarters.

5. When requested, coordinate arrangements for analysis of replicate samples.

6. Ensure that he is relieved only by a alternate trained for duty as Representative to the State Emergency Response Team.

4.0 DEFINITIONS

None Applicable.

5.0 GENERAL

The Representative to the State Emergency Response Team Headquarters acts as Carolina Power and Light Company's technical liaison for the North Carolina Emergency Response Team. He interprets emergency action levels and protective action recommendations made by the Emergency Response Manager and informs the Emergency Response Manager of actions taken by the State Emergency Response Team.

The Representative to the State Emergency Response Team position is activated when the Emergency Operations Facility is activated, and starts with a briefing by the Site Emergency Coordinator in the Technical Support Center. After the briefing, the Representative to the State Emergency Response Team travels to the State Emergency Response Team Headquarters, located in the State Administrative Building basement, 116 West Jones Street, Raleigh.

6.0 INITIATING CONDITIONS

1. The Emergency Operations Facility has been activated, which activates this position.

7.0 PRECAUTIONS AND LIMITATIONS

1. The Representative to the State Emergency Response Team is a communications liaison for the company and can not commit company resources or make decisions in the absence of, or in lieu of, the Emergency Response Manager.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Personal or company vehicle.

9.0 PROCEDURE STEPS

9.1 Upon arriving on site report to the Technical Support Center and inform the Emergency Communicator that you have arrived.

9.2 Participate in the briefing provided to the Emergency Response Manager by the Site Emergency Coordinator.

9.3 Obtain extra copies from the Technical Support Center library of the following Plant Emergency Procedures to take to the State Emergency Response Team Headquarters.

1. PEP-101, "Emergency Classification"
2. PEP-104, "Protective Action Recommendations"
3. PEP-351, "Emergency Environmental Monitoring"
4. Activity Log Sheet(Attactment 1 to PEP-405, "Preparation of Activity Logs")

9.4 Proceed to the State Emergency Response Team Headquarters, located in the basement of the North Carolina Administration Building, 116 West Jones Street, Raleigh. A diagram is shown in Attachment 1.

9.5 Report to the State Emergency Response Team Manager, in the Operations Room, Room B-24. Sign the access roster.

9.6 Initiate an activity log in accordance with PEP-405.

9.7 Verify that the following emergency communications links from the State Emergency Response Team Headquarters to the Technical Support Center and the Emergency Operations Facility are operational:

1. Automatic ring down telephone from the State Emergency Response Team Manager (Room B-9) to the Emergency Operations Facility.

2. Automatic ring down telephone from the State Emergency Response Team Radiological Control Room B-26 to the Emergency Operations Facility.

3. Off premises extension#4148 on the Emergency Operations Facility telephone system in room (later).

4. VHF radio communications to the Emergency Operations Facility and Technical Support Center.

9.0 PROCEDURE STEPS

9.8 Contact the System Communications Systems Coordinator in the Emergency Operations Facility if any communications problems with the site arise.

9.9 Assist the State Emergency Response Team Headquarters in interpretation of plant emergency action levels, protective action recommendations and environmental monitoring results .

9.10 Determine any needs for additional equipment, supplies, and manpower,(especially technical and health physics expertise)and request them from the Adminstrative and Logistics Manager in the Emergency Operations Facility.

9.11 When directed to do so, notify the alternate for your position specified by the Emergency Response Manager to arrange for relief at the end of the present shift. Notification messages shall be given only to the specified individual, and not to their spouse, children, babysitter, etc. If the specified alternate cannot be contacted, inform the Administrative and Logistics Manager.

9.12 Inform the Emergency Response Manager of any key decisions made or protective action decisions made, and update the Emergency Response Manager on the status of evacuation and reception centers. Ensure that the Emergency Operations Facility Status Board Plotter receives the same information.

9.13 When relinquishing this position, brief your successor on the emergency and emergency actions status.

9.14 If requested, coordinate arrangements for replicate analyses of environmental samples collected by CP&L personnel.

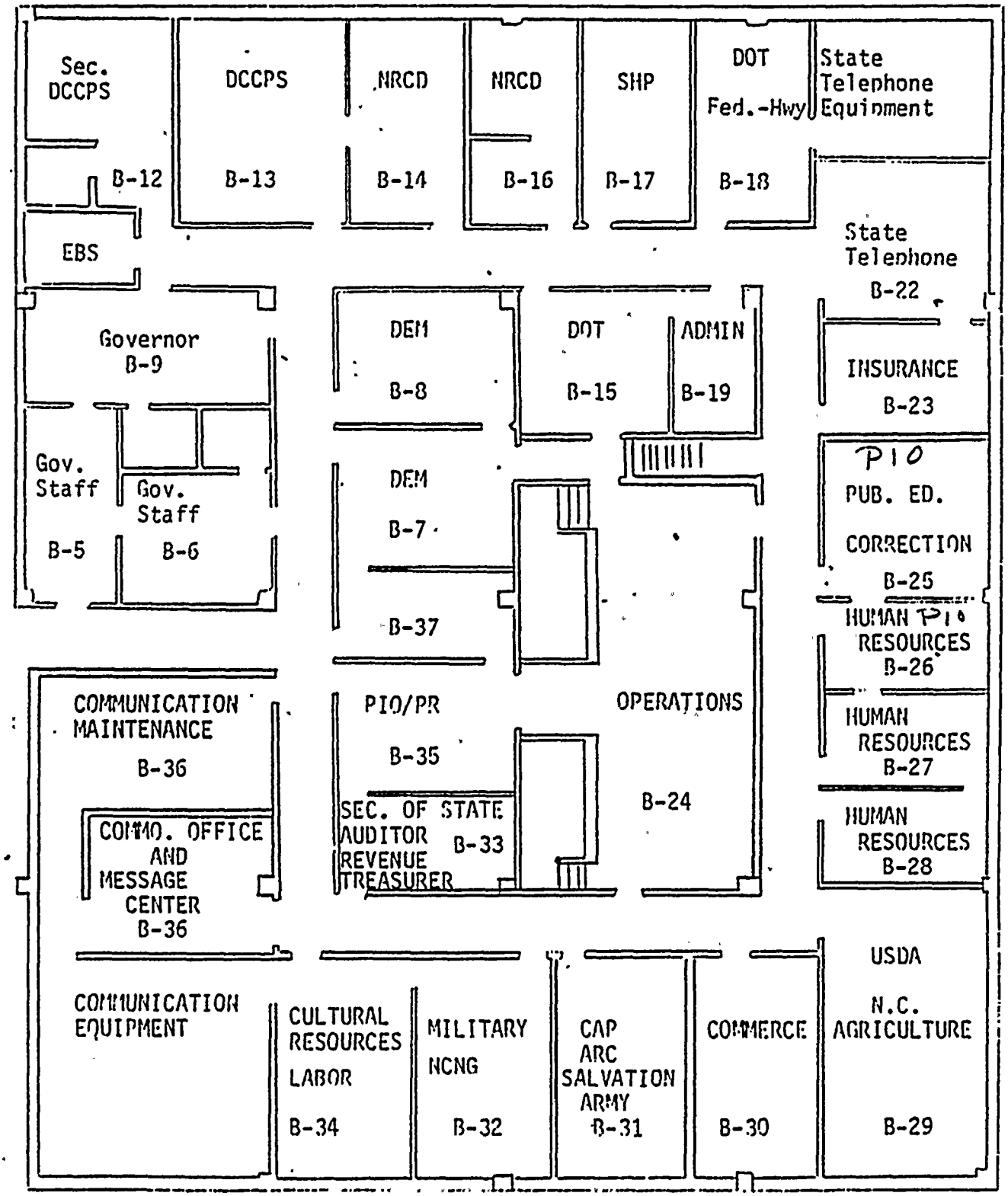
10. DIAGRAMS/ATTACHMENTS

1. Attachment 1 - "North Carolina Emergency Operations Center Space Assignments".

Attachment 1

NC EOC SPACE ASSIGNMENTS

BASIC PLAN
(AUG 1983)



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PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-206

TITLE: ENVIRONMENTAL MONITORING TEAM LEADER

REVISION 0

APPROVED: C R Gibson
Signature

8/21/84
Date

TITLE: Asst to General Manager

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1.0 PURPOSE

This procedure implements Section 2.4.6.3, "Environmental Monitoring Team Leader," of the SHNPP Emergency Plan. It specifies actions to be taken by the Environmental Monitoring Team Leader.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.6.3, "Environmental Monitoring Team Leader"
2. Section 4.4.4, "Environmental Monitoring"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-302, "Communications Activities"
2. PEP-303, "Use of Communications Equipment"
3. PEP-321, "Notification of Emergency Personnel"
4. PEP-351, "Emergency Plant Environmental Monitoring"
5. PEP-382, "Personnel Accountability"
6. PEP-405, "Preparation of Activity Logs"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

1. The Environmental Monitoring Team Leader reports to the Radiological Control Director.
2. The Environmental Monitoring Teams report to the Environmental Monitoring Team Leader until the Emergency Operations Facility is activated, after which time they report to the Environmental Supervisor.

3.2 ASSIGNMENT AND RELIEF OF POSITION

1. The Supervisor - Environmental and Chemistry assumes the responsibilities of Environmental Monitoring Team Leader upon arrival at the Technical Support Center.
2. After activation of the Emergency Operations Facility, the Environmental Supervisor will relieve the Environmental Monitoring Team Leader of responsibilities related to control and coordination of environmental monitoring.

3.0 REPONSIBILITIES

3.3 DUTIES

3.3.1. Until relieved by the Environmental Supervisor, the Environmental Monitoring Team Leader is responsible for:

1. Maintaining a record of all Environmental Monitoring Team Activities.

2. Directing the activities of the Environmental Monitoring Teams, positioning them such that representative samples and surveys of the plume, if any, can be made.

3. Consulting with the Personnel Protection and Decontamination Team Leader to determine protective requirements for the Environmental Monitoring Teams, and advising the teams of those requirements.

4. Collecting and evaluating Environmental Monitoring Team sample and survey data.

5. Assisting in the orderly transfer of the environmental monitoring function to the Emergency Operations Facility.

6. Coordinating the use of the mobile laboratory.

7. Maintaining a list of personnel assigned to the Environmental Monitoring Teams and of team locations.

3.3.2. Both before and after being relieved by the Environmental Supervisor, the Environmental Monitoring Team Leader is responsible for:

1. providing the results of environmental samples and surveys to the Radiological Control Director and the Dose Projection Team Leader.

2. Maintaining a record of his activities.

3. Ensuring that he is relieved only by an alternate trained for duty as Environmental Monitoring Team Leader.

4:0 DEFINITIONS

None Applicable

5.0 GENERAL

The Environmental Monitoring Team Leader will direct those activities necessary to verify whether or not an atmospheric release has occurred, and to determine its order of magnitude.

6.0 INITIATING CONDITIONS

The Site Emergency Coordinator has declared an emergency and directed the activation of the Technical Support Center.

7.0 PRECAUTIONS/LIMITATIONS

1. Notify Environmental Monitoring Team personnel of projected radiation and airborne activity levels in areas they will enter and advise them of protection requirements established by the Personnel Protection and Decontamination Team Leader.

2. The roads to the designated initial survey locations for all southerly sectors are particularly hazardous in inclement weather. During heavy rains, a four-wheel drive vehicle may be required (available at the SHEEC or from Security) on those roads. If roads are snow-packed, chains may be needed even for four-wheel drive vehicles. Do not direct the Environmental Monitoring Teams to survey in areas that would be hazardous for the type of vehicle that they have available.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

9.1. If you are relieving another individual, review the activity log and obtain a briefing on the emergency and actions that have been completed or are in progress.

9.2. Conduct all communications activities in accordance with PEP-302 and PEP-303.

9.3. Report your arrival in the Technical Support Center to the Emergency Communicator - Technical Support Center (or Emergency Communicator - Control Room if the Emergency Communicator - Technical Support Center position is not yet manned), and inform the Radiological Control Director that you are assuming (or relieving, if appropriate) the position of Environmental Monitoring Team Leader.

9.4. Initiate and maintain a record of your activities and the activities of the Environmental Monitoring Teams in accordance with PEP-405.

9.0 PROCEDURE STEPS

9.5. When a gaseous release of radioactive material is known or suspected to have occurred, consult with the Dose Projection Team Leader and using Attachment 1 and the guidance below, determine which downwind major compass sectors should be initially surveyed:

1. If the wind speed is greater than nine miles per hour, select the downwind major compass sector and one sector to each side (67.5 degrees wide).

2. If the wind speed is less than nine miles per hour, select the downwind major compass sector and two sectors to each side (112.5 degrees wide).

9.6. Consult with the Dose Projection Team Leader and Personnel Protection and Decontamination Team Leader to determine personnel protection requirements for the Environmental Monitoring Team(s).

9.7. Inform the Environmental Monitoring Team(s) of personnel protection requirements, then direct them to proceed to the predetermined locations for the selected downwind compass sectors and perform surveys in accordance with PEP-351.

9.8. Inform the Radiological Control Director and Dose Projection Team Leader of survey results as they become available. If the team(s) report radiation levels that are greater than five mr/hr and are also more than double the expected levels, inform the Dose Projection Team Leader, and request the Personnel Protection and Decontamination Team Leader to determine whether any additional protective actions or equipment are required for the Environmental Monitoring Team (s).

9.9. Deploy the Environmental Monitoring Team(s) to additional locations to perform surveys as requested by the Radiological Control Director or Dose Projection Team Leader.

9.10. Obtain directions from the Radiological Control Director as to which laboratory to deliver Iodine collection cartridges and direct the Environmental Monitoring Team(s) to deliver the cartridges to that location.

9.11. NOTE: The frequency of this radio is publicly known.

If contacted by state or local environmental monitoring personnel on the state VHF radio channel, answer the transmission but do not provide any information without first informing the Radiological Control Director. Inform the state or local environmental monitoring personnel where the plant Environmental Monitoring Team(s) are

9.0 PROCEDURE STEPS

deployed, and suggest where they might deploy their teams to avoid duplication of effort. No information on the status of the emergency itself is to be transmitted on this radio channel. However, it is permissible to obtain a copy of a previously approved notification form from the Emergency Communicator and relay the meteorological information only from Part II, Item 4 of the North Carolina Emergency Notification Form to state or local environmental monitoring personnel.

9.12. Maintain continuous accountability of Environmental Monitoring Team personnel in accordance with PEP-382.

9.13. Inform the Radiological Control Director of additional supplies or equipment necessary to perform assigned functions.

9.14. When directed to do so, notify the alternate for your position specified by the Radiological Control Director to arrange for relief at the end of the present shift in accordance with Section 9.2 of PEP-321. Notification messages shall be given only to the specified individual, and not to their spouses, children, babysitter, etc. If the specified alternate cannot be contacted, inform the Logistics Support Director.

9.15. When notified by the Environmental Supervisor at the Emergency Operations Facility that he is ready to relieve you of responsibility for conducting and coordinating off-site monitoring, brief him on the status of the emergency and the environmental monitoring effort, and inform him of any contacts made with state or local environmental monitoring personnel. Inform the Radiological Control Director and the Environmental Monitoring Team(s) that you have been relieved.

9.16. Continue to monitor communications between environmental monitoring personnel, and keep the Radiological Control Director and Dose Projection Team Leader informed of survey results.

9.17. When the emergency is terminated, collect all records generated by you and the Environmental Monitoring Team(s), and deliver them and your activity log to the Radiological Control Director.

10.0 DIAGRAMS/ATTACHMENTS

1. Wind Directions

ATTACHMENT 1

WIND DIRECTIONS

Wind From	Degrees From North	Wind Toward
N	349-11	S
NNE	12-33	SSW
NE	34-56	SW
ENE	57-78	WSW
E	79-101	W
ESE	102-123	WNW
SE	124-146	NW
SSE	147-168	NNW
S	169-191	N
SSW	192-213	NNE
SW	214-236	NE
WSW	237-258	ENE
W	259-281	E
WNW	282-303	ESE
NW	304-326	SE
NNW	327-348	SSE

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PLANT OPERATING MANUAL

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PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-207

TITLE: PLANT MONITORING TEAM LEADER

REVISION 0

APPROVED: C R Gibson
Signature

8/21/84
Date

TITLE: Asst to General Manager

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1.0 PURPOSE

This procedure implements section 2.4.6.5 of the SHNPP Emergency Plan. It specifies the actions to be performed by the Plant Monitoring Team Leader.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.6.5, "Plant Monitoring Team Leader"
2. Section 4.4, "Assessment Actions"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-204, "Radiological Control Director"
2. PEP-302, "Communications Activities"
3. PEP-303, "Use of Communications Equipment"
4. PEP-321, "Notification of Emergency Personnel"
5. PEP-331, "Emergency Plant Monitoring," Rev.0
6. PEP-382, "Personnel Accountability"
7. PEP-405, "Preparation of Activity Logs"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

The Plant Monitoring Team Leader reports to the Radiological Control Director, or, prior to activation of that position, the Site Emergency Coordinator.

3.2 ASSIGNMENT AND RELIEF OF POSITION

An on-shift Radiation Control Technician assumes the responsibilities of Plant Monitoring Team Leader until relieved by a Project Specialist-Environmental and Chemistry, Specialist-Chemistry, or Specialist-ALARA.

3.3 DUTIES

The Plant Monitoring Team Leader is responsible for:

1. Maintaining a record of all Plant Monitoring Team activities.
2. Providing personnel to conduct in-plant radiological surveys for accident assessment purposes.

3.0 RESPONSIBILITIES

3.3 DUTIES (Cont'd)

3. Assigning personnel to operate the Post Accident Sampling System and to obtain and analyze other samples for accident assessment purposes as directed by the Radiological Control Director.

4. Monitoring Radiation Monitor System data on the Emergency Response Facility Information System and maintaining a record of significant and unusual area radiation levels.

5. Assisting the Dose Projection Team by developing the radiological source term from Radiation Monitoring System data, in-plant surveys, and samples.

6. Maintaining personnel accountability of the Plant Monitoring Team.

7. Identifying any additional supplies or equipment needed to perform assigned functions.

8. Ensuring that he is relieved only by an alternate trained for duty as a Plant Monitoring Team Leader.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

Assessment of plant conditions in emergency situations requires data that may not be available from permanently installed plant instrumentation. The primary function of the Plant Monitoring Team Leader is to provide data on plant conditions for use by those individuals in the emergency organization performing assessment functions.

6.0 INITIATING CONDITIONS

The Site Emergency Coordinator has activated the site emergency organization, including the Plant Monitoring Team Leader position.

7.0 PRECAUTIONS/LIMITATIONS

1. Notify Plant Monitoring Team personnel of expected radiation levels and airborne activity levels in areas they will enter, based upon Emergency Response Facility Information System readings, prior to entry.

2. Verify team members have appropriate protective gear (cover-alls, gloves, respirators, etc.) and an appropriate survey meter for the areas they will enter to obtain samples.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

1. If you are relieving another individual, review the activity log and obtain a briefing on the emergency and actions that have been completed or are in progress.

2. Conduct all communications activities in accordance with PEP-302 and PEP-303.

3. Report your arrival in the Technical Support Center to the Emergency Communicator, and inform the Radiological Control Director that you are assuming (or relieving, if appropriate) the position of Plant Monitoring Team Leader.

4. Initiate and maintain a record of your activities and the activities of the Plant Monitoring Team(s) in accordance with PEP-405.

5. Determine the radiation and airborne activity levels for the Post Accident Sample System panel area, other sample areas and access routes to these areas by checking the Emergency Response Facility Information System and by requesting information from the Personnel Protection and Decontamination Team Leader.

NOTE: The Personnel Protection and Decontamination Team Leader may have surveys in progress or may send an individual with the Plant Monitoring Team to obtain the required information.

6. Request the Operational Support Center Leader to dispatch a team to the Post Accident Sampling System Panel to obtain a reactor coolant sample, containment sample and/or other samples deemed necessary depending upon current emergency conditions, in accordance with PEP-331.

7. Continuously monitor Radiation Monitoring System data with the Emergency Response Facility Information System. Notify Plant Monitoring Team personnel, the Radiological Control Director, and Personnel Protection and Decontamination Team Leader of any significant changes or unusual area radiation levels and maintain a record of such levels.

8. When requested by the Site Emergency Coordinator or Radiological Control Director, request the Operational Support Center Leader to dispatch additional personnel from the Plant Monitoring Team to perform other radiological assessment surveys in accordance with PEP-331. If additional personnel are not available,

9.0 PROCEDURE STEPS

instruct personnel who are presently performing surveys to perform the additional surveys after they finish their current assignment, or to divert to the new assignment if it has a higher priority and complete the original surveys afterward.

9. When requested by the Site Emergency Coordinator or Radiological Control Director, request the Operational Support Center Leader to dispatch personnel from the Plant Monitoring Team to obtain and analyze additional plant samples in accordance with PEP-331.

10. If requested by the Dose Projection Team Leader, provide source terms from in-plant survey and/or sample data.

11. Maintain continuous accountability of Plant Monitoring Team personnel in accordance with PEP-382 whenever they are not in the Operational Support Center.

12. Inform the Radiological Control Director of additional supplies or equipment necessary to perform assigned functions.

13. When directed to do so, notify the alternate for your position specified by the Radiological Control Director to arrange for relief at the end of the present shift in accordance with Section 9.2 of PEP-321. Notification messages shall be given only to the specified individual, and not to their spouse, children, babysitter, etc. If the specified alternate cannot be contacted, inform the Logistics Support Director.

14. When the emergency has been terminated, collect all records generated by the Plant Monitoring Team, and deliver them and your activity log to the Radiological control Director.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-208

TITLE: PERSONNEL PROTECTION & DECONTAMINATION TEAM LEADER

REVISION 0

APPROVED: C. P. Gibson
Signature

8/17/84
Date

TITLE: Asst. Gen. Mgr.

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1.0 PURPOSE

This procedure implements Section 2.4.6.7 of the SHNPP Emergency Plan. It specifies the actions to be performed by the Personnel Protection and Decontamination Team Leader.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.6.7, "Personnel Protection and Decontamination Team Leader"
2. Section 4.6, "Protective Actions for On-site Personnel"
3. Annex A, "Agreements"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-204, "Radiological Control Director"
2. PEP-302, "Communications Activities"
3. PEP-303, "Use of Communications Equipment"
4. PEP-321,"Notification of Emergency Personnel"
5. PEP-331, "Emergency Plant Monitoring"
6. PEP-371, "Emergency Response in Radiological Areas"
7. PEP-381, "Evacuation"
8. PEP-382, "Personnel Accountability"
9. PEP-383, "Administration of Potassium Iodide"
10. PEP-391, "First Aid and Medical Care"
11. PEP-394, "Search and Rescue"
12. PEP-405, "Preparation of Activity Logs"

2.3 OTHER REFERENCED PLANT PROCEDURES

1. HPP-075, "Vehicle Surveys"
2. HPP-251, "Personnel Decontaminations"
3. HPP-252, "Tool and Personnel Belongings Decontamination"
4. HPP-253, "Area Decontamination"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

The Personnel Protection and Decontamination Team Leader reports to the Radiological Control Director or, prior to activation of that position, the Site Emergency Coordinator.

3.2 ASSIGNMENT AND RELIEF OF POSITION

The senior on-shift Radiation Control Technician assumes the responsibilities of Personnel Protection and Decontamination Team Leader until relieved by the Supervisor-Radiation Control or a designated Foreman-Radiation Control.

3.3. DUTIES

The Personnel Protection and Decontamination Team Leader is responsible for:

1. Initiating and maintaining a record of Personnel Protection and Decontamination Team activities.

2. Assigning personnel to accompany other teams as required to provide health physics coverage.

3. Ensuring that radiological and chemical habitability conditions in the Operational Support Center, Security Building, and assembly areas are monitored.

4. If background radiation levels permit, ensuring that evacuated personnel and vehicles are monitored for contamination and decontaminated as required prior to leaving the site.

5. Administering Potassium Iodide to on-site personnel under the direction of the Radiological Control Director.

6. Establishing temporary radiological access control points, monitoring points, decontamination areas, and dosimetry issue areas as required.

7. Establishing protective clothing and respiratory protection requirements for all on-site emergency personnel.

8. Assisting the First Aid Team in evaluating the management of contaminated injured personnel, and notifying the Radiological Control Director when transportation of a contaminated injured person is required.

9. Maintaining accountability of Personnel Protection and Decontamination Team members when they are outside the Operational Support Center.

3.0 RESPONSIBILITIES

3.3. DUTIES (Cont'd)

10. Identifying any additional supplies or equipment necessary to perform assigned functions.

11. Assigning members of the Personnel Protection and Decontamination Team to direct the decontamination of on-site personnel and areas as required.

12. Ensuring that he is relieved only by an alternate trained to perform the duties of Personnel Protection and Decontamination Team Leader.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

During emergencies, habitability conditions on-site may change rapidly, and must be continuously evaluated. The primary function of the Personnel Protection and Decontamination Team Leader is to ensure that on-site radiological and chemical habitability conditions are properly monitored and that adequate protective actions are implemented as may be required to permit the on-site emergency response organization to carry out necessary activities. To the extent that conditions permit, normal plant procedures will be utilized to fulfill this function. The plant Radiation Monitoring System and other permanently installed instrumentation will be utilized to the maximum extent possible to preclude unnecessary exposures to personnel performing surveys.

6.0 INITIATING CONDITIONS

The Site Emergency Coordinator has activated the site emergency organization, including the Personnel Protection and Decontamination Team Leader position.

7.0 PRECAUTIONS/LIMITATIONS

1. Prior approval must be obtained from the Plant General Manager (who normally assumes the emergency position of Site Emergency Coordinator-Technical Support Center) to permit planned radiation exposures in excess of regulatory limits. In the absence of the Plant General Manager, the Environmental and Radiation Control Manager (who normally assumes the emergency position of Radiological Control Director) may authorize such exposures. The Site Emergency Coordinator is authorized to approve such exposures in the absence of the above individuals.

7.0 PRECAUTIONS/LIMITATIONS

2. Prior approval must be obtained from the Radiological Control Director or Site Emergency Coordinator before administering Potassium Iodide .

3. After transportation of a contaminated injured person to a hospital, concurrence must be obtained from the Radiological Control Director or Site Emergency Coordinator prior to release of the hospital Radiological Emergency Room or ambulance for uncontrolled access and use.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

1. If you are relieving another individual, review the activity log and obtain a briefing on the emergency and actions that have been completed or are in progress.

2. Conduct all communications in accordance with PEP-302 and PEP-303.

3. Report your arrival in the Technical Support Center to the Emergency Communicator-Technical Support Center (Emergency Communicator Control Room if the position of Emergency Communicator-Technical Support Center is not yet manned), and inform the Radiological Control Director that you are assuming (or relieving, if appropriate) the position of Personnel Protection and Decontamination Team Leader.

4. Initiate and maintain a record of your activities and the activities of the Personnel Protection and Decontamination Team in accordance with PEP-405.

5. If an Alert, Site Emergency, or General Emergency has been declared, evaluate radiological and chemical habitability conditions in the Operational Support Center, Security Building, and Assembly Areas by directing the Operational Support Center Leader to dispatch the Personnel Protection and Decontamination Team to perform surveys in accordance with the methods referenced in PEP-331. Direct them to issue a group Thermoluminescent Dosimeter to each Assembly Area Leader while they are conducting the surveys to record exposure to personnel in the Assembly Areas.

6. Based on survey data for the Operational Support Center and Security Building, establish requirements for dosimetry, protective clothing, and respirators in these areas in accordance with PEP-371. Notify the Radiological

9.0 PROCEDURE STEPS

Control Director, the Operational Support Center Leader, and other team leaders in the Technical Support Center of these requirements.

7. When notified by other team leaders or the Radiological Control Director that teams are to be dispatched, obtain Radiation Monitoring System data for the team's transit and destination areas, if available, from the Plant Monitoring Team Leader.

8. Establish protection requirements for these teams in accordance with PEP-371. If needed, assign a member of the Personnel Protection and Decontamination Team to accompany the team. Also notify the Radiological Control Director, Operational Support Center Leader and Personnel Protection and Decontamination Team of these requirements.

9. If an evacuation is ordered, direct the Operational Support Center Leader to dispatch the Personnel Protection and Decontamination Team to monitor evacuating personnel and/or vehicles for contamination in accordance with HPP-251 and HPP-075 at the Security Building and/or other remote location(s) specified by the Radiological Control Director, and to decontaminate personnel, vehicles, and belongings in accordance with HPP-251 and HPP-252 if necessary.

10. If the Radiological Control Director directs the administration of Potassium Iodide, administer the drug to selected personnel in the Technical Support Center and request the Operational Support Center Leader to direct the Personnel Protection and Decontamination Team to administer the drug to selected personnel in the Operational Support Center in accordance with PEP-383.

11. If requested by the First Aid Team or Search and Rescue Team, request the Operational Support Center Leader to assign personnel from the Personnel Protection and Decontamination Team to perform radiation surveys in accordance with the methods referenced in PEP-331, monitor injured personnel for contamination, and/or assist in decontamination in accordance with HPP-251. If the First Aid Team Leader decides to transport a contaminated injured person to a Radiological Emergency Room, notify the Radiological Control Director and request the Operational Support Center Leader to assign a Personnel Protection and Decontamination Team member to accompany the individual in accordance with PEP-391.

9.0 PROCEDURE STEPS

12. If requested by the Radiological Control Director, request the Operational Support Center Leader to dispatch personnel from the Personnel Protection and Decontamination Team to decontaminate on-site personnel and/or areas in accordance with HPP-251 and/or HPP-253.

13. Maintain continuous accountability of Personnel Protection and Decontamination Team members when they are out of the Operational Support Center in accordance with PEP-382.

14. Notify the Radiological Control Director of additional supplies or equipment necessary to perform assigned functions.

15. When directed to do so, notify the alternate for your position specified by the Radiological Control Director to arrange for relief at the end of the present shift in accordance with Section 9.2 of PEP-321. Notification messages shall be given only to the specified individual, and not to their spouse, children, babysitter, etc. If the specified alternate cannot be contacted, inform the Radiological Control Director.

16. When the emergency has been terminated, collect all records generated during the emergency by the Personnel Protection and Decontamination Team and deliver them and your activity log to the Radiological Control Director.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-210

TITLE: EMERGENCY SECURITY TEAM LEADER

REVISION 0

APPROVED: _____ 8/21/84
Signature Date

TITLE: Asst To General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 2.4.5.3, "Emergency Security Team Leader" of the SHNPP Emergency Plan.

This procedure provides guidance for the Emergency Security Team Leader.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. 2.4.5.3, "Emergency Security Team Leader"
2. 4.8, "Security Measures"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-301, "Notification and Communications"
2. PEP-302, "Communications Activities"
3. PEP-303, "Use of Communications Equipment"
4. PEP-321, "Notification of Emergency Personnel"
5. PEP-371, "Emergency Response in Radiological Areas"
6. PEP-381, "Evacuation"
7. PEP-382, "Personnel Accountability"
8. PEP-383, "Administration of Potassium Iodide"
9. PEP-384, "Access Control"
10. PEP-394, "Search and Rescue"
11. PEP-405, "Preparation of Activity Logs"

2.3 OTHER REFERENCES

1. SP-016, "Emergency Plan Support"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

The Emergency Security Team Leader reports to the Logistics Support Director, or prior to the activation of these positions, the Site Emergency Coordinator.

3.0 RESPONSIBILITIES

3.2 ASSIGNMENT AND RELIEF OF POSITION

3.2.1 The position of Emergency Security Team Leader is normally filled by the Senior Specialist-Security except as noted in 3.2.2 and 3.2.3 below.

3.2.2 If the Senior Specialist-Security is unavailable, the position is filled by a supervisory level member of the security organization except as noted in 3.2.3 below.

3.2.3 Should the Technical Support Center be activated as a result of an incident(s) of the type addressed in the SHNPP Safeguards Contingency Plan, the position of Emergency Security Team Leader may be assumed at a location other than the Technical Support Center. In this case, a member of the Security Organization, with communications with the Security Force, will be assigned to the Technical Support Center to relay information and maintain a record of events.

3.3 DUTIES

The Emergency Security Team Leader, located in the Technical Support Center, reports to the Logistics Support Director and is responsible for the following:

1. Maintain plant security in accordance with the provisions of the SHNPP Security Plan and Safeguards Contingency Plan.

2. Identify to the Logistics Support Director any non-routine security procedures and/or contingency conditions that are in effect or that require a response.

3. Provide personnel, as available, for search teams for missing personnel. Identify areas and routes for searching in coordination with the Radiological Control Director.

4. Ensure that necessary coordination with local law enforcement agencies is maintained.

5. Provide necessary members of the security force to maintain security at the Emergency Operations Facility when activated.

6. Ensure that the locations of security personnel are verified frequently by Security Force supervision.

3.0 RESPONSIBILITIES

3.3 DUTIES (Cont'd)

7. Generate periodic listings of personnel within the Protected Area via the Security Computer.

8. Provide escorts for emergency vehicles that may be required to enter the Protected Area.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

None Applicable

6.0 INITIATING CONDITIONS

1. An emergency has been declared and the Site Emergency Coordinator has activated the Emergency Security Team Leader position.

7.0 PRECAUTIONS/LIMITATIONS

1. Determine via the Radiological Control Director and/or the Personnel Protection and Decontamination Team Leader whether security personnel are at risk in the area where they are located (i.e. areas in the Radiologically Controlled Area of the plant where they are assigned to a fixed post or patrol).

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Handheld Radio.

9.0 PROCEDURE STEPS

9.1 Report your arrival at the Technical Support Center to the Emergency Communicator-Technical Support Center (or Emergency Communicator-Control Room if the first position is not manned yet) and inform the Logistics Support Director that your are assuming (or relieving, if appropriate) the position of Emergency Security Team Leader.

9.2. Conduct all communications activities with other emergency organization groups in accordance with PEP-302 and PEP-303.

9.0 PROCEDURE STEPS

9.3 If you are relieving another individual, review the activity log and obtain a briefing on the emergency and actions that have been completed, are in progress, or are scheduled for a later time.

9.4 Maintain a record of your activities in accordance with PEP-405.

9.5 If the emergency was caused by a safeguards contingency event, ensure appropriate contingency actions are being taken and that pertinent actions are recorded.

9.6 Determine if all security personnel are accounted for.

9.7 If an Alert or higher classification of emergency is announced (thereby requiring an assembly of personnel for accountability purposes), instruct the senior member of the Security Force to implement appropriate elements of PEP-384, "Access Control". If the security access control system shows that personnel are still present in the Radiologically Controlled Area, notify the Logistics Support Director.

9.8 Check with the Radiological Control Director, Personnel Protection and Decontamination Team Leader and/or the Site Emergency Coordinator to determine if the type of emergency has affected the radiological conditions in the Radiologically Controlled Area and whether they recommend temporarily evacuating the security force from this area.

9.9 If a decision is made to temporarily evacuate the Radiologically Controlled Area procede as follows:

1. Notify the Central Alarm Station.

2. Direct the senior member of the Security Force to determine if the area has been cleared except for security personnel (via computer, security sweep or other means as per SP-016). In the event other personnel are indicated as present inside the Radiologically Controlled Area, notify the Logistics Support Director.

3. Direct security personnel to withdraw from the Radiologically Controlled Area to the main radiological access control point (261 ft. elev. in the Radwaste Processing Building) and the Operations and Security access control point (289 ft.elev.in the Reactor Auxiliary Building).

9.0 PROCEDURE STEPS

4. Direct security personnel to secure the Radiologically Controlled Area from these two entry points.

5. Take other actions as necessary to secure the area and advise the Logistics Support Director when such actions are completed.

9.10 If the Radiologically Controlled Area is cleared of all personnel, notify the Logistic Support Director when this is completed.

9.11 Identify any other non-routine security procedures that are being implemented or contingency plans that are in effect.

NOTE: The following notification must be performed within 30 minutes of the initial declaration of the emergency.

9.12 Assist in the accounting of personnel per PEP-382, "Personnel Accountability" by notifying the Logistics Support Director of the names of personnel considered to be missing and their last known location as reported by the Assembly Area Leader(s).

9.13 Provide assistance, as appropriate according to PEP-394, "Search and Rescue" to locate any missing personnel.

9.14 If the Emergency Operations Facility is to be activated, instruct the senior member of the security force to provide security as per PEP-384.

9.15 If off-site response personnel/agencies are being requested by the Site Emergency Coordinator, notify the senior member of the security force to expedite access.

9.16 If the emergency classification is upgraded to General Emergency and the Sheriff's Department Deputies have not arrived yet to man the patrol boat, direct security to man the boat and perform the warning of the general public on Harris Reservoir within the Exclusion Area until the deputies arrive.

9.17 If an evacuation of the Site is ordered, as per PEP-381, notify the senior member of the Security Force, inform him where personnel are being directed to go , and provide him with instructions for access and traffic control.

NOTE: The member(s) of the security force on the reentry team must also comply with the requirements of the Radiation Work Permit (See PEP-371).

9.0 PROCEDURE STEPS

9.18 When notified by the Radiological Control Director that a team is being formed to reenter the Radiologically Controlled Area, direct the Senior Member of the Security Force to assign a properly equipped and clothed member of the security force to the team (if security has been temporarily evacuated).Direct the senior member of the security force to notify the Emergency Security Team Leader, the individual and the central alarm station of the assignment and the time and place of anticipated entry to the Radiologically Controlled Area.

9.19 After the radiological conditions have been determined in the Radiologically Controlled Area, confer with the Radiological Control Director as to whether security personnel can be reposted within the area (and under what conditions) or whether it is more prudent to continue to send security personnel with each team that enters.

9.20 Direct the senior member of the security force to provide and periodically maintain a list of personnel on duty with the security force and their locations (or patrol routes), to maintain accountability of security personnel.

9.21 Direct the Senior Member of the Security Force to provide listings of personnel within the Protected Area when requested by the Logistics Support Director.

9.22 Act as a point of contact and provide coordination, as necessary, with local law enforcement agencies and other agencies which may be providing traffic control, providing Safeguards contingency support and/or performing warning functions on Harris Reservoir and in the surrounding forest area. Agencies involved may include, but are not limited to the following:

1. Wake County Sheriff's Department (patrol cars and boat for warning, traffic control points and safeguards contingency support) - Lead Agency

2. North Carolina Wildlife Resources Commission, Enforcement Division (fixed wing plane for warning)

3. Division of Forest Resources, Department of Natural Resources and Community Development (helicopter with sirens and public address system, and 4-wheel drive vehicles for warning)

4. North Carolina National Guard, Office of the Adjutant General (helicopter with public address system and 4-wheel drive vehicles for warning)

9.0 PROCEDURE STEPS

5. North Carolina Highway Patrol (patrol cars for traffic control points and safeguards contingency support).

9.23 Perform other security related duties as necessary.

9.24 Notify the Logistics Support Director of additional supplies, equipment, or personnel needed to perform assigned functions.

9.25 When the emergency has been terminated, collect emergency related security records generated during the emergency and deliver them (a copy) and your activity log to the Senior Specialist-Emergency Planning.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

APRO13

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-211

TITLE: DAMAGE CONTROL TEAM COORDINATOR

REVISION 0

APPROVED: C R Gibson
Signature

8/21/84
Date

TITLE: Asst. to General Manager

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1.0 PURPOSE

This procedure implements Section 2.4.4.1 of the SHNPP Emergency Plan. It specifies actions to be taken by the Damage Control Team Coordinator.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES -

1. Section 2.4.4.1, "Damage Control Team Coordinator"
2. Section 2.4.4.2, "Damage Control Team Leader"
3. Section 2.4.4.3, "Damage Control Team"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-302, "Communications Activities"
2. PEP-303, "Use of Communications Equipment"
3. PEP-321, "Notification of Emergency Personnel"
4. PEP-371, "Emergency Response in Radiological Areas"
5. PEP-382, "Personnel Accountability"
6. PEP-405, "Preparation of Activity Logs"

2.3 OTHER REFERENCED PLANT PROCEDURES

1. AP-020, "Clearance Procedure"
2. MMM-012, "Maintenance Work Control Procedure"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

1. The Damage Control Team Coordinator reports to the Emergency Repair Director in the Technical Support Center or, prior to activation of that position, the Site Emergency Coordinator.
2. The Damage Control Team(s) report to the Damage Control Team Coordinator via the Damage Control Team Leader(s).

3.2 ASSIGNMENT AND RELIEF OF POSITION

Upon arrival at the Technical Support Center, a Maintenance Supervisor, Project Specialist - Maintenance, or Project Engineer - Maintenance assumes the responsibilities of Damage Control Team Coordinator.

3.3 DUTIES

The Damage Control Team Coordinator is responsible for:

1. Maintaining a record of all Damage Control Team activities.

2. Determining the extent of damage to equipment and recommending corrective action(s) to the Emergency Repair Director.

3. Briefing Damage Control Teams on missions to be performed.

4. Dispatching, directing, and monitoring the activities of Damage Control Teams.

5. Maintaining accountability of Damage Control Team Personnel.

6. Keeping the Emergency Repair Director informed of the status of emergency repairs.

7. Identifying any additional supplies or equipment needed to perform assigned functions.

8. Ensuring that he is relieved only by an alternate trained to perform the duties of Damage Control Team Coordinator.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

Many of the initiating events that result in declaration of an emergency involve damage to or malfunction of safety related equipment. The primary function of the Damage Control Team Coordinator is to direct the restoration of equipment that is necessary to establish or maintain safe shutdown of the plant.

6.0 INITIATING CONDITIONS

The Site Emergency Coordinator has activated the site emergency organization, including the Damage Control Team Coordinator position.

7.0 PRECAUTIONS/LIMITATIONS

1. The Site Emergency Coordinator has overall responsibility for control of the plant. No action shall be taken that could affect the operability of a plant system without his concurrence.

7.0 PERCAUTIONS/LIMITATIONS

2. The Personnel Protection and Decontamination Team Leader is responsible for establishing radiological protection requirements for all on-site personnel, and shall be consulted prior to dispatching any team(s).

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

1. If you are relieving another individual, review the activity log and obtain a briefing on the emergency and actions that have been completed or are in progress.

2. Conduct all communications in accordance with PEP-302 and PEP-303.

3. Report your arrival in the Technical Support Center to the Emergency Communicator in the Technical Support Center (in the Control Room if the Technical Support Center is not yet manned) and inform the Emergency Repair Director that you are assuming (or relieving, if appropriate) the position of Damage Control Team Coordinator.

4. Initiate and maintain a record of your activities and the activities of the Damage Control Team(s) in accordance with PEP-405.

5. Maintain accountability of Damage Control Team personnel in accordance with PEP-382.

6. When reports of malfunctioning or out of service equipment are received, consult with the Personnel Protection and Decontamination Team Leader to determine personnel protection requirements, obtain an Emergency Radiation Work Permit in accordance with PEP-371, if required, and dispatch a Damage Control Team to determine the cause of the problem.

7. Based on the Damage Control Team's assessment, recommend actions necessary to restore equipment to service to the Emergency Repair Director. Advise the Emergency Repair Director of any additional tools, supplies, or equipment that will be required if they are not readily available, and whether the work is within the scope of existing plant procedures.

9.0 PROCEDURE STEPS

8. When directed to do so by the Emergency Repair Director, brief the Damage Control Team Leader on the tasks to be performed, obtain clearance(s) as necessary in accordance with AP-020, then dispatch and direct the activities of the Damage Control Team(s) as necessary to accomplish repairs or maintenance in accordance with procedures or methods specified by the Emergency Repair Directory.

9. Inform the Emergency Repair Director immediately if unanticipated problems are encountered or additional materials or supplies are needed, and periodically provide updated information as work progresses.

10. Document repair actions as appropriate in accordance with MMM-012.

11. When directed to do so, notify the alternate for your position specified by the Emergency Repair Director to arrange for relief at the end of the present shift in accordance with Section 9.2 of PEP-321. Notification messages shall be given only to the specified individual, and not to their spouse, children, babysitter, etc. If the specified alternate cannot be contacted, inform the Logistics Support Director.

12. When the emergency has been terminated, collect all records generated by yourself and the Damage Control Teams and deliver them to the Emergency Repair Director.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-212

TITLE: OPERATIONAL SUPPORT CENTER LEADER

REVISION 0

APPROVED: _____ 8/24/84
Signature Date

TITLE: Asst to General Manager

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(OPERATIONAL SUPPORT CENTER LEADER)

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1.0 PURPOSE

The purpose of this procedure is to implement Section 2.4.4.4, "Operational Support Center Leader," of the SHNPP Emergency Plan.

The position of Operational Support Center Leader may be activated during an Unusual Event if the Site Emergency Coordinator desires it, but is normally activated during an Alert, Site Emergency, or General Emergency. This procedure describes the actions of the Operations Support Center Leader.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.4.4, "Operational Support Center Leader"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-302, "Communications Activities"
2. PEP-303, "Use of Communications Equipment"
3. PEP-321, "Notification of Emergency Personnel"
4. PEP-323, "Setup and Operation of Emergency Facilities"
5. PEP-382, "Personnel Accountability"
6. PEP-402, "Maintaining Readiness of Emergency Facilities and Equipment"
7. PEP-405, "Preparation of Activity Logs"

2.3 OTHER REFERENCES

1. SP-016, "Emergency Plan Support"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

The Operational Support Center Leader reports to the Emergency Repair Director, or prior to activation of this position, the Site Emergency Coordinator.

3.2 ASSIGNMENT AND RELIEF OF POSITION

1. The primary person assigned to the position of Operational Support Center Leader during normal working hours is a Maintenance Supervisor.
2. If a Maintenance Supervisor is unavailable (or needs help), the position is filled by a Maintenance Project Specialist or a Maintenance Project Engineer.

3. The on-shift person who has the interim responsibility

3.0 RESPONSIBILITIES

3.2 ASSIGNMENT AND RELIEF OF POSITION (Cont'd)

is one of the maintenance personnel.

3.3 DUTIES

The Operational Support Center Leader, located in the Operations Support Center; is responsible for the following:

1. Provide personnel accountability for the Operational Support Center by maintaining personnel logs and informing appropriate Technical Support Center personnel of emergency team assignments.
2. Compose, equip, and/or dispatch emergency teams in response to requests via the Emergency Repair Director from the Radiological Control Director, Emergency Repair Director, or Plant Operations Director.
3. Dispatch additional personnel and/or equipment as requested by the Plant Monitoring Team Leader, Personnel Protection & Decontamination Team Leader and Damage Control Team Leaders.
4. Monitor communications between Plant Monitoring Teams, Personnel Protection and Decontamination Teams, and Damage Control Teams and the Technical Support Center.
5. Be formally relieved by as alternate trained for duty as Operational Support Center Leader.
6. Maintain a record of activities.

4.0 DEFINITIONS

1. Protected Area - The area within the security fence around Unit 1 buildings necessary for the operation of Unit 1.

2. Emergency Team - Plant Monitoring Team, Personnel Protection and Decontamination Team, Damage Control Team, Environmental Monitoring Team, First Aid Team, and Fire Brigade.

5.0 GENERAL

The Operational Support Center Leader is in charge of the Operational Support Center. The Operational Support Center is the assembly location for the Damage Control Team (s), Plant Monitoring Team (s), Personnel Protection and Decontamination Team, Environmental Monitoring Team (s), First Aid Team, and Search and Rescue Team (s). An Emergency Response Organization Personnel Roster will be available in the Operational Support Center. Selected teams, special equipment, and augmentation personnel are dispatched, as needed, at the request of emergency directors or team leaders. The Operational Support Center is

5.0 GENERAL (Cont'd)

normally located in the lunchroom of the Service Building, which is inside the Protected Area, and has reliable voice communications with the Control Room, Technical Support Center, and Emergency Operations Facility. If environmental conditions warrant it (such as radiation levels greater than 5mR/hr, airborne activity levels greater than 25% of maximum permissible concentration (MPC), excessive smoke or toxic fumes), the Operational Support Center leader may recommend to the Emergency Repair Director and/or the Site Emergency Coordinator may decide to move the location of the Operational Support Center.

6.0 INITIATING CONDITIONS

1. The Site Emergency Coordinator has activated the site emergency organization (per PEP-321) including the Operational Support Center Leader position (which is normally activated for Alert, Site Emergency, and General Emergency).

7.0 PRECAUTIONS/LIMITATIONS

1. As soon as possible, verify habitability of the Operational Support Center by having a radiation, airborne activity, and contamination survey of the Operational Support Center performed to check on its radiological conditions. If the emergency is a result of a toxic chemical release (such as chlorine), have a check performed to determine the concentration of toxic fumes in the Operational Support Center.

2. Initial accountability of personnel in the Operational Support Center must be performed and the Emergency Security Team Leader notified within 30 minutes after declaration of an Alert, Site Emergency, or General Emergency (as per PEP-382). Therefore, information on unaccounted for personnel should be given to the Emergency Security Team Leader (or member of the security organization present at Operational Support Center) within 20 minutes of the announcement or, if possible, sooner.

3. Perform continuous accountability by notifying Security whenever a team is dispatched or returns to the Operational Support Center.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Emergency response organization personnel rosters.
2. Personnel Accountability forms.
3. Telephone/Public Address system, and security/operations portable radios. (Use of this equipment is discussed in PEP-302 and PEP-303.)

8.0 SPECIAL TOOLS AND EQUIPMENT

4. Emergency lights.
5. Manning Board.
6. Camera
7. Megaphone
8. Portable Lanterns

9.0 PROCEDURE STEPS

9.1 INITIAL ACTIONS

9.1.1. Upon activation of the position by announcement over the Public Address system, the Operational Support Center Leader reports to the Operational Support Center, calls the Control Room (Emergency Communicator or Site Emergency Coordinator) and reports:

1. His name
2. Position he is assuming
3. Time of arrival (or estimated time of arrival if not at the Operational Support Center)

9.1.2. The Operational Support Center Leader then:

1. Obtains the stored equipment for the Operational Support Center Leader (from the storage room and the tool room next door),
2. Initiates the Operational Support Center log
3. Establishes radio communication with the Control Room and Technical Support Center (if activated)
4. Sets up the Operational Support Center per PEP-323

9.1.3. If the emergency is classified as an Unusual Event and emergency teams have not been activated, the Operational Support Center Leader reports to the Control Room that the Operational Support Center is activated and stands by for further instructions. Otherwise, go to Step 9.1.4.

NOTE: For an Unusual Event, this terminates use of this procedure until the teams are activated at which time continue with Step 9.1.4.

9.1.4. When the emergency teams are activated, the Operational Support Center Leader, a Member of the Security Organization or an assistant appointed by the Operational Support Center Leader checks off names on an Emergency Personnel Roster as personnel arrive.

9.1.5. When the personnel from the Personnel Protection & Decontamination Team arrive, the Operational Support Center Leader requests that a habitability survey be initiated for the Operational Support Center and the Operational Support Center Leader informed immediately of the results.

9.0 PROCEDURE STEPS

9.1 INITIAL ACTIONS (Cont'd)

9.1.6. The Operational Support Center Leader instructs the personnel to:

1. Assemble and/or check out emergency equipment
2. Review applicable emergency procedures
3. Report to the Operational Support Center Leader when their team is ready

9.1.7. When the Operational Support Center is activated (personnel and equipment are present and ready so that a minimum of one emergency team of each type (see 4.2) that has been activated can be dispatched), the Operational Support Center Leader notifies the Technical Support Center (normally the Emergency Repair Director) or, if the Technical Support Center is not yet activated, he notifies the Control Room (Emergency Communicator or Site Emergency Coordinator) of the time of activation.

9.1.8. As habitability results become available, the Operational Support Center Leader informs the Technical Support Center (Emergency Repair Director or Radiological Control Director) or the Control Room, if the Technical Support Center is not yet activated.

9.1.9. Within 20 minutes after declaration of the emergency, the Operational Support Center Leader notifies the Emergency Security Team Leader of the names of anybody considered to be missing and identifies the individuals of the emergency response organization who are present in the Operational Support Center.

9.2 RECURRING ACTIONS

9.2.1. After the initial activation and accountability efforts have been accomplished, the Operational Support Center Leader supervises the personnel in the Operational Support Center (except Damage Control Teams) and reports to the Emergency Repair Director. Some of the recurring items that he (or an assistant) may perform while doing this are:

1. Have habitability of Operational Support Center surveyed and evaluated (normally once per 8 hour shift or whenever there is an escalation in the severity of accident classification or when an airborne release occurs) to determine continued Operational Support Center habitability.
2. Supervise the composition, equipping, and dispatch of emergency teams (except Damage Control Teams) in response to requests from emergency directors.

9.0 PROCEDURE STEPS

9.2 RECURRING ACTIONS (Cont'd)

3. Dispatch additional personnel and/or equipment as requested by the Plant Monitoring Team Leader, Personnel Protection & Decontamination Team Leader, Damage Control Team Leader and Damage Control Team Coordinator.
4. Monitor communications between emergency teams and the Technical Support Center (both for accountability and to be forewarned as to what requests may be made for additional personnel or equipment).
5. Maintain accountability of all personnel who reported to the Operational Support Center.
6. Maintain an activity log in accordance with PEP-405.

9.2.2. The Operational Support Center Leader reports the status of the Operational Support Center to the Emergency Repair Director approximately every two hours (or as requested by the Emergency Repair Director). Significant events or changes in Operational Support Center habitability should be reported as they occur or as soon afterwards as possible.

9.2.3. When the Operational Support Center Leader turns over his position to a successor, he:
1. Reviews the events that have happened
2. Briefs the new Operational Support Center Leader on ongoing activities and what to expect
3. Signs out in the Operational Support Center log, noting name, date and time.

9.2.4. When the emergency is terminated, the Operational Support Center Leader collects all records generated by personnel in the Operational Support Center, and delivers them and his activity log to the Emergency Repair Director.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-215

TITLE: ASSEMBLY AREA LEADER

REVISION 0

APPROVED: C R Gibson (Signature) 8/21/84 (Date)

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement section 2.4.5.4, "Assembly Area Leaders" and section 4.6.2, "Evacuation and Personnel Accountability" of the SHNPP Emergency Plan.

The position of Assembly Area Leader is activated during an Alert, a Site Emergency or a General Emergency. This procedure describes the actions of the Assembly Area Leader.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.5.4, "Assembly Area Leaders"
2. Section 4.6.2, "Evacuation and Personnel Accountability"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-321, "Notification of Emergency Personnel"
2. PEP-381, "Evacuation"
3. PEP-382, "Personnel Accountability"

2.3 OTHER REFERENCES

1. SP-016, "Emergency Plan Support"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

The Assembly Area Leader reports to the Logistics Support Director or, prior to activation of this position, the Site Emergency Coordinator.

3.2. ASSIGNMENT AND RELIEF OF POSITION

3.2.1. During normal working hours, the Assembly Area Leaders are:

1. At the Construction Warehouse, the Project General Manager is the primary designee, and the Assistant Project General Manager/Senior Resident Engineer and the Manager - Construction Start-up are the alternates.
2. At the Units 3 & 4 Fuel Handling Building Lunchroom and Auditorium, a Start-up Supervisor is the Assembly Area Leader.

3.0 RESPONSIBILITIES

3.2 ASSIGNMENT AND RELIEF OF POSITION (Cont'd)

3.2.2. Outside of normal working hours, the on-shift Site Superintendent is the Assembly Area Leader.

3.3 DUTIES

The Assembly Area Leader(s), located in the designated assembly area(s), are responsible for the following actions when an Alert, Site Emergency, or General Emergency is declared:

1. Maintain a record of activities in the assembly area.

2. Coordinate the activities in the assembly area.

3. Request that supervisors account for all of their personnel and submit the names of unaccounted individuals and their suspected locations.

4. Instruct assembled personnel as to needed evacuation, evacuation routes, frisking-monitoring requirements, and accountability.

5. Provide a list of unaccounted individuals and their location to security within 20 minutes of the emergency declaration.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

The primary method of accounting for on-site personnel is by means of Assembly Area Leaders checking people against organization rosters. On back shifts, when few nonshift personnel may be present, all personnel may be instructed to assemble at the Security Building (or other single location), rather then in separate assembly areas, to facilitate accountability.

During an assembly, Assembly Area Leaders check with those personnel present to determine if personnel are missing, and provide this information to Security.

6.0 INITIATING CONDITIONS

1. The Site Emergency Coordinator has activated the site emergency organization (per PEP-321) including the Assembly Area Leader position.

2. An Alert, Site Emergency, or General Emergency has been declared.

7.0 PRECAUTIONS/LIMITATIONS

1. Initial accountability must be performed within 30 minutes of the declaration of an emergency. Therefore, information on unaccounted for personnel should be given to the Emergency Security Team Leader within 20 minutes or, if possible, sooner.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Emergency Organization rosters

2. Public Address system, telephone system, bullhorns, and security/operations portable radios.

9.0 PROCEDURE STEPS

1. Upon declaration of an Alert, Site Emergency, or General Emergency, report to your assigned Assembly Area and obtain a copy of the roster (which is maintained in the Assembly Area) which identifies which organizational groups report to that Assembly Area.

2. Announce to the assembling personnel that you are assuming the position of Assembly Area Leader, and give them direction to perform accountability as per PEP-382.

3. After performing accountability, report the names and possible locations of missing personnel, if any, to the Emergency Security Team Leader.

NOTE: This report should be made within 20 minutes of the declaration of an emergency.

4. If any personnel were missing from your assembly area, request a volunteer, preferably a co-worker who knows the missing individual, to serve on the Search and Rescue Team. Notify the Logistic Support Director of the name of the volunteer, and direct the volunteer to report to the First Aid Team Leader in the Operational Support Center.

5. Maintain order in the assembly area, enlisting the assistance of any managers, supervisors, and/or foremen that are present as necessary.

9.0 PROCEDURE STEPS

6. If directed to do so by the Logistics Support Director, restrict access to any foodstuffs in the assembly areas by appointing individuals to disable vending machines and/or guard refrigerators.

7. If an evacuation is ordered, relay instructions to the assembled personnel on what routes to follow and, if applicable, where monitoring and decontamination areas will be set up. Refer to Attachment 1 for routes to the CP&L Cape Fear plant and Cary District office if reassembly at remote areas has been directed. Direct the managers, supervisors and foremen to maintain control of the evacuating personnel. When all personnel have left your assembly area, report this fact to the Logistics Support Director, then evacuate yourself.

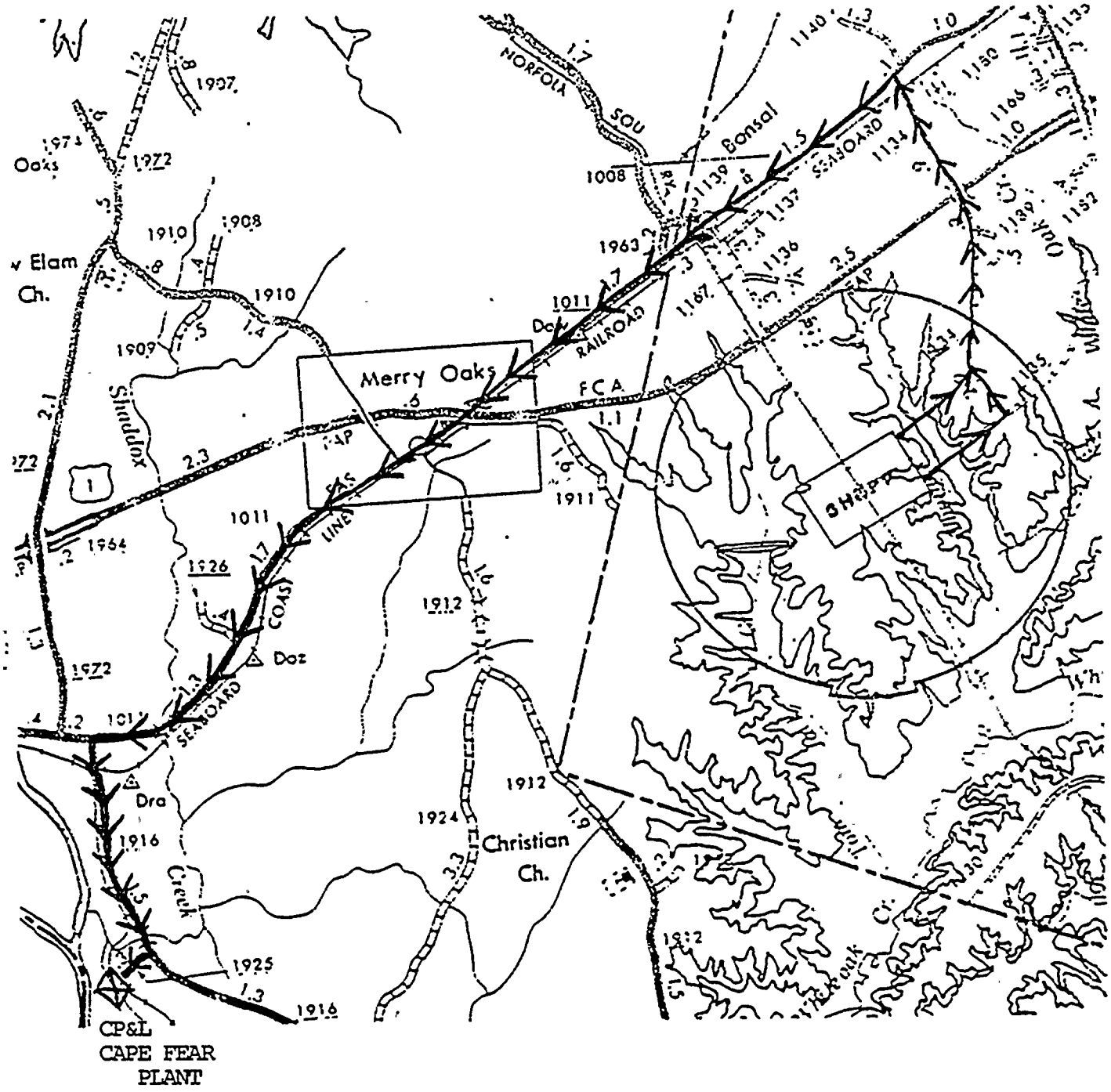
8. If reassembly at a remote area for radiological monitoring was directed subsequent to an evacuation, proceed to the remote area and assist in maintaining order and directing the flow of traffic and or personnel.

9. When the emergency is terminated, deliver the completed personnel accountability checklists to the Senior Specialist-Emergency Preparedness.

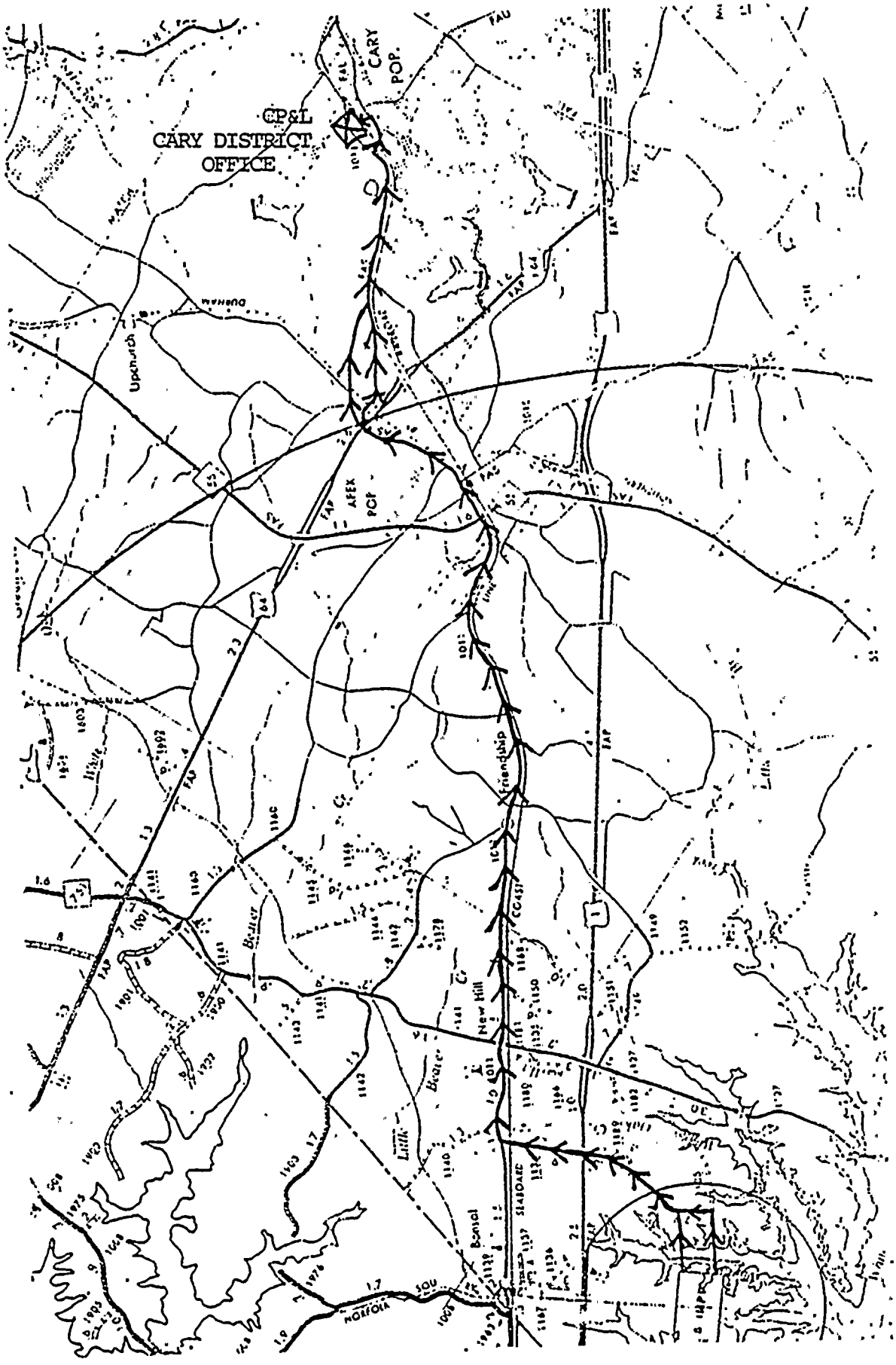
10.0 DIAGRAMS/ATTACHMENTS

1. Map of Evacuation Routes to Remote Assembly Areas

MAPS OF EVACUATION ROUTES TO REMOTE ASSEMBLY AREAS



MAPS OF EVACUATION ROUTES TO REMOTE ASSEMBLY AREAS



CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-216

TITLE: DOSE PROJECTION TEAM LEADER

REVISION 0

APPROVED: C R Gibson 8/21/84
Signature Date

TITLE: Asst To General Manager

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1.0 PURPOSE

This procedure implements section 2.4.6.1 "Dose Projection Team Leader" and section 4.4.3 "Dose Projection" of the SHNPP Emergency Plan. It specifies actions to be performed by the Dose Projection Team Leader.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.6.1, "Dose Projection Team Leader"
2. Section 4.4.3, "Dose Projection"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-302, "Communications Activities"
2. PEP-303, "Use of Communications Equipment"
3. PEP-321, "Notification of Emergency Personnel"
4. PEP-341, "Manual Dose Calculations"
5. PEP-342, "Automation of Dose Projection Procedures--ERFIS"
6. PEP-343, "Automation of Dose Projection Procedures--IBM PC"
7. PEP-405, "Preparation of Activity Logs"

2.3 OTHER REFERENCES

1. Plant Special Order, "Emergency Phone List"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

The Dose Projection Team Leader reports to the Radiological Control Director in the Technical Support Center. He directs the activities of the Dose Projection Team.

3.2 ASSIGNMENT AND RELIEF OF POSITION

An available on-shift Control Operator designated by the Site Emergency Coordinator initially assumes the responsibilities of Dose Projection Team Leader. He will be relieved by a Project Specialist -Radiation Control, Specialist-Radiation Control, or Specialist-ALARA when one reports to the Technical Support Center.

3.3 DUTIES

The Dose Projection Team Leader is responsible for:

1. Initiating and maintaining a record of Dose Projection Team activities.

2. Assigning personnel to perform source term and off-site dose projection calculations.

3.0 RESPONSIBILITIES

3.3 DUTIES (Cont'd)

3. Contacting the Corporate Meteorology Center or National Weather Service to obtain meteorological forecasts.

4. Monitoring source term and meteorology data used by the Emergency Response Facility Information System for reasonableness and identifying any suspect parameters to the Radiological Control Director.

5. Ensuring the orderly transfer of the off-site dose projection function to the Emergency Operations Facility upon its activation.

6. Performing radiological evaluations of available protective actions for personnel without emergency assignments in the on-site assembly areas.

7. Being formally relieved by an alternate trained for duty as a Dose Projection Team Leader.

8. Maintaining a record of activities.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

None Applicable

6.0 INITIATING CONDITIONS

1. The Shift Foreman has implemented PEP-101 and requires off-site dose projections to classify the emergency, or

2. The Shift Foreman has declared an Alert, Site Emergency, or General.

7.0 PRECAUTIONS AND LIMITATIONS

1. All of the available methods for performing off-site dose projections provide for use of worst case default values for the radioiodine source term. Use of these default values will probably result in gross overestimation of the thyroid dose commitment, which could result in recommending protective actions for the public that would later prove to be unnecessary.

2. Consistent with providing timely information to the Shift Foreman or Site Emergency Coordinator, dose projections should be based on isotopic analysis of a grab sample.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

1. If relieving another individual, review the activity log and obtain a briefing on the emergency and any previously performed dose projections.

2. Conduct all communications in accordance with PEP-302 and PEP-303.

3. Report arrival in the Technical Support Center to the Emergency Communicator-Technical Support Center (Emergency Communicator-Control Room if the Emergency Communicator -Technical Support Center position is not yet manned), and inform the Radiological Control Director (Site Emergency Coordinator if the Radiological Control Director position is not yet manned) of the assumption of (or relieving, if appropriate) responsibilities of the Dose Projection Team Leader.

4. Initiate and/or maintain a record of activities in accordance with PEP-405.

5. Assign Dose Projection Team members to perform off-site dose projections in accordance with PEP-342, "Automation of Dose Projection - ERFIS", PEP-343, "Automation of Dose Projection - IBM PC", or PEP-341, "Manual Dose Calculations" as requested by the Radiological Control Director.

6. Obtain meteorological data from the corporate meteorology center or National Weather Service if the plant meteorological system is inoperative. Consult the Plant Special Order, "Emergency Phone List", for phone numbers.

7. Periodically monitor the raw data being used by the Emergency Response Facility Information System to calculate projected doses. If any parameters are suspect, enter substitute values and inform the Radiological Control Director.

8. Assist the Radiological Control Director in deciding what protective actions to recommend for on-site personnel by assigning Dose Projection Team personnel to calculate projected doses in shelters, emergency facilities, and plant areas, both with and without each combination of available protective actions.

9. Assign Dose Projection Team personnel to plot the plume on the map board in the Technical Support Center.

9.0 PROCEDURE STEPS

10. When the Dose Assessment Team Leader in the Emergency Operations Facility reports that he is ready, brief him on the most current off-site dose projection status and the status of plant instrumentation that provides data used for dose projections. Inform the Radiological Control Director that the Emergency Operations Facility has assumed responsibility for off-site dose projections.

11. Continue to direct the Dose Projection Team in projecting off-site doses and compare these results with projections performed by the Dose Assessment Team. Keep the Radiological Control Director informed of the results of these projections and comparisons.

12. Continue to project dose rates and exposures in on-site shelters, emergency facilities, and plant areas, and keep the Radiological Control Director and Personnel Protection and Decontamination Team Leader informed of the results.

13. When the emergency is terminated, collect all records generated by the Dose Projection Team including activity log and deliver them to the Radiological Control Director.

14. When directed to do so, notify the alternate for your position specified by the radiological Control Director to arrange for relief at the end of the present shift in accordance with Section 9.2 of PEP-321. Notification messages shall be given only to the specified individual, and not to their spouse, children, babysitter, etc. If the specified alternate cannot be contacted, notify the Logistics Support Director.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE

NUMBER: PEP-217

PROCEDURE TITLE: EMERGENCY COMMUNICATOR

REVISION 0

APPROVED BY: C R Gibson
Signature

8/21/84
Date

Asst to General Manager
Title

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1.0 PURPOSE

The purpose of this procedure is to implement Section 2.4.7, "Emergency Communicator" and Section 4.2 "Notification" of the SHNPP Emergency Plan.

This procedure describes the actions of the Emergency Communicator and his staff during an Unusual Event, Alert, Site Emergency or General Emergency.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.7, "Emergency Communicator"
2. Section 4.2, "Notification"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-102, "Site Emergency Coordinator - Control Room"
2. PEP-103, "Site Emergency Coordinator - Technical Support Center"
3. PEP-301, "Notification and Communications"
4. PEP-302, "Communication Activities"
5. PEP-303, "Use of Communications Equipment"
6. PEP-321, "Notification of Emergency Personnel"
7. PEP-322, "Mobilization of Outside Organizations"
8. PEP-323, "Setup and Operation of Emergency Facilities"
9. PEP-403, "Performance of Training"
10. PEP-405, "Preparation of Activity Logs"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

3.1.1 Emergency Communicator - Control Room

The Emergency Communicator in the Control Room reports to the Site Emergency Coordinator in the Control Room. When the Technical Support Center is activated, the Emergency Communicator - Control Room still reports to the same individual who has now reverted to Operations Leader.

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES (Cont'd)

3.1.2 Emergency Communication Staff in the Technical Support Center

The Emergency Communicator in the Technical Support Center reports to the Site Emergency Coordinator in the Technical Support Center. The phone talkers, plotter, and Emergency Response Facility Information System console operators in the Technical Support Center report to the Emergency Communicator - Technical Support Center.

3.1.3 Emergency Communicator Staff in the Emergency Operations Facility

The Emergency Communicator in the Emergency Operations Facility reports to the Emergency Response Manager in the Emergency Operations Facility. The phone talkers, plotter and Emergency Response Facility Information System console operator in the Emergency Operations Facility report to the Emergency Communicator - Emergency Operations Facility.

3.2 ASSIGNMENT AND RELIEF OF POSITION

3.2.1 Emergency Communicator - Control Room

The on shift person who is assigned to this position by the Site Emergency Coordinator - Control Room is normally an available auxiliary operator, but it could be any person trained according to PEP-403 who is immediately available to perform this position.

3.2.2 Emergency Communications Staff in the Technical Support Center

3.2.2.1. The primary person assigned to the position of Emergency Communicator is the Director - Regulatory Compliance

3.2.2.2. If the Director - Regulatory Compliance is unavailable,the position is filled by one of the designated alternates who are:

1. Regulatory Compliance - Senior Specialist
2. Regulatory Compliance - Specialist

3.2.2.3. The positions of Phone Talker - Operations is filled by an available member of the operations staff designated by the Plant Operations Director.

3.0 RESPONSIBILITIES

3.2 ASSIGNMENT AND RELIEF OF POSITION (Cont'd)

3.2.2 Emergency Communications Staff in the Technical Support Center (Cont'd)

3.2.2.4. The positions of Phone Talker Off-Site, Status Board Plotter, Emergency Response Facility Information System Console Operator, and Logkeepers are filled by predesignated personnel who have been trained in accordance with PEP-403.

3.2.3 Emergency Communications Staff in the Emergency Operations Facility

3.2.3.1. The primary person assigned to the position of Emergency Communicator - Emergency Operations Facility is the Director - Nuclear Safety Review.

3.2.3.2. If the primary person assigned to the position is unavailable, the position is filled by one of the designated alternates who are:

1. Manager - Planning and Scheduling
2. Principal Mechanical Engineer

3.2.3.3. The positions of Phone Talker Off-Site, Status Board Plotter, Emergency Response Facility Information System Console Operator, and Logkeepers are filled by predesignated personnel who have been trained in accordance with PEP-403.

3.3 DUTIES

3.3.1 Emergency Communicator - Control Room

The Emergency Communicator in the Control Room acts as the liaison between the on-site emergency response organization and off-site emergency personnel and agencies. He is responsible for performing the initial notifications of local and state authorities and the Nuclear Regulatory Commission. He also requests assistance from local emergency response organizations and may call on emergency personnel if the emergency occurs during off hours. When the Technical Support Center is activated and the Emergency Communicator - Technical Support Center is briefed, the functions of the Emergency Communicator - Control Room changes to providing communications (up-to-date data and event logs) to the Phone Talker - Operations in the Technical Support Center.

3.0 RESPONSIBILITIES

3.3 DUTIES (Cont'd)

3.3.2 Emergency Communication Staff in the Technical Support Center and the Emergency Operations Facility

1. The Emergency Communicator - Technical Support Center supervises the communications staff in the Technical Support Center, and acts as liason for the Site Emergency Coordinator between the Technical Support Center and the Control Room and the off-site authorities (county, state and Nuclear Regulatory Commission). When the Emergency Operations Facility is activated, the Emergency Communicator - Emergency Operations Facility has the responsibility for communicating with the off-site authorities and acts as liaison for the Emergency Response Manager between the Technical Support Center, off-site agencies, and the Corporate Emergency Operating Center.

2. The Status Board Plotters keep current plant status information posted on status boards.

3. The Phone Talker - Operations records plant status information received from the Emergency Communicator - Control Room and gives this information to the Status Board Plotter for posting. He also obtains answers from the Emergency Communicator - Control Room to questions he has asked for the emergency directors.

4. The Phone Talkers - Off-Site perform notifications for the Site Emergency Coordinator (or Emergency Response Manager when the Emergency Operations Facility is activated) to off-site authorities and the Nuclear Regulatory Commission. The Phone Talkers - Off-Site also record requests by off-site authorities and the Nuclear Regulatory Commission for information (which are given to the Emergency Communicator) and relay the responses (from the facility staff) to the originator.

5. Emergency Communicators are formally relieved by alternates trained for duty as Emergency Communicators.

6. Emergency Communicators maintain a record of activities.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

5.1. Control Room

Initially an on-shift individual is appointed by the Site Emergency Coordinator - Control Room (Shift Foreman) as the Emergency Communicator in the Control Room. He communicates with the off site authorities (county, state, and Nuclear Regulatory Commission) to perform initial notifications of the emergency, with the plant emergency response organization (during off-hours) to call them in, and with local immediate response organizations (fire, rescue, hospital, etc.) if their assistance is needed. Once the Technical Support Center is activated, the Emergency Communicator - Control Room no longer communicates with off-site authorities (as liaison for the Site Emergency Coordinator) since the function of Site Emergency Coordinator switches to the Technical Support Center at this time. The main function of the Emergency Communicator - Control Room at this time is to maintain verbal communications with the Phone Talker - Operations located in the Technical Support Center. The Emergency Communicator - Control Room assures plant data flow to the Technical Support Center either through computer systems or, as a back-up, by telephone.

5.2. Technical Support Center

After activation of the Technical Support Center and a briefing by the Emergency Communicator - Control Room, the Emergency Communicator in the Technical Support Center assumes responsibility for communication with off-site authorities as the liaison for the Site Emergency Coordinator - Technical Support Center. The Emergency Communicator - Technical Support Center supervises a communications staff composed of:

1. One Phone Talker - Operations
2. One Status Board Plotter
3. Two or more Phone Talkers - Off-Site
4. One Emergency Response Facility Information System Console Operator

The Status Board Plotter in the Technical Support Center receives System Parameter and Data Status sheets filled out by the Phone Talker - Operations (who is in communications with the Control Room) or information from the Emergency Response Facility Information System Console Operator. As he posts this information on the Status Boards, he relays the information via a Telephone headset to the Emergency Operations Facility and Corporate Emergency Operations Center plotters (if these facilities are activated) so that all three sets of status boards are current.

5.0 GENERAL

5.2. Technical Support Center (Cont'd)

The two Phone Talkers - Off-Site who have Automatic Ringdown phones to the Nuclear Regulatory Commission, State and counties, perform follow up notifications to the off-site authorities using prepared and approved messages. This function terminates shortly after the activation of the Emergency Operations Facility, and the briefing of the Phone Talkers and the Emergency Communicator in the Emergency Operations Facility.

5.3. Emergency Operations Facility

After activation of the Emergency Operations Facility and a briefing by the Emergency Communicator - Technical Support Center, the Emergency Communicator in the Emergency Operations Facility assumes responsibility for communication with off-site authorities as liaison for the Emergency Response Manager. The Emergency Communicator - Emergency Operations Facility supervises a communications staff composed of:

1. One Status Board Plotter
2. Two (or more) Phone Talkers - Off-Site
3. One (or more) Emergency Response Facility Information System Console Operator

The Status Board Plotter in the Emergency Operations Facility receives Emergency Response Facility Information System information via the console operator and/or System Parameter and Data Status Sheet information via his headphones from the Status Board Plotter in the Technical Support Center. He posts this information on the status board.

The two Phone Talkers - Off-Site, who have Automatic Ringdown phones to the Nuclear Regulatory Commission, State and counties, perform follow up notifications to the off-site authorities using prepared messages approved by the Emergency Response Manager.

6.0 INITIATING CONDITIONS

1. The Site Emergency Coordinator declares an emergency and appoints an Emergency Communicator as per PEP-102.

7.0 PRECAUTIONS AND LIMITATIONS

1. From the time the emergency was declared the Emergency Communicator must notify the five off-site agencies (county and State warning points) within 15 minutes and the Nuclear Regulatory Commission within one hour.

7.0 PRECAUTIONS AND LIMITATIONS

2. Whenever the emergency classification is changed, the Emergency Communicator must notify the off-site agencies and the Nuclear Regulatory Commission within 15 minutes.

8.0 SPECIAL TOOLS AND EQUIPMENT

8.1 CONTROL ROOM

8.1.1. Automatic Ringdown phones for:

1. Nuclear Regulatory Commission Emergency Notification System
2. Nuclear Regulatory Commission Health Physics Network
3. County and State warning points
4. Technical Support Center (to the Plant Operations Director)

8.1.2. Three 10 button phones on control boards

8.1.3. Two 20 button desk phones in control room area

8.1.4. One 20 button desk phone in Shift Foreman's office

8.1.5. One radio remote for environmental monitoring radios

8.1.6. One radio master console for site radio systems

8.1.7. Sound powered communications system

8.2 AUXILIARY CONTROL ROOM (WHEN USED)

8.2.1 Automatic Ringdown phones for:

1. Nuclear Regulatory Commission Emergency Notification System
2. County and State Warning Points
3. Technical Support Center to the Plant Operations Director

8.2.2 Two multibutton wall phones

8.3 TECHNICAL SUPPORT CENTER

8.3.1. Automatic Ringdown phones for:

1. Nuclear Regulatory Commission Emergency Notification System
2. Nuclear Regulatory Commission Health Physics network
3. County and State warning points
4. Control Room to the Plant Opertions Leader
5. Emergency Operations Facility to the Emergency

8.0 SPECIAL TOOLS AND EQUIPMENT

8.3 TECHNICAL SUPPORT CENTER (Cont'd)

Communicator
6. Site Emergency Coordinator to Emergency Response Manager

8.3.2 Three 10 button desk phones for phone talkers

8.3.3 One 20 button desk phone for Emergency Communicator

NOTE: Radio systems are available elsewhere in the Technical Support Center.

8.4 EMERGENCY OPERATIONS FACILITY

8.4.1 Automatic Ringdown phones for:

1. Nuclear Regulatory Commission Emergency Notification System
2. Nuclear Regulatory Commission Health Physics Network
3. County and State warning points
4. Technical Support Center Emergency Communicator
5. Plant Media Center(Emergency Response Manager to Site Public Information Coordinator)
6. Emergency Response Manager to Site Emergency Coordinator
7. Emergency Response Manager to State Emergency Response Team

8.4.2 Three 10 button desk phones for phone talkers

8.4.3 One 20 button desk phone for Emergency Communicator

NOTE: Radio systems are available elsewhere in the Emergency Operations Facility.

9.0 PROCEDURE STEPS

9.1 GENERAL

1. Initiate an Emergency Communicators Log. Maintain this log per PEP-405 until the emergency is terminated or you are relieved.

2. Report your readiness to the Site Emergency Coordinator (or Emergency Response Manager if located in the Emergency Operations Facility).

3. Maintain copies of all forms used, and messages received and sent.

9.0 PROCEDURE STEPS

9.1 GENERAL

4. Ensure proper use of communications equipment per PEP-303.

5. When relinquishing the role of Emergency Communicator brief your successor on the status of the emergency and communication activities. When directed to do so, notify the alternate for your position specified by the Site Emergency Coordinator (Technical Support Center) or Emergency Response Manager (Emergency Operating Facility) to arrange for relief at the end of the present shift in accordance with Section 9.2 of PEP-321. Notification messages shall be given only to the specified individual, and not to their spouse, children, babysitter, etc. If the specified alternate cannot be contacted, inform the Logistics Support Director.

9.2 EMERGENCY COMMUNICATOR - CONTROL ROOM

The following steps may be performed out of order if necessary. Selected steps may be omitted if previously performed or if not pertinent, or performed by an assistant at the discretion of the Site Emergency Coordinator or Emergency Communicator.

1. Notify the necessary members of the On-Site Emergency Response Organization designated by the Site Emergency Coordinator according to PEP-321. (Normally, Attachment 1 to PEP-321 is filled out and approved by the Site Emergency Coordinator).

2. Contact any immediate response organizations requested by the Site Emergency Coordinator as per PEP-301. (Normally, Attachment 1 to PEP-301 is filled out by the Emergency Communicator at the the direction of the Site Emergency Coordinator, and approved by the Site Emergency Coordinator.)

3. Obtain an approved copy of Part I of the North Carolina Emergency Notification Form (Attachment 2 to PEP-301) from the Site Emergency Coordinator and contact the five primary off-site emergency response agencies warning points as per PEP-301.

NOTE: This contact must be initiated within 15 minutes of the declaration of the emergency.

4. Notify Nuclear Regulatory Commission headquarters (Headquarters Operations Office) as per PEP-301.

9.0 PROCEDURE STEPS

9.2 EMERGENCY COMMUNICATOR - CONTROL ROOM (Cont'd)

NOTE: Contact of the Nuclear Regulatory Commission Headquarters must be initiated within 1 hour of the declaration of the emergency.

5. Obtain an approved copy of Part II of the North Carolina Emergency Notification Form (Attachment 2 to PEP 301) from the Site Emergency Coordinator. After the Emergency Operating Center for the counties and State are manned, transmit the information in Part II to the Emergency Operating Centers.

6. Obtain an approved copy of Part II of the Nuclear Regulatory Commission Incident Notification Form (Attachment 3 to PEP-301) from the Site Emergency Coordinator and notify the Nuclear Regulatory Commission Headquarters Operations Offices as per PEP-301.

7. Record on a message form (see PEP-302) any detailed questions or questions that cannot be answered immediately. Obtain the answer from the appropriate person and notify the questioner of the response as time permits.

8. If the Emergency Communicator-Technical Support Center comes to the Control Room, brief him as to the present status of the emergency and message traffic. When he arrives at the Technical Support Center, brief him on any pertinent events that have occurred while he was in transit, or, if he did not come to the Control Room for a face-to-face briefing, give him a full briefing, after which the Emergency Communicator - Technical Support Center will assume responsibility for off-site communication.

9. After activation of the Technical Support Center, the Emergency Communicator - Control Room establishes communication with the Phone Talker - Operations in the Technical Support Center.

10. If the Emergency Response Facility Information System is not operational, the Emergency Communicator - Control Room transmits information to the Phone Talker - Operations in the Technical Support Center on a regular basis (using System Parameter and Data Status sheets) and on as needed basis in response to questions (using message forms if needed).

9.0 PROCEDURE STEPS

9.2 EMERGENCY COMMUNICATOR - CONTROL ROOM (Cont'd)

11. The Emergency Communicator - Control Room briefs the person assuming his position when he is relieved and logs out in the Emergency Communicator - Control Room Logbook.

9.3 EMERGENCY COMMUNICATION STAFF IN THE TECHNICAL SUPPORT CENTER

9.3.1 The Emergency Communicator - Technical Support Center, may go to the Control Room and obtain a briefing from the Emergency Communicator - Control Room, or may go directly to the Technical Support Center and be briefed by telephone.

9.3.2 The Emergency Communicator - Technical Support Center verifies that his staff is present:

1. One Phone Talker - Operations
2. One Status Board Plotter
3. Two (or more) Phone Talkers - Off-Site
4. One (or more) Emergency Response Facility Information System Console Operators
5. Two Logkeepers (one each for Site Emergency Coordinator and Radiological Control Director)

9.3.3 The Emergency Communicator - Technical Support Center accounts for all personnel in the Technical Support Center and provides a list of missing persons to the Emergency Security Team Leader within 25 minutes of the declaration of an Alert, Site Emergency, or General Emergency.

9.3.4 The Emergency Communicator - Technical Support Center has his staff set up their equipment and areas and perform a communications check to verify they are ready. He then calls the Emergency Communicator - Control Room to be briefed on events that have occurred since his face-to-face briefing,if one occured, or obtains a complete briefing.

9.3.5 The Emergency Communicator - Technical Support Center briefs the remainder of his staff as necessary and notifies the Site Emergency Coordinator - Technical Support Center that he is ready to take over communications.

9.3.6 The Emergency Communicator - Technical Support Center instructs the Phone Talker - Operations to notify the Emergency Communicator - Control Room that the Technical Support Center is taking over communications with off-site authorities.

9.0 PROCEDURE STEPS

9.3 EMERGENCY COMMUNICATION STAFF IN THE TECHNICAL SUPPORT CENTER (Cont'd)

9.3.7 The Emergency Communicator - Technical Support Center obtains approved messages from the Site Emergency Coordinator and provides them to the Phone Talkers - Off-site for transmittal.

9.3.8 Questions received by the Phone Talkers - Off-Site are recorded on message forms (PEP-302) which the Emergency Communicator - Technical Support Center picks up and delivers to the appropriate person for response.

9.3.9 The Emergency Communicator - Technical Support Center obtains the message response, has it approved by the Site Emergency Coordinator - Technical Support Center and gives it to the Phone Talker - Off-Site for transmittal to the originator.

9.3.10 When information from the Control Room is requested by a director, the Emergency Communicator - Technical Support Center gives the request (verbally or in writing) to the Phone Talker - Operations and instructs him to request the information from the Emergency Communicator - Control Room. When the response is obtained by the Phone Talker - Operations, the Emergency Communicator - Technical Support Center gives the information to the director.

9.3.11 The Emergency Communicator - Technical Support Center also assures that information from the Emergency Response Facility Information System Console Operator is provided to the Status Board Plotter.

9.3.12 The Emergency Communicator - Technical Support Center arranges for relief of his personnel as needed.

9.3.13 If the Emergency Communicator - Emergency Operations Facility arrives at the Technical Support Center, the Emergency Communicator - Technical Support Center briefs the Emergency Communicator - Emergency Operations Facility as to the present status of the emergency and message traffic.

NOTE: When the Site Emergency Coordinator - Technical Support Center announces that the Emergency Operations Facility is activated, the Emergency Communicator - Emergency Operations Facility assumes responsibility for off-site communication.

9.0 PROCEDURE STEPS

9.3 EMERGENCY COMMUNICATION STAFF IN THE TECHNICAL SUPPORT CENTER (Cont'd)

9.3.14 The Emergency Communicator - Technical Support Center briefs the person assuming his position when he is relieved and logs out in the Emergency Communicator - Technical Support Center Logbook.

9.4 EMERGENCY COMMUNICATION STAFF IN THE EMERGENCY OPERATIONS FACILITY

9.4.1. The Emergency Communicator - Emergency Operations Facility may report to the Technical Support Center to obtain a face-to-face briefing from the Emergency Communicator - Technical Support Center. He then goes to the Emergency Operations Facility.

9.4.2. The Emergency Communicator - Emergency Operations Facility verifies that his staff is present:

1. One Status Board Plotter
2. Two (or more) Phone Talkers - Off-Site
3. One (or more) Emergency Response Facility Information System Console Operators
4. Three Logkeepers (one for Emergency Response Manager, Technical Analysis Manager, Radiological Control Manager)

9.4.3. The Emergency Communicator - Emergency Operations Facility has his staff set up their equipment and areas and perform a communications check to verify they are ready.

9.4.4. The Emergency Communicator - Emergency Operations Facility instructs the Status Board Plotter to obtain the most current information from the Status Board Plotter - Technical Support Center and post it on the Status Board.

9.4.5. The Emergency Communicator - Emergency Operations Facility, with the Phone Talkers - Off-Site on extensions, calls the Emergency Communicator - Technical Support Center and receives an update on events that have occurred since the face-to-face briefing, if one occured, or obtains a complete briefing.

9.4.6. The Emergency Communicator - Emergency Operations Facility briefs the remainder of his staff.

9.0 PROCEDURE STEPS

9.4 EMERGENCY COMMUNICATION STAFF IN THE EMERGENCY OPERATIONS FACILITY (Cont'd)

9.4.7. After the briefing and posting has been completed, the Emergency Communicator - Emergency Operations Facility notifies the Emergency Response Manager that he is ready to take over off-site Communications.

9.4.8. When the Emergency Response Manager announces the Emergency Operations Facility is activated, the Emergency Communicator - Emergency Operations Facility instructs the Status Board Plotter to notify the Emergency Communicator - Technical Support Center that the Emergency Operations Facility is activated and that the Emergency Operations Facility is taking over communications with the off-site authorities.

9.4.9. The Emergency Communicator - Emergency Operations Facility obtains approved messages from the Emergency Response Manager and provides them to the Phone Talkers - Off-Site for transmittal.

9.4.10. Questions received by the Phone Talkers - Off-Site are recorded on message forms (PEP-302) which the Emergency Communicator - Emergency Operations Facility picks up and delivers to the appropriate person for response.

9.4.11. The Emergency Communicator - Emergency Operations Facility obtains the message response, has it approved by the Emergency Response Manager and gives it to the Phone Talker - Off-Site for transmittal.

9.4.12. When information from the Control Room or Technical Support Center is requested by a Manager, the Emergency Communicator - Emergency Operations Facility gives the request (verbally or in writing) to the Status Board Plotter or one of the Phone Talkers and instructs him to request the information from the Emergency Communicator - Technical Support Center. When the response is obtained, the Emergency Communicator - Emergency Operations Facility gives the information to the Manager.

9.4.13. The Emergency Communicator - Emergency Operations Facility also obtains information from the Emergency Response Facility Information System Console Operator and provides it to the Status Board Plotter.

9.0 PROCEDURE STEPS

9.4 EMERGENCY COMMUNICATION STAFF IN THE EMERGENCY OPERATIONS FACILITY (Cont'd)

9.4.14. The Emergency Communicator - Emergency Operations Facility arranges for relief of his personnel as needed.

9.4.15. The Emergency Communicator - Emergency Operations Facility briefs the person assuming his position when he is relieved and logs out in the Emergency Communicator - Emergency Operations Facility Logbook.

9.5 EMERGENCY RESPONSE FACILITY INFORMATION SYSTEM CONSOLE OPERATORS

1. Emergency Response Facility Information System Console Operators operate the console to provide information requested by the Site Emergency Coordinator or Emergency Response Manager (depending on the facility.)

2. The console screen is displayed also on the overhead display monitor.

9.6 LOGKEEPERS

1. Logkeepers respond to directions from the individual (director or manager) for whom they are keeping the log (Site Emergency Coordinator, Radiological Control Director, Emergency Response Manager, Radiological Control Manager or Technical Analysis Manager).

2. They record important items or events in the logbook as per PEP-405.

3. They assist the director or manager in preparation of messages and/or response to questions.

10.0 DIAGRAMS/ATTACHMENTS

None applicable

APRO11

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-218

TITLE: ACCIDENT ASSESSMENT TEAM LEADER

REVISION 0

APPROVED: C. R. Gibson (Signature) 8/19/84 (Date)

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 2.4.3.1, "Accident Assessment Team Leader," of the SHNPP Emergency Plan. It specifies actions to be taken by the Accident Assessment Team Leader.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.3.1, "Accident Assessment Team Leader"
2. Section 4.4.1, "Evaluation of Plant Conditions"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-101, "Emergency Classification"
2. PEP-302, "Communications Activities"
3. PEP-303, "Use of Communications Equipment"
4. PEP-321, "Notification of Emergency Personnel"
5. PEP-362, "Interpretation of Liquid and Gas Samples"
6. PEP-405, "Preparation of Activity Logs"

2.3 OTHER REFERENCED PLANT PROCEDURES

1. AP-005, "Procedure Format and Preparation"
2. AP-007, "Temporary Procedure Revision Review and Approval"

3.0 RESPONSIBILITIES

3.1 REPORTING RESPONSIBILITIES

1. The Accident Assessment Team Leader reports to the Plant Operations Director in the Technical Support Center.
2. Accident Assessment Team personnel report to the Accident Assessment Team Leader.

3.2 ASSIGNMENT AND RELIEF OF POSITION

1. The on-shift Shift Technical Advisor reports to the Control Room and assumes the responsibilities of Accident Assessment Team Leader.
2. When the Technical Support Center is activated, a Principal Engineer--Operations, Project Engineer--NSSS, or Project Engineer--Performance will relieve the Shift Technical Advisor as Accident Assessment Team Leader. The Shift Technical Advisor will remain in the Control Room and assist the Operations Leader in evaluating indications on the control boards.

3.0 RESPONSIBILITIES

3.3 DUTIES

The Accident Assessment Team Leader is responsible for:

1. Initiating and maintaining a record of Accident Assessment Team activities.
2. Monitoring and evaluating plant parameters during an emergency to determine the overall condition of plant systems, the core, and fission product barriers.
3. Monitoring emergency conditions for changes in Emergency Action Levels, and making recommendations to the Plant Operations Director when such conditions indicate that the emergency classification should be changed.
4. Developing special operating procedures if needed to reduce the consequences of an emergency condition.
5. Supervising the Accident Assessment Team.
6. Be formally relieved by an alternate trained for duty as an Accident Assessment Team Leader.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

In some instances, the Emergency Action Levels used for classifying emergencies cannot be directly related to a specific reading on a specific instrument. In other cases, the specified instrumentation may be inoperable or obviously malfunctioning. The Accident Assessment Team will assist in evaluating plant conditions to ensure that sufficient information is available for the Site Emergency Coordinator to properly classify the accident.

6.0 INITIATING CONDITIONS

An emergency has been declared by the Site Emergency Coordinator, and the Accident Assessment Team has been activated.

7.0 PRECAUTIONS/LIMITATIONS

1. Ensure that Accident Assessment Team personnel do not leave the Technical Support Center without first consulting the Personnel Protection and Decontamination Team Leader to determine protection requirements.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

1. If you are relieving another individual, obtain a briefing on the emergency and actions that have been completed or are in progress.
2. Conduct all communications activities in accordance with PEP-302 and PEP-303.
3. Report arrival in the Technical Support Center to the Emergency Communicator-Technical Support Center (Emergency Communicator-Control Room if the Emergency Communicator-Technical Support Center is not yet manned), and inform the Plant Operations Director that you are assuming (or relieving, if appropriate) the position of Accident Assessment Team Leader.
4. Initiate and maintain a record of your activities and the activities of the Accident Assessment Team in accordance with PEP-405.
5. Direct Accident Assessment Team personnel to continuously monitor plant parameters and system status indicators, and to evaluate those parameters and indicators against Emergency Action Level criteria in accordance with PEP-101. Keep the Plant Operations Director informed of significant changes in plant status and recommend changes in the emergency classification when so indicated.
6. When sample analysis data is available from the Plant Monitoring Team, direct Accident Assessment Team personnel to estimate core damage in accordance with PEP-362.
7. When requested by the Plant Operations Director, direct Accident Assessment Team personnel to develop or revise procedures as necessary to mitigate plant damage in accordance with AP-005 and/or AP-007.
8. When requested by the Plant Operations Director,direct Accident Assessment Team personnel to perform calculations to aid in predicting the continued safety of the plant or to estimate the point at which degradation in safety might occur.
9. When directed to do so, notify the alternate for your position specified by the Plant Operations Director to arrange for relief at the end of the present shift in accordance with Section 9.2 of PEP-321. Notification messages shall be given only to the specified individual, and not to their spouse, children, babysitter,etc.
10. If assistance is needed from the Nuclear Steam Supply System supplier, Architect/Engineer, or other contractors, inform the Plant Operations Director.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-302

TITLE: COMMUNICATIONS ACTIVITIES

REVISION 0

APPROVED: L N Gibson 8/15/84
Signature Date

TITLE: Asst to General Manager

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1.0 PURPOSE

This procedure implements Section 4.2, "Notification", of the SHNPP Emergency Plan. It specifies methods and priorities for communications activities.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 3.8, "Communications Systems"
2. Section 4.2, "Notification"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-217, "Emergency Communicator"
2. PEP-301, "Notifications and Communications"
3. PEP-303, "Use of Communications Equipment"
4. PEP-321, "Notification of Emergency Personnel"
5. PEP-322, "Mobilization of Outside Organizations"

3.0 RESPONSIBILITIES

3.1 EMERGENCY COMMUNICATOR

The Emergency Communicator is responsible for documenting message traffic.

3.2 ALL PERSONNEL

All emergency organization personnel are responsible for observing emergency communications priorities.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

The complexity of available communications links dictates that use of these systems be preplanned to maximize the availability of communications systems at each location.

6.0 INITIATING CONDITIONS

The Site Emergency Coordinator has declared an emergency.

7.0 PRECAUTIONS AND LIMITATIONS

None Applicable

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

9.1 COMMUNICATIONS PROTOCOL

1. All personnel will use Attachment 3 as a guide to select the type of communications equipment to be used for contacting another individual in the emergency organization.

2. If your specific communications application (person to person) is listed on Attachment 3, select the first, second, or third method listed in the "USE" column in that order of preference.

3. If your specific application is not listed, select the first, second, or third method, in that order of preference, for the general (facility to facility) communications application.

4. If your application is not listed at all, or if none of the listed methods are available, use any other method that is available. If necessary, request assistance from the Site Communications Systems Coordinator via the Logistics Support Director.

9.2 USE OF MESSAGE FORMS (See Attachment 2 for an example)

1. The person receiving or originating information or a request for information or action will record the message or request on the upper portion of a message form, and enter the date and time in the "date" block. They will print the title of the addressee on the "to" line and the title of the originator on the "Please reply to" line, then print their name next to the title of the originator. He will then remove and retain the pink copy, and deliver the original to the addressee.

2. The addressee will respond to requested information or actions by entering his reply in the lower section of the message form. He will then sign at the bottom and enter the date and time. If the response action involves contact with an outside agency, the addressee will obtain concurrence from the Site Emergency Coordinator by obtaining his countersignature at the bottom of the message form. The addressee will then detach and retain the yellow copy of the message form and return the original to the originator or Emergency Communicator.

9.0 PROCEDURE STEPS

9.2 USE OF MESSAGE FORMS (Cont'd)

3. The originator or Emergency Communicator will take action as directed in the addressee's response, retain the original copy of the message form, and discard the pink copy.

9.3 TRANSMITTAL OF PLANT PARAMETER DATA BY TELEPHONE

1. The Shift Technical Advisor in the Control Room will fill out all or part of Attachment 1, "Safety Parameter Data and Status Information Form". Only those parameters that have changed significantly since the last form was filled out should be listed, and all other parameters will normally be left blank. He will give the form to the Emergency Communicator - Control Room.

2. The Emergency Communicator - Control Room will establish communications with the Status Board Plotter(s) in the Technical Support Center and (if activated) the Emergency Operations Facility, and verbally transmit the data on the form to those locations.

3. The Status Board Plotter(s) will transcribe the data onto a blank copy of the form as it is read, then transfer the information to the status board.

4. The Status Board Plotter(s) will retain the completed forms until the emergency is terminated, then deliver them to the Senior Specialist - Emergency Preparedness.

10.0 DIAGRAMS/ATTACHMENTS

1. Safety Parameter Data and Status Information Form.

2. Example Message Form.

3. Communications Priorities.

ATTACHMENT 1

SAFETY PARAMETER DATA & STATUS INFORMATION FORM

Nuclear Instrumentation
Source Range: Level _____ SUR _____
Intermediate Range: Level _____ SUR _____
Power Range: Level _____ %
Highest Core Exit Temp _____ °F
Gross Failed Fuel _____ CPM
Reactor Coolant Cold Leg Temp A _____ °F B _____ °F C _____ °F
Reactor Coolant Hot Leg Temp A _____ °F B _____ °F C _____ °F
Reactor Coolant System Pressure _____ psig
Reactor Vessel Level _____ % Pressurizer Level _____ %
Steam Generator Level A _____ % B _____ % C _____ %
Condensate Storage Tank Level _____ Ft.
Containment
Pressure _____ psig Hydrogen _____ %
Sump Level Wide Range _____ Ft. Area Radiation High Range _____ R/hr
Isolation Valves closed? _____

Reactor Coolant Subcooling or Superheat _____ °F
Plant Vent Stack #1: Noble Gas _____ µCi/cc Flow _____
Waste Processing Bldg. Vent Stack #5: Noble Gas _____ µCi/cc Flow _____
Waste Processing Bldg. Vent Stack #5A: Noble Gas _____ µCi/cc Flow _____
Condenser Vacuum Pump Exhaust Stack 3A: Noble Gas _____ µCi/cc Flow _____
Safety Injection Accumulator Tanks Levels-1A _____ inches 1B _____ inches 1C _____ inches
Pressures: 1A _____ psig 1B _____ psig 1C _____ psig Isol vlv pos. 1A _____ 1B _____ 1C _____
High Pressure Injection Flow _____ gpm Low Pressure Injection Flow _____ gpm
RWST Level _____ %
Primary Relief Valve Positions: PORV _____ A _____ B _____ C _____
Pressurizer Relieve Tank: Level _____ % Pressure _____ Temp _____ °F
Pressurizer Heater Current: A _____ Amps B _____ Amps
Steam Line Pressure A _____ psig B _____ psig C _____ psig
Main Steam Flow (Thousand Pounds Per Hour): A _____ B _____ C _____
Auxiliary Feedwater Flow (Thousand Pounds Per Hour): A _____ B _____ C _____
Containment: Spray Flow A _____ gpm B _____ gpm Atmosphere Temp. _____ °F
Containment Sump: Narrow Range Water Level _____ Ft. Water Temp. _____ °F
CVCS: Makeup flow _____ gpm Letdown flow _____ gpm VCT Level _____ %
RHR Loop Flows: 1A _____ gpm 1B _____ gpm
RHR Heat Exchanger Outlet Temp: 1A _____ °F 1B _____ °F
Emergency Ventilation Damper Status _____

230KV Switchyard Bus Voltage: North _____ South _____
120VAC Uninterruptable Power Supply Bus Voltage _____
120VAC Bus Voltage: IDP-1A-SI _____
IDP-1B-SII _____ IDP-1A-SIII _____ IDP-1A-SIV _____
125VDC Emergency Bus Voltage: 1A-SA _____ 1B-SB _____
125VDC Battery Bus DP-1A Voltage _____
250VDC Battery Bus DP-1 Voltage _____
Diesel Generator Distribution Panel Voltage: 1A1 _____ 1B1 _____
Emergency Bus Voltage: 1A _____ 1B _____

Component Cooling Water Flow and Temperature:
RHR Heat Exchanger 1A outlet_____gpm_____°F
RHR Heat Exchanger 1B outlet_____gpm_____°F
Containment Fan Cooler Status:
AH-1_____ AH-2_____ AH-3_____ AH-4_____
Boric Acid Emergency Bypass Flow_____gpm
Containment Spray Additive Flow_____gpm
Atmospheric Steam Dump Valves Status_____
_____
Main Steam Relief Valve Status:_____
Main Steam Line Noble Gas:
A_____µCi/cc B_____µCi/cc C_____µCi/cc
Main Steam Isolation Valve Hydraulic Accumulator Pressures:
A_____psig B_____psig C_____psig
Feedwater Isolation Valve Hydraulic Accumulator Pressures:
A_____psig B_____psig C_____psig
Wind Speed_____mph Direction (from)_____°
Atmospheric Temperature: Upper Level_____°F Lower Level_____°F
Control Rod Position: All full in or _____
_____
RCS Boron Concentration_____ppm
Reactor Coolant Pump Current: A_____amps B_____amps C_____amps
Main Feedwater Flow: A_____gpm B_____gpm C_____gpm
Waste Gas Decay Tank Pressures: A_____psig B_____psig C_____psig D_____psig
Recycle Holdup Tank Level_____Ft.

MONITOR DESIGNATION	DESCRIPTION	
REM-1SW-3500A-SB	Service Water From Containment Fan Cooler AH-1	_____ µCi/cc
REM-1SW-3500B-SA	Service Water From Containment Fan Cooler AH-2	_____ µCi/cc
REM-1SW-3500C-SA	Service Water From Containment Fan Cooler AH-3	_____ µCi/cc
REM-1SW-3500D-SB	Service Water From Containment Fan Cooler AH-4	_____ µCi/cc
REM-1CC-3501A-SA	Component Cooling Water A	_____ µCi/cc
REM-1CC-3510B-SB	Component Cooling Water B	_____ µCi/cc
REM-1LT-3502A-SA	Containment Leak Detection	_____ µCi/cc (NG)
		_____ µCi/cc (P)
REM-1LT-3502B-SB	Containment Leak Detection	_____ µCi/cc (NG)
		_____ µCi/cc (P)
RM-1CZ-3504A-SA	Control Room Normal Outside Air Intake A	_____ µCi/cc
RM-1CZ-3504B-SB	Control Room Normal Outside Air Intake B	_____ µCi/cc
RM-1CZ-3505A1-SA	Control Room Emergency Outside Air Intake 10A	_____ µCi/cc
RM-1CZ-3505A2-SA	Control Room Emergency Outside Air Intake 11A	_____ µCi/cc
RM-1CZ-3505B1-SB	Control Room Emergency Outside Air Intake 10B	_____ µCi/cc
RM-1CZ-3505B2-SB	Control Room Emergency Outside Air Intake 11B	_____ µCi/cc
REM-1FL-3506	FHB Spent Fuel Pool Normal Exhaust South	_____ µCi/cc (P)
		_____ µCi/cc (I)
		_____ µCi/cc (NG)
REM-1FL-3507	FHB Spent Fuel Pool Normal Exhaust South	_____ µCi/cc (P)
		_____ µCi/cc (I)
		_____ µCi/cc (G)
REM-1FL-3508A-SA	FHB Spent Fuel Pool Emergency Exhaust A	_____ µCi/cc (P)
		_____ µCi/cc (I)
		_____ µCi/cc (NG)
REM-1FL-3508B-SB	FHB Spent Fuel Pool Emergency Exhaust B	_____ µCi/cc (P)
		_____ µCi/cc (I)
		_____ µCi/cc (NG)
REM-1AV-3509-SA	Plant Vent Stack #1	_____ µCi/cc (P)
		_____ µCi/cc (I)
REM-1BD-3527	Steam Generator Blowdown	_____ µCi/cc
REM-1MD-3528	Turbine Building Drain	_____ µCi/cc
REM-1MD-3530	Tank Area Drain Transfer Pump	_____ µCi/cc
REM-1AV-3531	RAB Normal Exhaust System	_____ µCi/cc (P)

		_____µCi/cc (I)
		_____µCi/cc (NG)
REM-1AV-3532A	RAB Emergency Exhaust System A	_____µCi/cc (P)
		_____µCi/cc (I)
		_____µCi/cc (NG)
REM-1AV-3532B	RAB Emergency Exhaust System B	_____µCi/cc (P)
		_____µCi/cc (I)
		_____µCi/cc (NG)
REM-1AV-3533	Hot Machine Shop Vent	_____µCi/cc (P)
		_____µCi/cc (I)
		_____µCi/cc (NG)
REM-21WL-3541	WST Monitor Tank Discharge	_____µCi/cc
REM-21WS-3542	Secondary WST Sampling Tank Pump Discharge	_____µCi/cc
REM-21AC-3543A	Auxiliary Steam Condensate WPS Tank Pump Discharge HDR	_____µCi/cc
REM-43AC-3543B	Auxiliary Steam Condensate WPS Tank Pump Discharge HDR	_____µCi/cc
REM-1WC-3544	WPB WCHX A&B Header Inlet	_____µCi/cc
REM-21WG-3545	Waste Gas Compressor Suction Header	_____µCi/cc
REM-43WG-3545	Waste Gas Compressor Suction Header	_____µCi/cc
REM-1WV-3546	WPB Exhaust System Penthouse I Stack 5	_____µCi/cc (P)
		_____µCi/cc (I)
REM-1WV-3547	WPB Exhaust System Penthouse II Stack 5A	_____µCi/cc (P)
		_____µCi/cc (I)
REM-1WV-3548	WPB Health Physics Calibration Room	_____µCi/cc (P)
		_____µCi/cc (I)
		_____µCi/cc (NG)
REM-1FL-3549	FHB Operating Floor	_____µCi/cc (P)
		_____µCi/cc (I)
		_____µCi/cc (NG)
REM-1WV-3550	WPB Control Room	_____µCi/cc (P)
		_____µCi/cc (I)
REM-1WV-3551	Volume Reductions System	_____µCi/cc (P)
		_____µCi/cc (I)
		_____µCi/cc (NG)
REM-1WV-3552	Solidification System	_____µCi/cc (P)
		_____µCi/cc (I)
		_____µCi/cc (NG)
REM-1WV-3553	WPB Personnel Handling Facility Exhaust Fan	_____µCi/cc (P)

REM-1WV-3553 (continued)	WPB Personnel Handling Facility Exhaust Fan	_____µCi/cc (I) _____µCi/cc (NG)
REM-1WV-3554	Hot Lab	_____µCi/cc (P) _____µCi/cc (I) _____µCi/cc (NG)
RM-21RR-3560-SA	Control Room	_____R/hr
RM-1CR-3561A-SA	Containment Isolation System A	_____R/hr
RM-1CR-3561B-SB	Containment Isolation System B	_____R/hr
RM-1CR-3561C-SA	Containment Isolation System C	_____R/hr
RM-1CR-3561D-SB	Containment Isolation System D	_____R/hr
RM-1FR-3564A-SA	Spent Fuel Pool (South)	_____R/hr
RM-1FR-3564B-SB	Spent Fuel Pool (South)	_____R/hr
RM-1FR-3565A-SA	Spent Fuel Pool (South)	_____R/hr
RM-1FR-3565B-SB	Spent Fuel Pool (South)	_____R/hr
RM-1FR-3566A-SA	Spent Fuel Pool (North)	_____R/hr
RM-1FR-3566B-SB	Spent Fuel Pool (North)	_____R/hr
RM-1FR-3567A-SA	Spent Fuel Pool (North)	_____R/hr
RM-1FR-3567B-SB	Spent Fuel Pool (North)	_____R/hr
RM-1CR-3575	Containment South Stairwell EL. 261	_____R/hr
RM-1CR-3576	Containment North Stairwell EL. 261	_____R/hr
RM-1CR-3577	Containment Bldg. Incore Instrument Controls	_____R/hr
RM-21CR-3578A	Recycle Monitor Tank	_____R/hr
RM-21CR-3578B	Recycle Monitor Tank	_____R/hr
RM-1CR-3579	Boric Acid Filters	_____R/hr
RM-1CR-3580	Valve Gallery	_____R/hr
RM-21CR-3581A	Access Aisles Between Valve Gallery	_____R/hr
RM-21CR-3581B	Access Aisles Between Valve Galleries	_____R/hr
RM-1CR-3582	Containment North Stairwell EL. 286	_____R/hr

RM-1CR-3583	Containment South Stairwell EL. 286	_____R/hr
RM-1CR-3584	Pressurizer Area	_____R/hr
RM-1CR-3585	South Secondary Containment	_____R/hr
RM-1CR-3586	Primary Cooling Duct	_____R/hr
RM-1CR-3587	Reactor Coolant Drain Tank	_____R/hr
RM-1CR-3588	Personnel Lock & Equipment Removal Area	_____R/hr
RM-1RR-3595	Volume Control Tank	_____R/hr
RM-1RR-3596	Main Steam & Feed Water Tunnel Floor	_____R/hr
RM-1RR-3597	RAB RHR Pump 1B Corner	_____R/hr
RM-1RR-3598	RAB RHR 1A Corner	_____R/hr
RM-1RR-3599A	Charging Pump 1A	_____R/hr
RM-1RR-3599B	Charging Pump 1B	_____R/hr
RM-1RR-3599C	Charging Pump 1C	_____R/hr
RM-1RR-3600	Recycle Evaporator Valve Gallery	_____R/hr
RM-1RR-3601	Letdown Heat Exchanger Valve Gallery	_____R/hr
RM-1RR-3602	Moderating Heat Exchanger Valve Gallery	_____R/hr
RM-1RR-3603	Boric Acid Pumps Valve Gallery	_____R/hr
RM-21RR-3604	Access Aisle	_____R/hr
RM-1RR-3605A	Sample Room 1A	_____R/hr
RM-1RR-3650B	Sample Room 1B	_____R/hr
RM-1RR-3606A	RHR Heat Exchanger 1A	_____R/hr
RM-1RR-3606B	RHR Heat Exchanger 1B	_____R/hr
RM-1RR-3607	Decontamination Area EL. 236	_____R/hr
RM-1RR-3608	Decontamination Area EL. 261	_____R/hr
RM-21RR-3609A	Waste Monitor Tank	_____R/hr
RM-21RR-3609B	Waste Monitor Tank	_____R/hr
RM-21RR-3610	Secondary Waste Sample Tank	_____R/hr

RM-1RR-3611	Recycle Holdup Tank	_____R/hr
RM-1FR-3620	Spent Fuel Pool Area South	_____R/hr
RM-1FR-3621	Spent Fuel Pool Area North	_____R/hr
RM-1FR-3622	Spent Fuel Pool Shipping Cask Area	_____R/hr
RM-1FR-3623A	Spent Fuel Heat Exchanger (1&4A)	_____R/hr
RM-1FR-3623B	Spent Fuel Heat Exchanger (1&4B)	_____R/hr
RM-1FR-3625	Access Aisle Between Spent Fuel Heat Exchanger	_____R/hr
RM-32FR-3626	Purification Pump Filter (2A&3A) Area	_____R/hr
RM-41FR-3626	Purification Pump Filter (1A&4A) Area	_____R/hr
RM-1FR-3628	New Fuel Storage Area	_____R/hr
RM-1WR-3635	Filter Backwash Transfer Tank Valve Gallery	_____R/hr
RM-1WR-3636A	Filter Particulate Concentrates Tank Valve Gallery	_____R/hr
RM-1WR-3636B	Filter Particulate Concentrates Tank Valve Gallery	_____R/hr
RM-21WR-3637	Gas Decay Tank Drain Pump	_____R/hr
RM-43WR-3637	Gas Decay Tank Drain Pump	_____R/hr
RM-1WR-3638A	Filter Backwash Storage Tank Pump Valve Gallery	_____R/hr
RM-1WR-3638B	Filter Backwash Storage Tank Pump Valve Gallery	_____R/hr
RM-21WR-3639A	Waste Gas Compressor 1A & 2A	_____R/hr
RM-43WR-3639A	Waste Gas Compressor 3A & 4A	_____R/hr
RM-21WR-3639B	Waste Gas Compressor 1B & 2B	_____R/hr
RM-43WR-3639B	Waste Gas Compressor 3B & 4B	_____R/hr
RM-21WR-3640	Waste Evaporator Concentrates Valve Gallery	_____R/hr
RM-43WR-3640	Waste Evaporator Concentrates Valve Gallery	_____R/hr

RM-21WR-3641	Waste Evaporator Feed Pump Gallery	_____R/hr
RM-43WR-3641	Waste Evaporator Feed Pump Gallery	_____R/hr
RM-21WR-3642A	Waste Evaporator Valve Gallery	_____R/hr
RM-43WR-3642A	Waste Evaporator Valve Gallery	_____R/hr
RM-21WR-3642B	Waste Evaporator Valve Gallery Area	_____R/hr
RM-43WR-3642B	Waste Evaporator Valve Gallery Area	_____R/hr
RM-1WR-3643	Waste Evaporator Sample Rm. #1	_____R/hr
RM-1WR-3644A	Spent Resin Pumps (1-4A)	_____R/hr
RM-1WR-3644B	Spent Resin Pumps (1-4B)	_____R/hr
RM-21WR-3645A	Catalytic Recombiner (1&2A)	_____R/hr
RM-43WR-3645A	Catalytic Recombiner (3&4A)	_____R/hr
RM-21WR-3645B	Catalytic Recombiner (1&2B)	_____R/hr
RM-43WR-3645B	Catalytic Recombiner (3&4B)	_____R/hr
RM-1WR-3646	Waste Processing Control Rm.	_____R/hr
RM-21WR-3647A	Gas Decay Tank Valve Gallery	_____R/hr
RM-43WR-3647A	Gas Decay Tank Valve Gallery	_____R/hr
RM-21WR-3647B	Gas Decay Tank Valve Gallery	_____R/hr
RM-43WR-3647B	Gas Decay Tank Valve Gallery	_____R/hr
RM-1WR-3648	Reverse Osmosis Module East	_____R/hr
RM-1WR-3649	Reverse Osmosis Module West	_____R/hr
RM-21WR-3650	Floor Drain Reverse Osmosis Module	_____R/hr
RM-43WR-3650	Floor Drain Reverse Osmosis Module	_____R/hr
RM-21WR-3651A	Floor Drain Tank (1&2A)	_____R/hr
RM-43WR-3651A	Floor Drain Tank (3&4A)	_____R/hr
RM-21WR-3651B	Floor Drain Tank (1&2B)	_____R/hr
RM-43WR-3651B	Floor Drain Tank (3&4B)	_____R/hr
RM-1WR-3652A	WPB Mens Locker Room	_____R/hr

RM-1WR-3652B	WPB Mens Locker Room	_____R/hr
RM-1WR-3652C	WPB Womens Locker Room	_____R/hr

EXAMPLE MESSAGE FORM

SAMPLE

REPLY MESSAGE

12719

Fold at Guide Marks to Mail in Window Envelope.

TO Site Emergency Coordinator

CAROLINA POWER & LIGHT CO

SUBJECT	ATTENTION	DATE
		12-2-84/1405

He wants to Know if we have an estimate of core damage yet.

PLEASE REPLY TO → SIGNED INPO Duty Officer / P. Talker

Tell him we won't Know for several hours — we will call them when it's available.

DATE 12-2-84/1420 SIGNED T.E.C. Coordinator

RECIPIENT-REPLY & RETAIN PINK COPY•DETACH & RETURN THIS COPY TO SENDER.

SENDER-DETACH THIS COPY-RETAIN FOR FILE. SEND WHITE AND PINK COPIES WITH CARBONS INTACT

ATTACHMENT 3

COMMUNICATIONS PROTOCOL

FROM	TO	USE
CONTROL ROOM	Technical Support Center	1. EOF Telephone Extension 2. Plant Telephone Extension
Operations Leader	Plant Operations Director	1. ARD to Plant Operation Director 2. EOF Telephone Extension 3. Plant Telephone Extension
	Operators	1. Plant Radio Channel #1 2. Plant PA System
Emergency Communicator	NRC	1. NRC Emergency Notification System 2. Bell System 3. NRC Health Physics Network
	N.C. State and Local Warning Points	1. ARD to Warning Points 2. Bell System
	Status Board Plotters - TSC and EOF	1. EOF Telephone Extension 2. Plant Telephone Extension
Shift Technical Advisor	Accident Assessment Team Leader	1. EOF Telephone Extension 2. Plant Telephone Extension
OPERATIONAL SUPPORT CENTER	Technical Support Center	1. EOF Telephone Extension 2. Plant Telephone Extension
	All Other Plant Locations	1. Plant Telephone Extension 2. Plant Radio Channel #2
Damage Control Team Leader	Damage Control Team Coordinator	1. Plant Radio Channel #2 2. Plant Telephone Extension
Plant Monitoring and Personnel Protection and Decontamination Teams	Team Leaders in Technical Support Center	1. Plant Radio Channel #1 2. Plant Telephone Extension
Environmental Monitoring Teams	Environmental Monitoring Team Leader	1. UHF Radio Emergency Channel 2. Bell System
Fire Brigade, First Aid, and Search and Rescue Teams	Team Leaders in Technical Support Center	1. Plant Radio Channel #1 2. Plant Telephone Extension
Assembly Area Leaders	Emergency Security Team Leader	1. Plant Telephone Extension
TECHNICAL SUPPORT CENTER	Control Room	1. EOF Intercom 2. EOF Telephone Extension 3. Plant Telephone Extension

	Operations Support Center	1. EOF Telephone Extension 2. Plant Telephone Extension
	Emergency Operations Facility	1. EOF Intercom 2. Plant Telephone Extension via EOF Switchboard
Site Emergency Coordinator	Emergency Response Manager	1. ARD to Emergency Response Manager 2. EOF Telephone Extension
Emergency Communicator - TSC	Emergency Communicator - EOF	1. ARD to EC - EOF 2. EOF Telephone Extension
Phone Talker - TSC	NRC	1. NRC Emergency Notification System 2. Bell System 3. NRC Health Physics Network
	NC State and Local Warning Points	1. ARD to Warning Points 2. Bell System
Environmental Monitoring Team Leader	Environmental Monitoring Teams	UHF Radio Emergency Channel
Plant Operations Director	Operations Leader	1. ARD to Control Room 2. EOF Telephone Extension 3. Plant Telephone Extension
	Accident Assessment Team Leader and First Aid Team Leader	1. EOF Intercom 2. EOF Telephone Extension 3. Plant Telephone Extension
	Fire Brigade Leader	Plant Radio Channel #1
Accident Assessment Team Leader	Shift Technical Advisor	1. EOF Telephone Extension 2. Plant Telephone Extension
First Aid Team Leader	First Aid and Search and Rescue Teams	1. Plant Radio Channel #1 2. Plant PA System
Emergency Repair Director	Operational Support Center Leader	1. EOF Telephone Extension 2. Plant Telephone Extension 3. Plant Radio Channel #2
Damage Control Team Coordinator	Damage Control Team Leader	1. Plant Radio Channel #2 2. Plant PA System
Dose Projection Team Leader	Dose Assessment Team Leader	1. ARD to EOF 2. EOF Telephone Extension
Plant Monitoring Team Leader and Personnel Protection and Decontamination Team Leader	Plant Monitoring Teams, and Personnel Protection and Decontamination Teams	1. Plant Radio Channel #1 2. Plant PA System

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-321

TITLE: NOTIFICATION OF EMERGENCY PERSONNEL

REVISION 0

APPROVED: _____ 8/15/84
Signature Date

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement SHNPP Emergency Plan Section 2.2.2, "Plant Emergency Response Organization" and Section 4.2, "Notification."

This procedure provides instructions for notifying the CP&L emergency response organization and NRC Resident Inspector.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.2.2, "Plant Emergency Organization"
2. Section 4.2, "Notification"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-302, "Communications Activities"
2. PEP-303, "Use of Communications Equipment"

2.3 OTHER REFERENCES

1. Plant Special Order, "Emergency Phone List"

3.0 RESPONSIBILITIES

3.1 The Site Emergency Coordinator is responsible for ensuring that on-site emergency personnel should be activated and whether off-duty emergency personnel are notified.

3.2 The Emergency Communicator is responsible for performing the notifications when directed to do so by the Site Emergency Coordinator.

3.3 The Logistics Support Director is responsible for coordinating the preparation of shift schedules.

3.4 All personnel, when filling a position on the emergency response organization, are responsible for contacting alternates to ensure 24 hour staffing capability for the position that they are filling, when directed to do so by the Site Emergency Coordinator/Emergency Response Manager.

4.0 DEFINITIONS

1. Key Person - A principle member of the emergency response organization (Site Emergency Coordinator, Directors, Leaders, State Emergency Response Team Representative, and Emergency Preparedness Specialist).

4.0 DEFINITIONS

2. Plant Emergency Personnel - Plant personnel who have pre-assigned duties in the Emergency Response Organization.

5.0 GENERAL

None Applicable

6.0 INITIATING CONDITIONS

1. An emergency has been declared by the Shift Foreman.

7.0 PRECAUTIONS AND LIMITATIONS

1. To avoid disruption of communications systems when performing notifications, use the equipment and extension/channel number specified in PEP-302.

2. Emergency notification messages shall be given only to the specified individuals and not to their spouse, children, baby-sitter, etc., or anyone who does not identify themself.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Emergency communications equipment which has the ability to contact off duty emergency personnel. Use of this equipment is discussed in PEP-302 and PEP-303.

9.0 PROCEDURE STEPS

9.1 INITIAL NOTIFICATION

1. The Site Emergency Coordinator prepares an Emergency Response Organization Notification Form (Attachment 1). He checks the box at the top of the form appropriate to the emergency classification. The Site Emergency Coordinator may select additional personnel to notify or activate, and/or facilities to activate by placing the appropriate symbol in the corresponding box. He then signs the form, gives it to the Emergency Communicator, and directs him to perform the notifications.

2. The Emergency Communicator announces the emergency classification and facilities to be activated on the Public Address system.

9.0 PROCEDURE STEPS

9.1 Initial Notification (Cont'd.)

NOTE: Any personnel with emergency assignments who are on-site when the Public Address announcement is made will report to their assigned location. If a primary or alternate designee reports in before the Emergency Communicator has attempted to contact designees for a given emergency organization position, the Emergency Communicator will record the time reported in on the Emergency Organization Notification Form, and the initial notification is then considered complete. If an alternate designee assumes a position in this manner, it becomes his responsibility to notify the primary designee for his position if he considers it appropriate.

3. The Emergency Communicator refers to Plant Special Order, "Emergency Phone List," to obtain telephone numbers, then attempts to contact the primary designee for the first position indicated on the Emergency Response Organization Notification Form unless an individual has already reported in for that position.

NOTE: If the Site Emergency Coordinator so requests, indicate in the notification that responding personnel report to the SHE&EC to obtain protective clothing before arriving on site.

4. If the primary designee cannot be contacted, the Emergency Communicator continues through the list of alternate designees in Plant Special Order, "Emergency Phone List" until one is contacted. If neither the primary nor any of the alternates can be contacted by telephone, the Emergency Communicator attempts to notify them by pager. If none of the designees can be contacted by any available method, the Emergency Communicator notifies the Site Emergency Coordinator.

5. When an individual is contacted and identified, the Emergency Communicator informs him of the emergency classification, the emergency organization position that he is to assume, whether that position is being notified or activated, and what facilities are being activated. The Emergency Communicator obtains an estimated time of arrival from the individual, then records the person's name, time notified, and estimated time of arrival on the Emergency Response Organization Notification Form.

6. The Emergency Communicator repeats steps 3 through 5 for each emergency organization position indicated on the form, proceeding in order from top to bottom of the list.

9.0 PROCEDURES STEPS

9.1 Initial Notification (Cont'd)

7. After individuals have been contacted for all positions indicated on the Emergency Response Organization notification Form, the Emergency Communicator signs the form and informs the Site Emergency Coordinator that all personnel have been notified.

8. As personnel report in from their assigned emergency facility, the Emergency Communicator records the time on the Emergency Response Organization Notification Form. Similarly, he records the time that each emergency facility is reported activated.

9. When all activated personnel have reported in, and as each emergency facility is reported activated, the Emergency Communicator informs the Site Emergency Coordinator.

9.2 CONTINUOUS STAFFING OF EMERGENCY ORGANIZATION

1. The Site Emergency Coordinator (in conjunction with the Emergency Response Manager) will evaluate the emergency condition and prognosis for continuance of the situation beyond several hours.

2. If the likelihood exists that the emergency condition will remain beyond a few hours, the Site Emergency Coordinator will direct his staff to, and the Emergency Response Manager will direct his staff to, contact alternates and inform them to report for relief at a predetermined time. The Logistics Support Director and Administrative and Logistics Manager will coordinate the preparation of shift schedules.

NOTE: It is useful for relief of the Technical Support Center Staff and Emergency Operations Center Staff to occur an hour or two apart to improve continuity during turnover.

3. Where alternates cannot be contacted for a position, the matter will be referred to the Logistics Support Director (Technical Support Center) or administrative and Logistics Manager (Emergency Operations Facility) for extraordinary measures to contact the alternates or for contacting trained individuals at Brunswick or Robinson who can serve the necessary functions.

10.0 DIAGRAMS/ATTACHMENTS

1. Emergency Response Organization Notification Form

ATTACHMENT 1
EMERGENCY RESPONSE ORGANIZATION NOTIFICATION FORM

check appropriate box →							
EMERGENCY RESPONSE ORGANIZATION POSITION	Unus Evnt	Alert	Site Emrg	Gen. Emrg	NAME	TIME Notified	ETA	Rptd in
SITE EMERGENCY COORD-TSC	A	A	A	A				
EMERGENCY COMMUNICATOR	A	A	A	A				
PLANT OPERATIONS DIR.	N	A	A	A				
RADIOLOGICAL CONTROL DIR.		A	A	A				
EMERGENCY REPAIR DIR.		A	A	A				
LOGISTICS SUPPORT DIR.		A	A	A				
EMERGENCY RESPONSE MGR.	N	N	A	A				
NRC RESIDENT INSPECTOR	N	N	N	N				
SERT REPRESENTATIVE		N	A	A				
ACCIDENT ASSESSMENT TEAM LDR.		A	A	A				
OSC LEADER		A	A	A				
DAMAGE CONTROL TEAM COORD.		A	A	A				
EMERGENCY SECURITY TEAM LDR.		A	A	A				
PLANT MONITORING TEAM LDR.		A	A	A				
DOSE PROJECTION TEAM LDR.		A	A	A				
PERS. PROT. & DECON. TEAM LDR.		A	A	A				
ENV. MONITORING TEAM LDR.		A	A	A				
EVACUATION ASSEMBLY AREA LDR.		A	A	A				
SUPPORT SERVICES COORD.		A	A	A				
SITE COMM. SYST. COORD.		A	A	A				
EMERG. PREPAREDNESS SPECIALIST	N	N	N	N				
FACILITIES						Activated		
Tech. Spt. Center		A	A	A				
Opns. Spt. Center		A	A	A				
Emerg. Opns. Facility			A	A				

A = Activate
N = Notify

Approved for Notification _____/_____/_____
Site Emergency Coordinator / Time /Date

Notifications Completed _____/_____/_____
Emergency Communicator / Time /Date

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-322

TITLE: MOBILIZATION OF OUTSIDE ORGANIZATIONS

REVISION 0

APPROVED: _____ 8/31/04
Signature Date

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 4.2, "Notification,"of the Shearon Harris Nuclear Power Plant Emergency Plan.

This procedure provides instructions for notification of off-site organizations who can provide assistance during the emergency or recovery phase of the accident either at their facilities or by providing personnel in the field.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 4.2, "Notification"
2. Annex G, "Interfacing Information from Supporting Emergency Plans"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-102, "Site Emergency Coordinator - Control Room"
2. PEP-103, "Site Emergency Coordinator - Technical Support Center"
3. PEP-203, "Logistics Support Director"
4. PEP-302, "Communications Activities"
5. PEP-303, "Use of Communications Equipment"
6. Plant Special Order (PSO) "Emergency Phone List"

3.0 RESPONSIBILITIES

3.1 Until relieved of this responsibility by the Emergency Response Manager, the Site Emergency Coordinator is responsible for approving requests for assistance from outside organizations.

3.2 Upon activation of the Emergency Operations Facility, the Emergency Response Manager is responsible for approving requests for assistance from outside organizations.

3.3 The Logistics Support Director is responsible for coordinating requests for off-site assistance from all on-site members of the emergency organization. Until relieved of this responsibility by the Administrative and Logistics Manager, he is also responsible for contacting outside organizations after the request for assistance has been approved by the Site Emergency Coordinator.

3.4 The Administrative and Logistics Manager is responsible for obtaining approval from the Emergency Response Manager for requests

3.0 RESPONSIBILITIES

for off-site assistance, and for contacting the necessary organizations.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

None Applicable

6.0 INITIATING CONDITIONS

1. An emergency has been declared by the Site Emergency Coordinator and a member of the emergency organization has identified a need for assistance from an off-site organization.

7.0 PRECAUTIONS AND LIMITATIONS

1. Although any member of the emergency organization may request the assistance of the organizations listed in Attachment 1, the Site Emergency Coordinator's (or Emergency Response Manager's) approval must be obtained before the contact is made.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

1. The Logistics Support Director decides that one or more organizations listed on Attachment 1 should be notified or asked for assistance based upon a request for assistance from a member of the on-site emergency organization, or his own evaluation of the emergency condition.

NOTE: If members of the Emergency Operations Facility staff wish to request outside assistance they do so directly from the Administrative and Logistics Manager.

2. If the Emergency Operations Facility has been activated, the Logistics Support Director notifies the Administrative and Logistics Manager who, in consultation with the Logistics Support Director, recommends what organizations are to be contacted.

3. The Logistics Support Director (or Administrative and Logistics Manager) indicates which organization is to be contacted and what assistance, if any, is to be requested by checking the appropriate blocks on Attachment 1 and 9.0

9.0 PROCEDURE STEPS

briefly noting any assistance required. He then presents the form to the Site Emergency Coordinator (or Emergency Response Manager)for approval.

4. The Site Emergency Coordinator (or Emergency Response Manager) authorizes the request by signing Attachment 1.

5. The Logistics Support Director (or Emergency Response Manager) refers to the Plant Special Order, "Emergency Phone List" for the telephone number, calls the outside organization which has been selected on Attachment 1, and requests assistance as indicated on the form.

6. The Logistics Support Director (or Administrative and Logistics Manager) records the name of the person contacted, the expected assistance, and the expected arrival or delivery time on Attachment 1. If possible, he obtains the names of any personnel who will be coming to the site, Emergency Operations Facility, or Corporate Emergency Operations Center.

7. After contacting the organization, the Logistics Support Director (or Administrative and Logistics Manager) signs the form to indicate that the notification is complete, then returns the completed form to the Site Emergency Coordinator (or Emergency Response Manager.) If contact was made by the Administrative and Logistics Manager, the Administrative and Logistics Manager also informs the Logistics Support Director of what assistance is expected. The Logistics Support Director will then inform the Site Emergency Coordinator and the person who originally requested the assistance as to what assistance will be provided and when.

8. If the organization contacted was requested to send personnel to the Site or to the Emergency Operations Facility, the Logistics Support Director notifies the Emergency Security Team Leader, providing him with the name of the organization, name(s) of personnel, destinations and estimated time of arrival, if possible.

10.0 DIAGRAMS/ATTACHMENTS

1. Mobilization of Outside Organization Form

ATTACHMENT 1

MOBILIZATION OF OUTSIDE ORGANIZATIONS

ORGANIZATION:

- ☐ INPO
- ☐ Westinghouse
- ☐ Ebasco
- ☐ Daniel Construction Co.
- ☐ Other _____
- ☐ American Nuclear Insurers
- ☐ Nuclear Mutual Limited
- ☐ Department of Energy

Assistance Requested: _____

_____

_____

_____

_____

Authorization: _____
(Site Emergency Coordinator or Emergency Response Manager)

Individual Contacted_____Date_____Time_____

Assistance They Have Agreed To Provide:

_____

_____

_____

_____

Individuals Who Will Be Reporting To The Site

Name	Location Reporting To	Expected Arrival Date	Time
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Notification Completed _____ _____ _____
Logistics Support Director or Administrative and Logistics Manager — Date — Time

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-331

TITLE: EMERGENCY PLANT MONITORING

REVISION 0

APPROVED: _____ 3/21/84
Signature Date

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 4.4.2, "Plant Radiological Monitoring", of the SHNPP Emergency Plan. It specifies the methods to be used for conducting radiological surveys at the plant site, and for sampling and analyzing plant systems during an emergency.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 4.4.2, "Plant Radiological Monitoring"
2. Section 2.4.6, "Radiological Control Director"
3. Section 2.4.6.5, "Plant Monitoring Team Leader"
4. Section 2.4.6.7, "Personnel Protection and Decontamination Team Leader"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-207, "Plant Monitoring Team Leader"
2. PEP-208, "Personnel Protection and Decontamination Team Leader"

2.3 OTHER REFERENCES

1. ERC-105, "Scheduling Radiation Control Activities"
2. HPP-066, "Preparation and Analysis of Air Samples"
3. HPP-503, "Operation of the Protechtor Portable Gas Alarm"
4. HPP-504, "Operation of the Gastechtor Portable Gas Alarm"
5. CRC-110, "Primary Sample Room Procedure"
6. CRC-154, "Secondary Sample Room Procedure"
7. CRC-250, "Plant Vent Sampling"
8. CRC-821, "Post Accident Dilute Liquid Sampling"
9. CRC-822, "Post Accident Undiluted Liquid Sampling"
10. CRC-823, "Post Accident Containment Air Sampling"
11. CRC-824, "Post Accident Dissolved Gas Sampling and Analysis"
12. CRC-825, "Post Accident pH/Conductivity/Dissolved Oxygen"
13. CRC-826, "Post Accident Chloride Analysis"
14. CRC-827, "Post Accident Boron Analysis"
15. HPP-505, "Operation of the Draeger Multigas Detector"
16. ERC-106, "Confined Space Monitoring Program"
17. CRC-828, "Isotopic Analysis for Core Damage Evaluation"
18. RCP-651, "Sample Preparation for Gamma Spectrometry"
19. RCP-701, "Operation of the Gamma Spectrometry System"
20. CRC-515, "Operation of the Gas Chromatograph"
21. CRC-004, "Chemistry Logs and Records"
22. OP-118, "Radiation Monitoring System"
23. Regulatory Guide 1.97, " Instrumentation for Light-Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and After an Accident"

3.0 RESPONSIBILITIES

3.1 PLANT MONITORING TEAM LEADER

The Plant Monitoring Team Leader is responsible for assigning members of the Plant Monitoring Team to:

- Operate the Post Accident Sampling System
- Conduct in-plant radiological surveys for accident assessment purposes
- Obtain and analyze other plant samples
- Perform field interrogations of the Radiation Monitoring System to evaluate the radiological consequences of the accident.

3.2 PERSONNEL PROTECTION AND DECONTAMINATION TEAM LEADER

The Personnel Protection and Decontamination Team Leader is responsible for assigning members of the Personnel Protection and Decontamination Team to perform in-plant radiological surveys to evaluate personnel protection requirements.

3.3 OPERATIONS LEADER

The Operations Leader is responsible for directing the operation of the Radiation Monitoring System from the Control Room to collect grab samples from the plant vent stack.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

The Plant Monitoring Team collects and analyses chemistry samples, collects and analyses airborne activity samples, and may perform radiation and/or contamination measurements to provide data to assist the Radiological Control Director, Plant Operations Director and others in assessing core damage and possible release source terms.

The Personnel Protection and Decontamination Team performs radiation, contamination, and airborne activity and hazardous chemical surveys to determine the habitability conditions of areas for the protection of personnel who may need to enter these areas during the emergency.

6.0 INITIATING CONDITIONS

1. An emergency has been declared and in-plant radiological or hazardous chemical surveys or plant samples are required.

7.0 PRECAUTIONS/LIMITATIONS

1. Comply with personnel protection requirements established by the Personnel Protection and Decontamination Team Leader.
2. Chemistry samples should be taken and analyzed in 3 hours or less from the time the decision is made to sample, except for chloride which should be analyzed within 96 hours, as stated in NRC Regulatory Guide 1.97.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Post Accident Sampling System
2. Air Samplers
3. Protechtor Portable Gas Alarm
4. Draeger Multigas Detector
5. Gas Chromatograph
6. RM-23P Portable Command and Readout Device for the Radiation Monitoring System
7. Gamma Spectrometer

9.0 PROCEDURE STEPS

NOTE: These steps may be performed in any order.

1. The Personnel Protection and Decontamination Team or the Plant Monitoring Team will perform radiation surveys in accordance with normal methods. Surveys shall be documented in accordance with ERC-105.
2. The Personnel Protection and Decontamination Team or Plant Monitoring Team will conduct airborne radiological surveys in accordance with HPP-066, "Preparation and Analysis of Air Samples." Surveys shall be documented in accordance with ERC-105.
3. The Personnel Protection and Decontamination Team or Plant Monitoring Team will perform contamination surveys in accordance with normal methods. Surveys shall be documented in accordance with ERC-105.
4. The Personnel Protection and Decontamination Team will perform surveys for airborne toxic/flammable gases or chemical in accordance with HPP-503, "Operation of the Protechtor Portable Gas Alarm, HPP-504, "Operation of the Gastechtor Portable Gas Alarm", and/or HPP-505, "Operation of the Draeger Multigas Detector." Surveys shall be documented on page 2 of Appendix A to ERC-106, "Confined Space Monitoring Program."
5. The Plant Monitoring Team will collect containment air samples in accordance with CRC-823 or, if activity levels permit, in accordance with normal plant procedures.
6. The Plant Monitoring Team will collect Reactor Coolant or containment sump samples for laboratory analysis in accordance with CRC-821 for dilute samples and/or CRC-822 for undiluted samples, or if activity levels permit, in accordance with normal plant procedures.

9.0 PROCEDURE STEPS

7. The Plant Monitoring Team will collect and analyze Reactor Coolant or containment sump samples for dissolved gases in accordance with CRC-824, or if activity levels permit, in accordance with normal plant procedures.
8. The Plant Monitoring Team will collect and analyze Reactor Coolant or containment sump samples for pH, conductivity, and/or dissolved Oxygen in accordance with CRC-825 or, if activity levels permit, in accordance with normal plant procedures.
9. The Plant Monitoring Team will analyze Reactor Coolant or containment sump samples for chloride, Boron, and/or isotopic mixture in accordance with CRC-826, CRC-827, and/or CRC-828, respectively, or, if activity levels permit, in accordance with normal plant procedures.
10. The Plant Monitoring Team will prepare and analyze air samples for isotopic content in accordance with RCP-651 and RCP-701, respectively.
11. The Plant Monitoring Team will analyze containment air samples for Hydrogen in accordance with CRC-515, "Operation of the Gas Chromatograph," if the containment Hydrogen monitor is inoperative.
12. The Plant Monitoring Team will document all sample analysis in accordance with CRC-004, "Chemistry Logs & Records."
13. The Plant Monitoring Team will obtain Radiation Monitoring System data from local RM-80 panels using the RM-23P in accordance with OP-118 if individual monitors are operational but the RM-11 consoles are not.
14. If area radiation levels and expected sample source terms permit, the Plant Monitoring Team may collect and analyze additional plant system samples using normal plant procedures.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

APRO14

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-341

TITLE: MANUAL DOSE CALCULATION

REVISION 0

APPROVED: C. R. Gibson 8/19/84
Signature Date

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 4.4.3, "Dose Projection," of the SHNPP Emergency Plan.

This procedure provides instructions to perform a manual calculation of projected off-site doses. This procedure is used when computerized systems are not available, and therefore PEP-342 or PEP-343 cannot be used. It can be used when various systems or pieces of equipment are not functioning, or when monitor readings are suspect or off scale.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 4.4.3, "Dose Projection"
2. Annex B, "Technical Basis of Emergency Dose Projection Program"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-101, "Initial Emergency Actions"
2. PEP-216, "Dose Projection Team Leader"
3. PEP-342, "Automation of Dose Projection Procedure - ERFIS"
4. PEP-343, "Automation of Dose Projection Procedure - IBM PC"
5. PEP-104, "Protective Action Recommendations"
6. Plant Special Order, "Emergency Phone List"

2.3 OTHER REFERENCES

1. USNRC Regulatory Guide 1.109
2. SD-118, "Radiation Monitoring"

3.0 RESPONSIBILITIES

3.1 SITE EMERGENCY COORDINATOR

The Site Emergency Coordinator - Control Room is responsible for implementing this procedure if the Technical Support CEnter has not been activated.

3.0 RESPONSIBILITIES

3.2 DOSE PROJECTION TEAM LEADER

The Dose Projection Team Leader is responsible for implementing this procedure after the Technical Support Center is activated.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

5.1 CALCULATIONS

The dose rate due to gaseous effluents at a given point downwind resulting from an identified release is calculated by the formula:

$$D = X/Q \cdot Q \cdot DCF \cdot R$$

where D is the dose rate in Rem/hr,
X/Q is the atmospheric dispersion factor in units of sec/M^3 at the site boundary,
Q is the source term in Ci/sec,
DCF is the dose conversion factor in $\frac{Rem \cdot M^3}{Hr.Ci}$,
and R is the combined lateral and vertical dispersion factor that adjusts X/Q for distance from the release point and the plume center line.

The total dose rate at a given point is calculated by summing the dose rates for each identified release pathway, each of which is calculated by the above formula.

The affected downwind sectors and the atmospheric dispersion factors (X/Q) at a given distance downwind are determined directly from tabular data as functions of atmospheric stability and wind speed.

Isotopic mix affects both the dose conversion factor (DCF), and the source term (Q) if source term is determined from an installed radiation monitor. If an isotopic analysis is available, it is used to calculate both the dose conversion factor and the source term. If isotopic analysis is not available, the dose conversion factor is determined from tabular data as a function of time after reactor shutdown. The table assumes a design basis isotopic release mix of 100 percent of the core gap inventory of noble gases and 25 percent of the halogens, and adjusts the mixture for decay. When determined from installed radiation monitors, determination of source term assumes that noble gas detectors respond to noble gas activity only, that the containment area monitors respond to both iodine and noble gas activity, and that iodine activity is 15% of the noble gas activity.

5.0 GENERAL

5.2 RELEASE PATHWAYS

5.2.1 Containment Leakage directly to the atmosphere is assumed to be occurring at the rate of 0.1 percent of the free volume per day for the first 24 hours following an accident and at 0.05 percent per day thereafter.

5.2.2 Primary to secondary leakage is assumed to be released to the atmosphere via the atmospheric steam dump valves and/or steam generator relief valves whenever there is indication that any of these valves are open. The source term for this release is determined from the measured or design flow rate through these valves, and either readings on the main steam line radiation monitors or analysis of a condensed steam sample.

5.2.3 Releases are assumed to be occurring at some or all of the four plant exhaust ventillation stacks in all cases. The source terms for these releases are determined by either measured or design ventillation flow rates and measured activity concentrations.

6.0 INITIATING CONDITIONS

1. Immediately after recognition that an unplanned off-site release has occurred, could have occurred, or may occur, this procedure should be implemented if automated dose projection methods are not available.

7.0 PRECAUTIONS AND LIMITATIONS

1. Thyroid dose projections made using default values for isotopic mix are extremely conservative (i.e., give high results).

2. These projections pertain to the radioactive gases at ground level and do not include radiation from an overhead cloud that may contribute to the whole body dose at ground level. Under certain meteorological conditions (elevated release and E, F, or G stability classes), direct radiation from an overhead plume may produce somewhat higher doses than those calculated by this procedure.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Scientific calculator that can handle exponential functions (i.e., 2×10^{-6}).

9.0 PROCEDURE STEPS

9.1 Enter the date and time on a blank copy of Attachment 2, "Manual Dose Projection Record Sheet".

9.0 PROCEDURE STEPS

9.2 Obtain wind speed, wind direction and atmospheric dispersion factor (X/Q) using one of the following methods, which are listed in order of preferred use.

1. Call Radiation Control and request the wind speed, wind direction, and atmospheric dispersion factor from the Radiation Monitoring System report processor (RM-21). Record those parameters on Attachment 2.

2. Call the Corporate Meteorology Center and request the current wind speed, wind direction, and atmospheric stability class for the Harris plant. Record those parameters on Attachment 2. Determine the atmospheric dispersion factor (X/Q) from the table in Attachment 3 and record it on Attachment 2.

3. Determine wind speed, wind direction, and atmospheric conditions from visual observations outdoors and use the table below to determine stability class.

	Atmospheric Conditions				
Wind	Clear Day	Cloudy Day	Clear Night	Cloudy Night	Raining
Light or Calm	B	C	E	F	D
Moderate or Strong	C	D	D	D	D

Circle either "Clear", "Cloud ", or "Raining", and either "Light/Calm" or "Moderate/Strong" on Attachment 2 to indicate the observed conditions, and record the selected stability class. Determine the atmospheric dispersion factor from Attachment 3, using four mph for light/calm winds or nine mph for moderate/strong winds, and record if on Attachment 2.

9.3 Determine the activity concentration for one release pathway using the following steps.

NOTE: The available methods for obtaining the data are listed in order of preferred use to obtain the most accurate Child Thyroid dose projection.

1. Obtain the results of an isotopic analysis of a grab sample. Transcribe the activity concentration onto Column 2 of Attachment 7, "Source Term and Dose Conversion Factor Worksheet" for each isotope listed. Ensure that the activities are in units of Ci/cc. Multiply µCi/cc by 1.0E-6 to convert to Ci/cc if necessary.

9.0 PROCEDURE STEPS

2. If the release pathway is containment leakage, obtain the containment high range area radiation monitor reading in R/hr. Multiply by (9.43E-10) to obtain Ci/cc noble gas, and by (2.78E-10) to obtain Ci/cc Iodine, and record all three values on Attachment 2.

3. If the release pathway is primary to secondary leakage via steam dump or relief valves, obtain the main steam line radiation monitor reading in μCi/cc, multiply by 1.0E-6 to convert to Ci/cc, and record this value on Attachment 2 as the noble gas activity. Multiply the noble gas activity by 0.15 to obtain Iodine activity, and record on Attachment 2. Circle A, B, or C on Attachment 2 to indicate which steam line the reading is for.

4. If the release pathway is the ventillation exhaust, obtain the noble gas radiation monitor reading in μCi/cc for the appropriate vent stack, multiply by 1.0E-6 to convert to Ci/cc, multiply by 0.15 to obtain Iodine activity, and record both results on Attachment 2 in units of Ci/cc. Circle 1, 3A, 5, or 5A on Attachment 2 to indicate which vent stack the reading is for.

9.4 Determine the release flowrate for the pathway being evaluated using one of the following steps. Within each step, the available methods are listed in order of preferred use.

1. If the release pathway is containment leakage, select 736 cubic centimeters per second (cc/sec) if it is less than 24 hours since the accident began, or 368 cubic centimeters per second if it is greater than 24 hours since the accident began. Record the selected value on Attachment 2.

2. If the release pathway is primary to secondary leakage via steam dump or relief valves:

   - Obtain the steam flow reading in units of thousand pounds mass per hour (KLBM/HR) for the main steam line being evaluated and record on Attachment 2.

   OR

   - Record on Attachment 2 the quantity of each type of valve that indicates open. Multiply the number of valves open by the design flow rates (given on Attachment 2) for each open valve to obtain the total flow rate.

9.0 PROCEDURE STEPS

- Calculate the source terms by multiplying the previously determined flow rate in cc/sec or mg/sec by the specific activities in Ci/cc. Use noble gas activity for the whole body calculation and Iodine activity for the child thyroid calculation. Record the products in Ci/sec on Attachment 2.

- Multiply the source term by the dose conversion factor and record the product on Attachment 2.

9.6 Calculate the child thyroid dose commitment rate and the whole body dose rate at the site boundary by mulitplying the source term • dose conversion factor products (Q•DCF) by the previously determined atmopspheric Dispersion Factor (X/Q). Record the product on Attachment 2.

NOTE: This gives the projected dose at 2500 feet from the plant center, which is defined as the site boundary for purposes of this procedure.

9.7 Calculate the projected dose rates at the Exclusion Area Boundary by multiplying the Child Thyroid Dose Commitment Rate and Whole Body Dose Rates at the site boundary by the appropriate extrapolation factor from Attachment 5 for the previously determined stabilty class. Record the product on Attachment 2.

9.8 Determine and record on Attachment 2 the known or estimated duration of the release in hours. If the duration is unknown, assume one hour. Notify the Radiological Control Director of the projected dose rates and duration of both the Site boundary and Exclusion Area boundary.

9.9 Calculate the integrated doses at the Exclusion Area boundary by multiplying the dose rates calculated in step 9.7 by the duration of release. Record the product on Attachment 2. Notify the Radiological Control Director of the projected doses, then repeat steps 9.7 and 9.9 to obtain the dose rate and integrated dose at distances of two, five, and ten miles.

9.10 If requested, determine the dose rates and/or integrated doses at additional distances in the same manner.

9.11 If releases from additional pathways are known or suspected to be occurring, repeat steps 9.1 through 9.10 for each pathway. The total dose rates and integrated doses at any given point downwind are the sum of the dose rates and integrated doses calculated for each release pathway.

9.12 If requested, estimate the downwind sectors affected by consulting Attachment 8, and record them on Attachment 2.

10.0 DIAGRAMS/ATTACHMENTS

1. SHNPP Gaseous Waste Streams (reference 2.3.2)
2. Manual Dose Projection Record Sheet
3. Meteorological Dispersion (X/Q) Value at SHNPP Plant Boundary (2500 Ft = 761 M) (reference-later)
4. Dose Conversion Factors (reference-2.3.1)
5. Extrapolation Factor for Estimating Doses Beyond SHNPP Plant Boundary (2500 Ft) (reference-later)
6. SHNPP Exclusion Area Boundary Plan
7. Source Term and Dose Conversion Factor Worksheet
8. Affected Downwind Sectors

WPB - WASTE PROCESSING BLDG
RAB - REACTOR AUXILIARY BLDG
FHB - FUEL HANDLING BLDG

TURBINE BLDG VENT STACK 3A

REM-1TV-3834

CONDENSATE VACUUM PUMP

WASTE PROCESSING BLDG VENT STACK 5

WPB HOT & COLD LAUNDRY

WPB COLD LAUNDRY DRYERS

WPB OFFICE AREA

WPB CHILLER ROOM EXHAUST

WASTE PROCESSING AREAS FILTERED EXHAUST

REM-1WV-3846

WPB OFFICE AREA EXHAUST

WPB CONTROL ROOM SMOKE EXHAUST

WPB GENERAL AREA EXHAUST

WASTE GAS DECAY TANKS

WASTE PROCESSING BLDG VENT STACK 5A

WPB SWITCHGEAR ROOM EXHAUST

WPB HVAC EQUIP. ROOM EXHAUST

WPB PERSONNEL HANDLING FACILITY EXHAUST

WPB HOT & LOW ACTIVITY EXHAUST

WPB LAB AREA EXHAUST

REM-1WV-3847

PLANT VENT STACK 1

CONTAINMENT PRE ENTRY PURGE

RAB NORMAL EXHAUST

RAB EMERGENCY EXHAUST

RAB VENTILATION SYSTEM

HYDROGEN PURGE

RAB SMOKE PURGE

RAB PURGE

REM-1AV-3831

REM-1AV-3832A

REM-1AV-3833A

FHB NORMAL EXHAUST NORTH

FHB NORMAL EXHAUST SOUTH

REM-1FL-3806

FHB NORMAL EXHAUST (OPER. FL.) SOUTH

REM-1FL-3807

FHB NORMAL EXHAUST (OPER. FL.) SOUTH

REM-1FL-3808A-SA

FHB EMERGENCY EXHAUST

REM-1FL-3808B-SB

ATTACHMENT 2

MANUAL DOSE PROJECTION RECORD SHEET

DATE _____ TIME_____

WIND SPEED _____mph WIND DIRECTION(from)_____°
Observed Wind: Light/Calm or Moderate/Strong
Observed Condition: Clear or Cloudy or Raining
Stability Class_____
Atmospheric Dispersion Factor (X/Q) _____ $\frac{m^3}{sec}$
Containment:_____R/hr
Noble Gas _____Ci/cc Iodine ____ Ci/cc
Flow _____cc/sec

Main Steam A or B or C: Noble Gas _____Ci/cc
Iodine _____Ci/cc
_____PORV open x 462 = _____KLBM/HR
_____SRV's open x 970 = _____KLBM/HR
_____Atmospheric Dumps open x 705 = _____KLBM/HR
Uncorrected Steam Flow _____mg/sec or cc/sec

Vent Stack: 1 or 3A or 5 or 5A
Noble Gas _____Ci/cc
Iodine _____Ci/cc
Flowrate _____cfm x 472 = _____cc/sec

Child Thyroid: $\frac{\frac{REM \cdot m^3}{Ci \cdot HR}}{DCF} \cdot \frac{Ci}{sec} = \frac{\frac{REM \cdot m^3}{Hr \cdot SEC}}{Q \cdot DCF}$

Whole Body: $\frac{\frac{REM \cdot m^3}{Ci \cdot HR}}{DCF} \cdot \frac{Ci}{sec} = \frac{\frac{REM \cdot m^3}{Hr \cdot SEC}}{Q \cdot DCF}$

Duration of Release _____Hours

Distance	Dose Rate (Rem/hr) Child Thyroid	Dose Rate (Rem/hr) Whole Body	Integrated Dose (Rem) Child Thyroid	Integrated Dose (Rem) Whole Body
Site Boundary	_____	_____	_____	_____
Exclusion Area Boundary	_____	_____	_____	_____
2 miles	_____	_____	_____	_____
5 miles	_____	_____	_____	_____
10 miles	_____	_____	_____	_____

ATTACHMENT 3

METEOROLOGICAL DISPERSION (X/Q) VALUES AT
SHNPP BOUNDARY (2,500 FT.) GROUND LEVEL RELEASE

X/Q Values by Atmospheric Stability Type
(Units: Sec/m^3)

Wind mph	Speed m/sec	A	B	C	D	E	F	G
1	0.4	1.8E-05	7.7E-05	1.7E-04	3.1E-04	5.9E-04	1.3E-03	2.0E-03
2	0.9	9.1E-06	3.9E-05	8.5E-05	1.6E-04	3.0E-04	6.7E-04	9.9E-04
3	1.3	6.0E-06	2.6E-05	5.6E-05	1.0E-04	2.0E-04	4.5E-04	6.6E-04
4	1.8	4.5E-06	1.9E-05	4.2E-05	7.8E-05	1.5E-04	3.3E-04	4.9E-04
5	2.2	3.6E-06	1.5E-05	3.4E-05	5.1E-05	6.9E-05	2.7E-04	3.8E-04
6	2.7	3.0E-06	1.3E-05	2.8E-05	4.5E-05	6.8E-05	2.4E-04	3.1E-04
7	3.1	2.6E-06	1.1E-05	2.4E-05	4.4E-05	7.5E-05	2.0E-04	2.8E-04
8	3.6	2.3E-06	9.7E-06	2.1E-05	4.2E-05	7.4E-05	1.8E-04	2.5E-04
9	4.0	2.0E-06	8.6E-06	1.9E-05	4.0E-05	7.2E-05	1.7E-04	2.2E-04
10	4.5	1.8E-06	7.7E-05	1.7E-05	3.8E-05	7.0E-05	1.5E-04	2.0E-04
11	4.9	1.6E-06	7.0E-06	1.5E-05	3.7E-05	6.8E-05	1.2E-04	1.8E-04
12	5.4	1.5E-06	6.4E-06	1.4E-05	3.4E-05	6.2E-05	1.1E-04	1.6E-04
13	5.8	1.4E-06	6.0E-06	1.3E-05	3.2E-05	5.7E-05	1.0E-04	1.5E-04
14	6.3	1.3E-06	5.5E-06	1.2E-05	3.0E-05	5.3E-05	9.4E-05	1.4E-04
15	6.7	1.2E-06	5.2E-06	1.1E-05	2.8E-05	5.0E-05	8.7E-05	1.3E-04
16	7.2	1.1E-06	4.8E-06	1.1E-05	4.6E-05	2.6E-05	8.2E-05	1.2E-04
17	7.6	1.1E-06	4.6E-06	1.)E-05	2.4E-05	4.4E-05	7.7E-05	1.2E-04
18	8.0	1.0E-06	4.3E-06	9.4E-06	2.3E-05	4.1E-05	7.3E-05	1.1E-04
19	8.5	9.5E-07	4.1E-06	8.9E-06	2.2E-05	3.9E-05	6.9E-05	1.0E-04
20	8.9	9.1E-07	3.9E-06	8.5E-06	2.1E-05	3.7E-05	6.5E-05	9.9E-05
21	9.4	8.6E-07	3.7E-06	8.1E-06	2.0E-05	3.5E-05	6.2E-05	9.4E-05
22	9.8	8.2E-07	3.5E-06	7.7E-06	1.9E-05	3.4E-05	6.0E-05	9.0E-05
23	10.3	7.9E-07	3.4E-06	7.4E-06	1.8E-05	3.2E-05	5.7E-05	8.6E-05
24	10.7	7.5E-07	3.2E-06	7.1E-06	1.7E-05	3.1E-05	5.5E-05	8.2E-05
25	11.2	7.2E-07	3.1E-06	6.8E-06	1.7E-05	3.0E-05	5.2E-05	7.9E-05
26	11.6	7.0E-07	3.0E-06	6.5E-06	1.6E-05	2.9E-05	5.0E-05	7.6E-05
27	12.1	6.7E-07	2.9E-06	6.3E-06	1.5E-05	2.8E-05	4.8E-05	7.3E-05
28	12.5	6.5E-07	2.8E-06	6.0E-06	1.5E-05	2.7E-05	4.7E-05	7.0E-05
29	13.0	6.2E-07	2.7E-06	5.8E-06	1.4E-05	2.6E-05	4.5E-05	6.8E-05
30	13.4	6.0E-07	2.6E-06	5.6E-06	1.4E-05	2.5E-05	4.4E-05	6.6E-05

NOTE: If wind speed is between adjacent values, use the lower value to find X/Q.

ATTACHMENT 4
DOSE CONVERSION FACTORS

Time After Reactor Shutdown (hours)	Dose Conversion Factor (DCF) Child Thyroid	Whole Body
0.0	6.33E+5	4.73E+2
0.5	7.14E+5	4.25E+2
1.0	7.89E+5	3.96E+2
2.0	9.18E+5	3.56E+2
5.0	1.18E+6	2.61E+2
8.0	1.35E+6	1.89E+2
12.0	1.53E+6	1.24E+2
24.0	1.95E+6	4.32E+1
72.0	2.92E+6	1.77E+1
96.0	3.15E+6	1.77E+1
120	3.28E+6	1.77E+1
144	3.35E+6	1.77E+1
168	3.39E+6	1.77E+1
192	3.40E+6	1.77E+1
216	3.41E+6	1.77E+1
240	3.41E+6	1.77E+1
>240	3.42E+6	1.77E+1

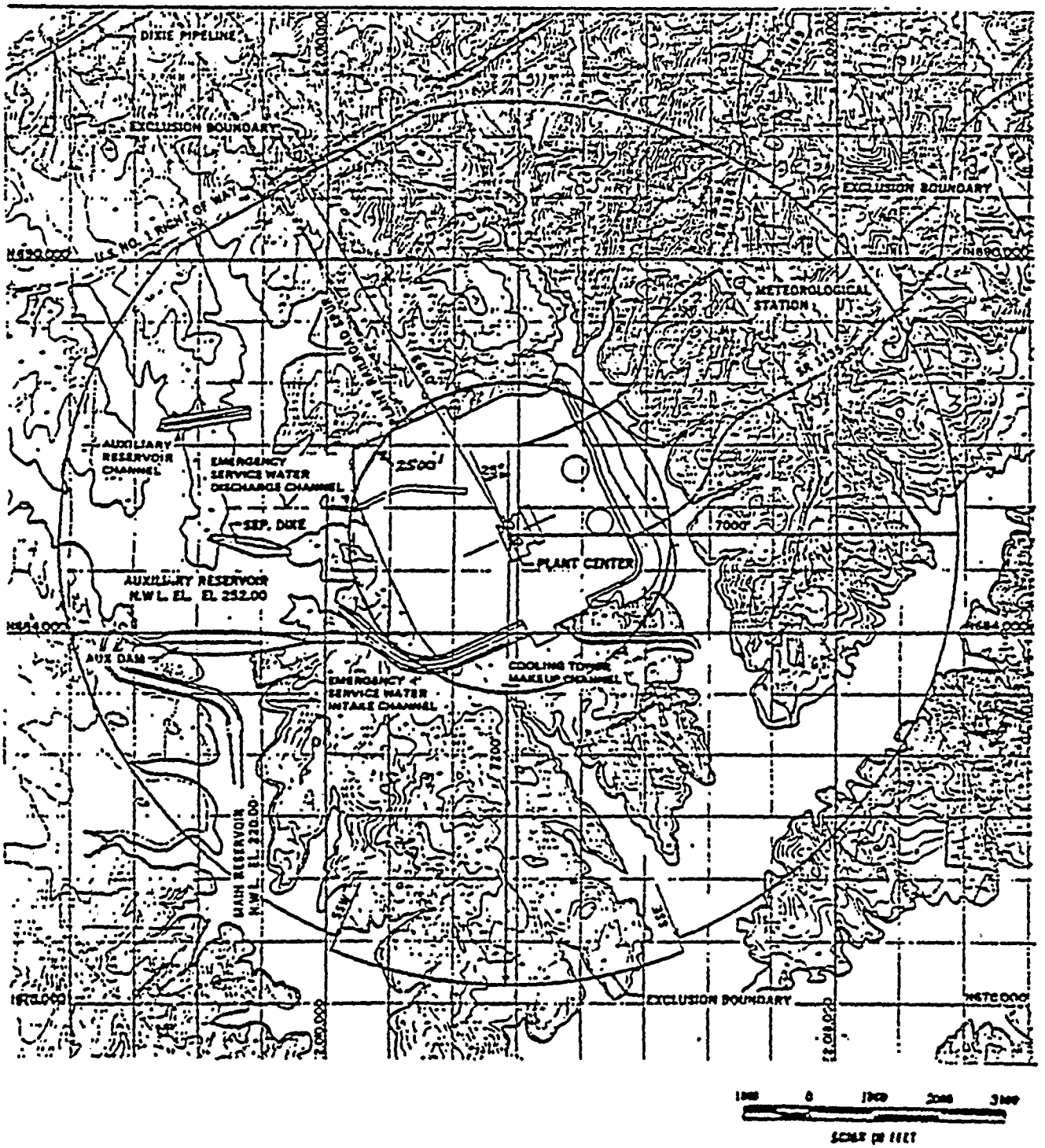
ATTACHMENT 5

EXTRAPOLATION FACTOR FOR ESTIMATING DOSES
BEYOND SHNPP BOUNDARY (2,500 FT) GROUND LEVEL RELEASE

Distance from Plant		Extrapolation Ratios by Atmospheric Stability Class						
Miles	KM	A	B	C	D	E	F	G
1	1.6	1.4E-01	2.3E-01	2.6E-01	3.5E-01	3.7E-01	3.7E-01	3.7E-01
*1.3	2.1	1.1E-01	1.4E-01	1.6E-01	2.4E-01	2.5E-01	2.7E-01	2.8E-01
2	3.2	7.2E-02	5.8E-02	7.6E-02	1.4E-01	1.5E-01	1.5E-01	1.5E-01
3	4.8	5.1E-02	2.6E-02	3.7E-02	7.7E-02	8.8E-02	9.2E-02	1.4E-01
4	6.4	3.9E-02	1.4E-02	2.2E-02	5.2E-02	6.1E-02	6.5E-02	1.0E-01
5	8.0	3.9E-02	1.0E-02	1.5E-02	3.9E-02	4.6E-02	4.9E-02	8.0E-02
6	9.7	3.9E-02	9.2E-03	1.1E-02	2.9E-02	3.6E-02	3.9E-02	6.5E-02
7	11.3	3.9E-02	9.2E-03	7.6E-03	2.3E-02	2.9E-02	3.3E-02	5.5E-02
8	12.9	3.9E-02	9.2E-03	6.5E-03	1.9E-02	2.5E-02	2.7E-02	4.6E-02
9	14.5	3.9E-02	9.2E-03	5.8E-03	1.6E-02	2.2E-02	2.4E-02	4.0E-02
10	16.1	3.9E-02	9.2E-03	5.5E-03	1.4E-02	1.9E-02	2.2E-02	3.5E-02

* Exclusion Area Boundary

ATTACHMENT 6
SHNPP EXCLUSION AREA BOUNDARY PLAN



ATTACHMENT 7
SOURCE TEAM AND DOSE CONVERSION FACTOR WORKSHEET

(1) Isotope	(2) A_0 Specific Activity of Sample Ci/cc	(3) λ Decay Constant for Isotope	(4) A_t Decay Corrected Activity Ci/cc	(5) DCF_i Dose Conversion Factor	(6) $(Q \cdot DCF_i)$
I-131		3.59E-3		3.42E+6	
I-132		3.07E-01		4.08E+4	
I-133		3.41E-2		8.11E+5	
I-134		7.97E-1		1.07E+4	
I-135		1.04E-1		1.67E+5	

Child Thyroid Total Source Term Dose Conversion Factor Product = _____ $\frac{Rem \cdot m^3}{Hr \cdot Sec}$

Kr-83m		3.79E-1		8.62E-3	
Kr-85		7.38E-6		1.19E+0	
Kr-85m		1.55E-1		8.44E+1	
Kr-87		5.46E-1		4.78E+2	
Kr-88		2.44E-1		1.23E+3	
Kr-89		1.31E-1		1.09E+3	
Xe-131m		2.44E-1		4.47E+0	
Xe-133		5.50E-3		1.78E+1	
Xe-133m		1.32E-2		1.54E+1	
Xe-135		7.61E-2		1.52E+2	
Xe-135m		2.71E+0		2.28E+7	
Xe-138		2.94E+0		6.71E+2	

Whole Body Total Source Term Dose Conversion Factor Product = _____ $\frac{Rem \cdot m^3}{Hr \cdot Sec}$

ATTACHMENT 8

AFFECTED DOWNWIND SECTORS

WIND DIRECTIONS (FROM)°	AFFECTED DOWNWIND SECTORS															
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
349-11							0	X	X	X	0					
11-34								0	X	X	X	0				
35-56									0	X	X	X	0			
57-79										0	X	X	X	0		
80-101											0	X	X	X	0	
102-124												0	X	X	X	0
125-146	0												0	X	X	X
147-169	X	0												0	X	X
170-191	X	X	0												0	X
192-214	X	X	X	0												0
215-236	0	X	X	X	0											
237-259		0	X	X	X	0										
260-281			0	X	X	X	0									
282-304				0	X	X	X	0								
305-326					0	X	X	X	0							
327-348						0	X	X	X	0						

X = Under all conditions
0 = If wind speed is less than 9 miles per hour

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-343

TITLE: AUTOMATION OF DOSE PROJECTION - IBM PC

REVISION 0

APPROVED: C R Gibson 8/21/84
Signature

TITLE: Asst. General Manager

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5.0 GENERAL

The computer program DOSE uses the same calculational methods to project offsite doses as used in PEP-341, "Manual Dose Calculation." The program calculates meteorological dispersion factors instead of using tabulated data. Section 9.1 describes the use of this program. Section 9.2 provides instructions for using the computer to access the plant meteorological station by modem and convert the digital pulses to useable data. Section 9.3 provides instructions for using the computer to obtain meteorological forecast data by modem from the corporated meteorological computer. Section 9.4 describes how to use the MET program to determine atmospheric stability class from National Weather Service data.

6.0 INITIATING CONDITIONS

1. The Shift Foreman requires an offsite dose projection to determine whether an event should be classified as an emergency, or

2. An emergency has been declared.

7.0 PRECAUTIONS AND LIMITATIONS

1. Unless an actual isotopic mix is entered, the calculation for thyroid dose projection will most probably result in a gross overestimation of the thyroid dose commitment, which could result in recommending protective actions for the public that would later prove to be unnecessary. Consistent with providing timely information to the Site Emergency Coordinator, dose projections should be based on isotopic analysis of a grab sample.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. IBM Personal Computer with at least one disk drive, Hayes Smart modem, printer (optional), and plotter (optional)

2. Shearon Harris Emergency Dose Projection Diskette

9.0 PROCEDURE STEPS

NOTE: If you do not already know the stability class and will want to determine it using another section of this procedure, perform that section prior to beginning Section 9.1.

NOTE: You are in the DOS mode if you are not currently running a program. You know you are in the DOS mode if the sequence "A " appears in the left of the screen. If you are currently running a program, you can exit to DOS by simultaneously pressing the CTRL and SCROLL LOGK keys. When the flashing prompt appears, enter "SYSTEM" then press RETURN.

9.0 PROCEDURE STEPS

9.1 DOSE PROJECTIONS (Cont'd)

9. If a "1" was chosen for the previous question, the screen will display, "SOURCE TERM" and units of Curies, otherwise the screen will display "RELEASE RATE" and units of Curies/second. Enter the appropriate term in these units. If the units chosen were CURIES/SEC, the screen will display "ESTIMATED DURATION OF RELEASE (HOURS). IF UNCERTAIN OF DURATION ENTER 1 HOUR." By entering the duration of release, a total curie amount can be derived. If the duration is unknown, enter 1 hour. This allows for easier correction later when the actual duration of release is know.

10. If the nuclide mix is unknown, the screen will display "TIME SINCE REACTOR SHUTDOWN (HOURS)." Enter this time in units of hours.

11. The screen will display "STABILITY CLASS (A-G)." Enter the appropriate stability class.

12. The screen will display "WIND VELOCITY (MPH)." Enter the appropriate wind velocity in units of miles per hour.

13. The screen will display "DIRECTION WIND BLOWING FROM (DEGREES)." This is used on the isopleth plot to indicate the direction of the plume travel. Be sure to enter the direction the wind is blowing from similar to what is given in the meteorology program.

14. The screen will display "STANDARD DISTANCES ARE SITE BOUNDARY (2500 ft), EXCLUSION AREA BOUNDARY (7000 ft) 2, 5, 10 MILES. DO YOU WANT TO USE THESE (YES OR NO)." The program is asking whether the user wishes to look at centerline doses corresponding to the specific distances or to look at centerline doses corresponding to downwind distances yet to be specified. Enter YES or NO, whichever is appropriate. Choosing nonstandard distances allows the user to obtain a more refined isopleth.

15. If a NO was entered to the previous question, the screen will display "MAXIMUM DISTANCE (MILES)." Enter the maximum downwind distance in miles for which centerline doses are desired. The screen will then display "DOWNWIND INCREMENT (MILES)." Enter the incremental distance in miles for which centerline doses out to the maximum downwind distance are desired.

9.0 PROCEDURE STEPS

9.1 DOSE PROJECTIONS (Cont'd)

reference arrow exists on the map you are using, line up the two taking note of the proper polarity. The screen will now display "DO YOU WANT TO PLOT THE SAME ISOPLETH(S). AGAIN (YES OR NO)." If another plot is desired enter YES and return to Step 20.

NOTE: If the plotter is absent or inoperative, the program will continue after a short delay.

23. The screen will clear, then display "WILL NUCLIDE AMOUNTS BE IN CONCENTRATION (C) OR PERCENT (P)." If the concentrations of the nuclides are known, enter a C; if the percents are known, enter a P.

24. The screen will display, "ENTER TIME FROM SAMPLE TO RELEASE (HOURS). IF UNCERTAIN OF TIME ENTER Ø HOURS." Enter the appropriate time between sample time and expected or actual release time. If the release occurred before the sample was taken, a negative time in hours will be accepted. If uncertain, enter Ø hours.

25. The screen will clear and a message displayed at the top reading "ENTER NUCLIDE...THEN RETURN." This instructs the user how to enter the nuclides and their amounts. The screen will also display titles for the nuclides and the amounts.

26. NOTE: The total % need not exactly equal 100%, a 2% tolerance is built in: i.e., a total % between 98-102% is acceptable. When the cursor is under the nuclide title, enter the nuclide in its common form in capitals, e.g., KR-85, XE-133, I-131, etc. Press RETURN and the cursor will shift over under the amount title. Enter the appropriate % or concentration, then RETURN. If dealing with percents, the input will cease when 100% has been reached. In any other situation, pressing the RETURN key when prompted for a nuclide will end input.

27. The program will display the sample to release time, the whole body or thyroid DCF, and the units. A message will also be displayed instructing the user to press any key to continue. After this, return to Step 7..

28. The screen will display a parameter menu and ask if you wish to make any changes. The instructions at the bottom of the screen should be followed to (1) change any parameter, (2) re-run the program, or (3) terminate the program. Once the parameter screen has been displayed, there is no need to start again at the beginning of the program unless to specify another site.

9.0 PROCEDURE STEPS

9.2 METEOROLOGICAL DATA (Cont'd)

- Upper wind speed pulses.
- Upper wind direction sine pulses.
- Upper wind direction cosine pulses.
- Lower wind speed pulses.
- Lower wind direction sine pulses.
- Lower wind direction cosine pulses.
- Temperature pulses.
- Differential temperature 1 pulses.
- Differential temperature 2 pulses.

8. The pulses and the usable information they represent will then be displayed on the screen. At the bottom of the screen two messages will be flashing. The first instructs the user to type SHIFT (the upward arrow on the keyboard) and PrtSc if they want a copy of what is on the screen. In this case, make sure the printer is on. When you are done reviewing the meteorological data, press any key as instructed by the second message and you will return to the dose projection program at Step 2.

9.3 METEOROLOGICAL FORECAST

1. When it is necessary to receive a forecast from the CP&L Corporate Meteorological staff, the user has the option of using the computer to obtain this information. If this is desired, type TALK then RETURN when in the DOS mode. An introduction to the program is displayed and as instructed, press any key to continue.

2. Establish verbal communication with meteorological personnel to inform them that you want a forecast.

   NOTE: It is advisable to maintain this separate communication line until the forecast is satisfactorily received.

3. If the meteorological unit decides to call your computer, then proceed to Step 5; otherwise, continue below.

9.0 PROCEDURE STEPS

9.3 METEOROLOGICAL FORESCAST (Cont'd)

11. Inform the meteorological personnel that the forecast was correctly received and terminate verbal communication. Reset the modem. Press the Alt key and X key simultaneously and enter Y for yes in answer to the next question in order to exit TALK.

12. To obtain a hard copy of the forecast, ensure you are in the DOS mode then enter FORECAST and press RETURN. The screen will clear and the introduction to the program will be displayed. As instructed, press any key. Next you will be asked for the forecast file name. Enter the forecast file name as you specified it in Step 7.

13. The program will search for the file and upon finding it will display it on the screen and direct it to the line printer. When the printer stops, the forecast is complete.

9.4 NATIONAL WEATHER SERVICE METEOROLOGY

1. This section is mainly of use when meteorological information cannot be obtained from the MET tower or the CP&L Corporate Meteorological staff. The telephone number to contact the National Weather Service can be found in the Plant Special Order, "Personnel and Telephone Listing."

2. While in the DOS mode, enter NWS then press RETURN. The screen will clear and an introduction to the program will be displayed. As instructed, press any key to continue.

3. The screen will display "WIND SPEED (KNOTS)." Enter the wind speed in these units.

4. The screen will display "CLOUD COVER (TENTHS)." Enter the cloud cover in tenths; i.e., a totally overcast sky would have a cloud cover equal to 10 tenths.

5. The screen will display "CLOUD CEILING (FEET)." Enter the cloud ceiling in feet. If there is no cloud ceiling, enter 99,999 feet.

6. The program now computes the stability class and displays it along with the information entered and the time and date. If you want a hard copy, enter SHIFT and PrtSc. This marks the end of the program.

ATTACHMENT 1

VERIFICATION OF "DOSE"

(A COMPUTER PROGRAM FOR EMERGENCY DOSE PROJECTIONS)

This exhibit is intended to provide a means to ensure that "DOSE," the dose projection program designed for the IBM Personal Computer, is working properly. This is demonstrated by duplicating expected results of known computer inputs. These results can also be validated by comparison to manual calculations for the same input.

Three different test cases are presented so that a number of alternate paths within this program can be tested. The test cases with their expected results follow.

ATTACHMENT 1 (Continued)

SHEARON HARRIS NUCLEAR POWER PLANT SITE
WHOLE BODY DOSE PROJECTION 13:15:44 08-02-1984
STABILITY CLASS: E
WIND VELOCITY: 5 (MPH) BLOWING FROM 0 (DEGREES)
SOURCE TERM: 6804000 (CURIES)
ESTIMATED DURATION OF RELEASE: 1 (HOURS)
RELEASE HEIGHT: 0 (METERS)
TIME FROM SAMPLE TO RELEASE: 2 (HOURS)
DCF AT POINT OF RELEASE: 178.1837 (REM/HR)/(CURIE/M^3)

DISTANCE (METERS/MILES)	DOSE (REMS)	X/Q (SEC/METERS^3)
1608 / 1.00	2.04E+01	6.05E-05
3216 / 2.00	7.25E+00	2.15E-05
4824 / 3.00	4.08E+00	1.21E-05
6432 / 4.00	2.74E+00	8.14E-06
8040 / 5.00	2.02E+00	6.01E-06
9648 / 6.00	1.58E+00	4.70E-06
11256 / 7.00	1.29E+00	3.82E-06
12864 / 8.00	1.08E+00	3.20E-06
14472 / 9.00	9.22E-01	2.74E-06
16080 / 10.00	8.02E-01	2.38E-06

ISOTOPE	(μC/cc) CONCENTRATION	(HOURS) HALF-LIFE	DCF	ADJ. DCF
KR-85	10	93910	1.19	.1958915
KR-85M	10	4.48	84.4	10.19665
KR-87	10	1.27	478	26.42047
KR-88	10	2.84	1230	124.2889
KR-89	10	.053	1090	7.882991E-10
XE-131M	10	284.16	4.47	.7322582
XE-133	10	125.88	17.8	2.898099
XE-133M	10	52.56	15.4	2.469127
XE-135	5	9.109999	152	10.74521
XE-135M	5	.256	228	8.357615E-02
XE-137	5	.0638	102	3.085829E-09
XE-138	5	.2355	671	.1535296

.1 REM ISOPLETH COORDINATES (+/- METERS)

X	Y
1608	256
3216	430
4824	577
6432	707
8040	824
9648	931
11256	1029
12864	1120
14472	1205
16080	1283

ATTACHMENT 1 (Continued)

CASE 2 --- THYROID DOSE PROJECTION

Computer Prompt	Expected Input
-Do you want to get met data?	NO
-Is there a known DCF you wish to use?	NO
-Do you know the nuclide mix?	NO
-Whole body (W) or thyroid (T) dose projection?	T
-Source term units (0-curies/sec,1-curies)?	1
-Source term (curies)?	750
-Time since reactor shutdown (hours)?	1
-Stability class?	B
-Wind velocity (mph)?	20
-Direction wind blowing from (degrees)?	180
-Standard distances are site boundary (2500 ft.), Exclusion Area Boundary (7500 ft.), 2, 5, 10 miles. Do you want to use these?	YES
-Isopleth value?	RETURN KEY

The results should resemble those on the following page. If they do not, carefully check your inputs and try the test again. If the results still are not similar, try a backup copy of the program. If that fails then seek programming help.

ATTACHMENT 1 (Continued)

CASE 3 --- THYROID DOSE PROJECTION--MIXED MODE RELEASE

Computer Prompt	Expected Input
-Do you want to get met data?	NO
-Is there a known DCF you wish to use?	NO
-Do you know the nuclide mix?	NO
-Whole body (W) or thyroid (T) dose projection?	T
-Source term units (0-curies/sec,1-curies)?	1
-Source term (curies)?	1500
-Time since reactor shutdown (hours)?	1
-Stability class?	D
-Wind velocity?	15
-Direction wind blowing from (degrees)?	180
-Standard distances are site boundary (2500 ft.), Exclusion Area Boundary (7500 ft.), 2, 5, 10 miles. Do you want to use these?	YES
-Isopleth value?	RETURN KEY

The results should resemble those on the following page. If they do not, carefully check your inputs and try the test again. If the results still are not similar, try a backup copy of the program. If that fails then seek programming help.

ATTACHMENT 2

INPO CHECKLIST FOR DOSE PROJECTION PROCEDURES

SOURCE TERM

	YES	NO
A. DIRECT EFFLUENT MEASUREMENT	X	
1. Monitors	X	
a. Actual Mix		X
b. Xe-133	X	
c. 98% Xe, 2% I-131		X
d. Coolant, Gap, Fuel Mix		X
2. Grab Samples	X	
B. PROJECTIONS	X	
1. Inventory	X	
a. Coolant (Kr, Xe, I)		X
b. Gap (Kr, Xe, I, Cs)	X	
c. Fuel (Kr, Xe, I, Cs, Te, Sr, Ba)		X
d. Waste Gas (Kr-85)		X
2. Pathway (Holdup)		X
a. Containment		X
b. Steam Generator		X
c. Auxiliary Building		X
3. Decontamination Factors		X
a. Natural Process		X
b. Engineering Safety Features		X

Dispersion

A. TYPE OF MODEL - CAPABILITY	X	
1. Straight-Line or Variable Trajectory	X	

(Continued)

	YES	NO
G. OUTPUT FOR COMPARISON	X	
1. X/Q (Function of Distance/Time)	X	
Dosimetry		
A. EXTERNAL DOSE	X	
1. Cloud	X	
a. Finite/Semi-Infinite	X	
b. Ground Level/Elevated	X	
c. Shielding/Sheltering Factor		X
d. Dose Conversion Factors	X	
2. Ground Contamination		X
a. Dose Conversion Factor		X
B. INTERNAL (INHALATION) DOSE	X	
1. Thyroid-Iodine	X	
a. Child/Infant Receptor	X	
b. Breathing Rate	X	
c. Dose Conversion Factor	X	
2. Other Organs - Lungs		X
a. Critical		X
b. Breathing Rate		X
c. Nuclide		X
d. Dose Conversion Factor		X

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-351

TITLE: EMERGENCY PLANT ENVIRONMENTAL MONITORING

REVISION 0

APPROVED: C A Gibson (Signature) 8/21/84 (Date)

TITLE: Asst to General Manager

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1.0 PURPOSE

This procedure provides instructions for performing prompt emergency off-site radiological environmental monitoring surveys in the event of a release of radioactive material from the plant. This procedure implements Section 4.4.4 of the SHNPP Emergency Plan.

2.0 REFERENCES

2.1 Emergency Plan References

1. Section 2.4.6.3, "Environmental Monitoring Team Leader"
2. Section 2.4.6.4, "Environmental Monitoring Teams"
3. Section 4.4.4, "Environmental Monitoring"
4. Table 3.1-1, "Emergency Supplies"
5. Table 2.2-1, "On-Shift Staffing for Emergencies"

2.2 Referenced Plant Emergency Procedures

1. PEP-206, "Environmental Monitoring Team Leader"
2. PEP-321, "Notification of Emergency Personnel"

2.3 Other References

1. Shearon Harris Energy and Environmental Center Instruction RC-EM-19,"Environmental Monitoring Team Field Procedures."

3.0 RESPONSIBILITIES

3.1 Prior to activation of the Technical Support Center, the Site Emergency Coordinator is responsible for implementation of this procedure.

3.2 When the Technical Support Center is activated, the Environmental Monitoring Team Leader is responsible for implementation of this procedure.

3.3 When the Emergency Operations Facility is activated, the Environmental Supervisor assumes responsibility for off-site environmental monitoring.

3.4 Both the Plant and Shearon Harris Energy and Environmental Center Environmental Monitoring teams report to the Technical Support Center Prior to Emergency Operations Facility activation, after which the plant team members return to the plant site to assist the Plant Monitoring Team.

4.0 DEFINITIONS

1. Plant Team: An Environmental Monitoring Team composed of personnel from the Harris Plant Operations Section, Harris Nuclear Project Department.

2. Shearon Harris Energy and Environmental Center Team:

   An Environmental Monitoring Team composed of personnel from the Radiological and Chemical Support Section, Operations Training and Technical Services Department.

5.0 GENERAL

Upon the declaration of a Site Emergency or General Emergency, notification of the Environmental Monitoring Team Leader and the Environmental Supervisor is made in accordance with PEP-321, "Notification of Emergency Personnel." Mobilization of Plant and Shearon Harris Energy and Environmental Center Environmental Monitoring Teams follows.

The activities of a Plant team are limited to performing direct radiation surveys and collecting water and air samples (for iodine measurements) in accordance with this procedure.

Shearon Harris Energy and Environmental Center Teams will be responsible for soil sampling, milk sampling, vegetation sampling, environmental measurements using thermoluminescent dosimeters, and air sampling (particulate, iodine, noble gas), in addition to the above.

6.0 INITIATING CONDITIONS

The Site Emergency Coordinator has declared an Alert, Site Emergency, or General Emergency, and a release off-site of radioactive material is projected to occur, known to have occurred, or suspected to have occurred.

7.0 PRECAUTIONS AND LIMITATIONS

7.1 PRECAUTIONS

1. Teams should maintain frequent radio contact with the Environmental Monitoring Team Leader.

2. The Personnel Protection and Decontamination Team Leader should be consulted prior to dispatching teams to ensure appropriate protective clothing, dosimetry, and respirators are used. Changes in radioactive release conditions may cause the radiation protection requirements to be changed.

7.0 PRECAUTIONS AND LIMITATIONS

3. Teams should not linger in the plume (of airborne radioactivity).

4. Roads to survey locations in the southern sectors are very narrow, and usually require chains when snowpacked. Exercise caution when traveling these roads to survey during inclement weather.

7.2 LIMITATIONS

The iodine air sampling and analysis methods referenced are of limited accuracy. 100% collection efficiency and 10% counting efficiency are assumed.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Hand held radio transceivers operating on the CP&L emergency environmental monitoring frequency (Motorola).

2. Environmental Monitoring Kits.

3. Vehicles.

4. Protective clothing, respiratory protection equipment, and dosimetry (as specified by the Personnel Protection and Decontamination Team Leader).

5. Portable electric generator.

9.0 PROCEDURE STEPS

9.1 DISPATCH OF PLANT ENVIRONMENTAL MONITORING TEAMS

1. The Environmental Monitoring Team leader shall brief the team members on plant status and radiological conditions likely to be encountered.

2. Obtain the environmental monitoring kit, portable generator, and radio from the Operations Support Center. Perform battery check and source check on survey instruments, then proceed to the Security Building.

3. Obtain vehicle keys from Security, and load equipment into the vehicle. Check fuel level in vehicle.

4. Make radio contact with the Environmental Monitoring Team Leader and proceed to locations as directed (Attachments 1 and 2). Don protective gear as directed.

9.0 PROCEDURE STEPS

9.2 DISPATCH OF SHEARON HARRIS ENERGY AND ENVIRONMENTAL CENTER ENVIRONMENTAL MONITORING TEAMS

1. The Environmental Supervisor (Emergency Operations Facility position title) will be notified whenever an Alert, Site Emergency, or General Emergency is declared in accordance with PEP-321, "Notifications and Communications."

2. The Environmental Supervisor will mobilize Shearon Harris Energy and Environmental Center Environmental Monitoring Teams.

3. The Shearon Harris Energy and Environmental Center Environmental Monitoring Teams will, via radio, report their readiness to the Environmental Monitoring Team Leader in the Technical Support Center or if activated, the Environmental Supervisor in the Emergency Operations Facility.

9.3 DIRECT RADIATION MEASUREMENTS

Proceed to locations as directed, stop vehicle, and perform direct radiation measurements in accordance with RC-EM-19, "Environmental Monitoring Team Field Procedure."

9.4 WATER SAMPLES

Collect water at locations specified by the team leader in accordance with RC-EM-19, "Environmental Monitoring Team Field Procedures."

9.5 RADIOIODINE AIR SAMPLES

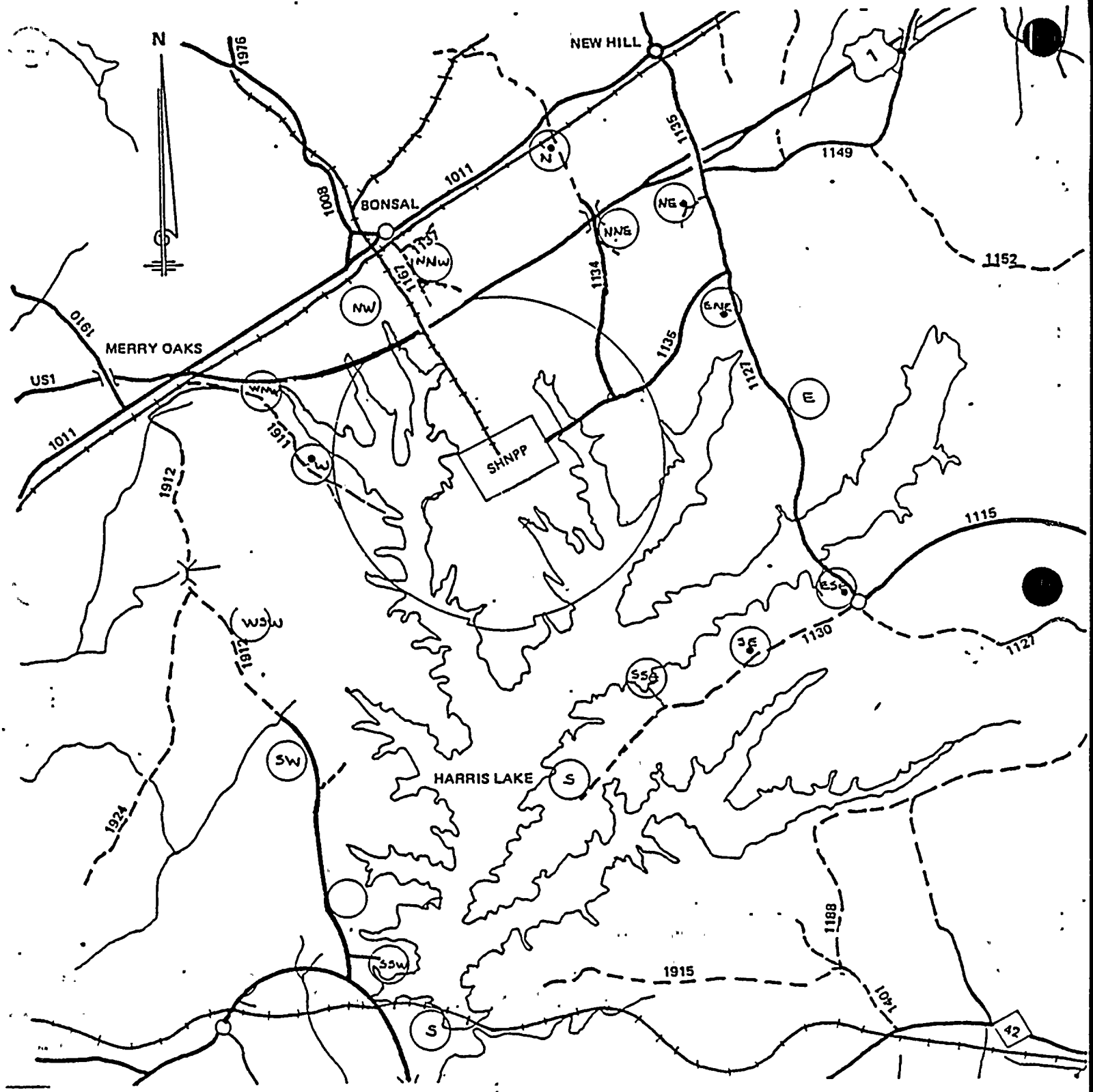
Collect air samples and perform a field estimate of airborn radioiodine concentration in accordance with RC-EM-19, "Environmental Monitoring Team Field Procedures."

10.0 DIAGRAMS/ATTACHMENTS

1. Emergency Environmental Monitoring Location Map (9 pages).

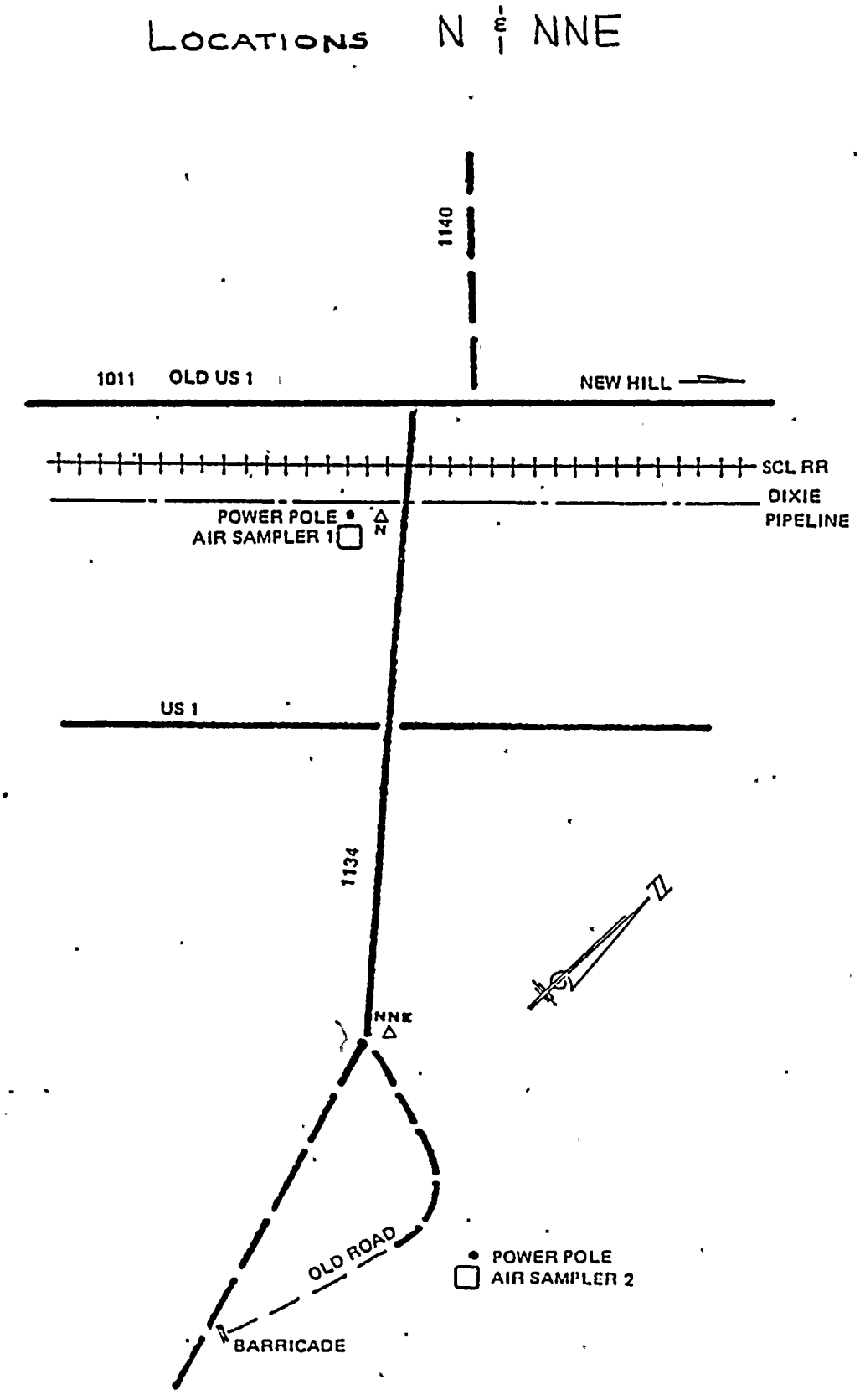
2. Locations for Initial Near-Site Emergency Environmental

EMERGENCY ENVIRONMENTAL MONITORING LOCATION MAP



ATTACHMENT 1 (Continued)

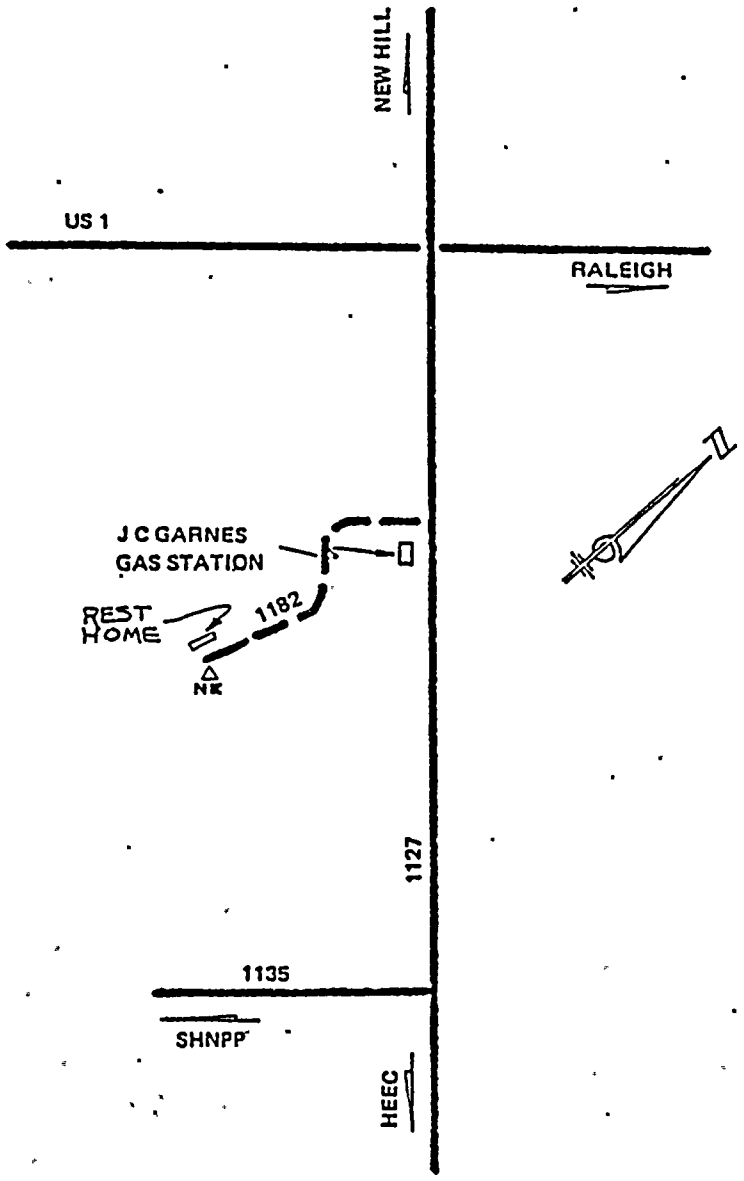
EMERGENCY ENVIRONMENTAL MONITORING LOCATION MAP



ATTACHMENT 1 (Continued)

EMERGENCY ENVIRONMENTAL MONITORING LOCATION MAP

LOCATION NE



9.0 PROCEDURE STEPS

- If the activity concentration was determined from a grab sample, convert flowrate in KLBM/HR to milligrams per second (mg/sec) by multiplying by 1.26E+5. Record the result on Attachment 2 as corrected steam flow and circle the units as mg/sec.

- If the activity concentration was determined from the radiation monitoring system, select the correction factor from the table below that most closely corresponds to the indicated steam pressure, multiply the uncorrected steam flowrate in KLBM/HR by the selected factor, and record the result on Attachment 2 as corrected steam flow. Circle the units as cc/sec.

Steam Pressure PSIG	Correction Factor
100	34,840
200	17,986
300	12,132
400	9,129
500	7,294
600	6,051
700	5,152
800	4,471
900	3,935
1000	3,503
1000	3,145
1200	2,845
1300	2,589
1400	2,368

3. If the release pathway is ventillation exhaust:

- Obtain the reading if available in cubic feet per minute from the appropriate flowmeter:

  FT-4875SA for vent stack 1
  FT-4420 for vent stack 3A
  FT-3899A for vent stack 5
  FT-3899B for vent stack 5A

  OR

- Assume the maximum design flowrate:

  vent stack 1 - 390,000 cfm
  vent stack 3A - 22,650 cfm
  vent stack 5 - 207,000 cfm
  vent stack 5A - 103,500 cfm

9.0 PROCEDURE STEPS

- Multiply the flowrate in cubic feet per minute by 472 to convert to cubic centimeters per second, and record both values on Attachment 2.

9.5 Determine the Source Term • Dose Conversion Factor Product by one of the following methods:

1. If activity concentration was determined from a grab sample:

   - Estimate the time in hours after reactor shutdown that the plume will pass the point of interest. Calculate the decay corrected activity for each isotope and record it in Column 4 of Attachment 7, using the formula $A_t=A_o e^{-\lambda t}$.

   - For each isotope, calculate and record the fractional source term • dose conversion factor product, using the formula $(Q \cdot DCF) = A_t \cdot DCF \cdot (\text{Flow Rate})$. Flow rate must be in units of cc/sec or mg/sec.

   - Add the fractional Iodine (Child thyroid) source term • dose conversion factor products. Record the total in Column 6 of Attachment 7 and also on Attachment 2.

   - Add the fractional noble gas (whole body) source term • dose conversion factor products. Record the total on Column 6 of Attachment 7 and also on Attachment 2, and append Attachment 7 to Attachment 2.

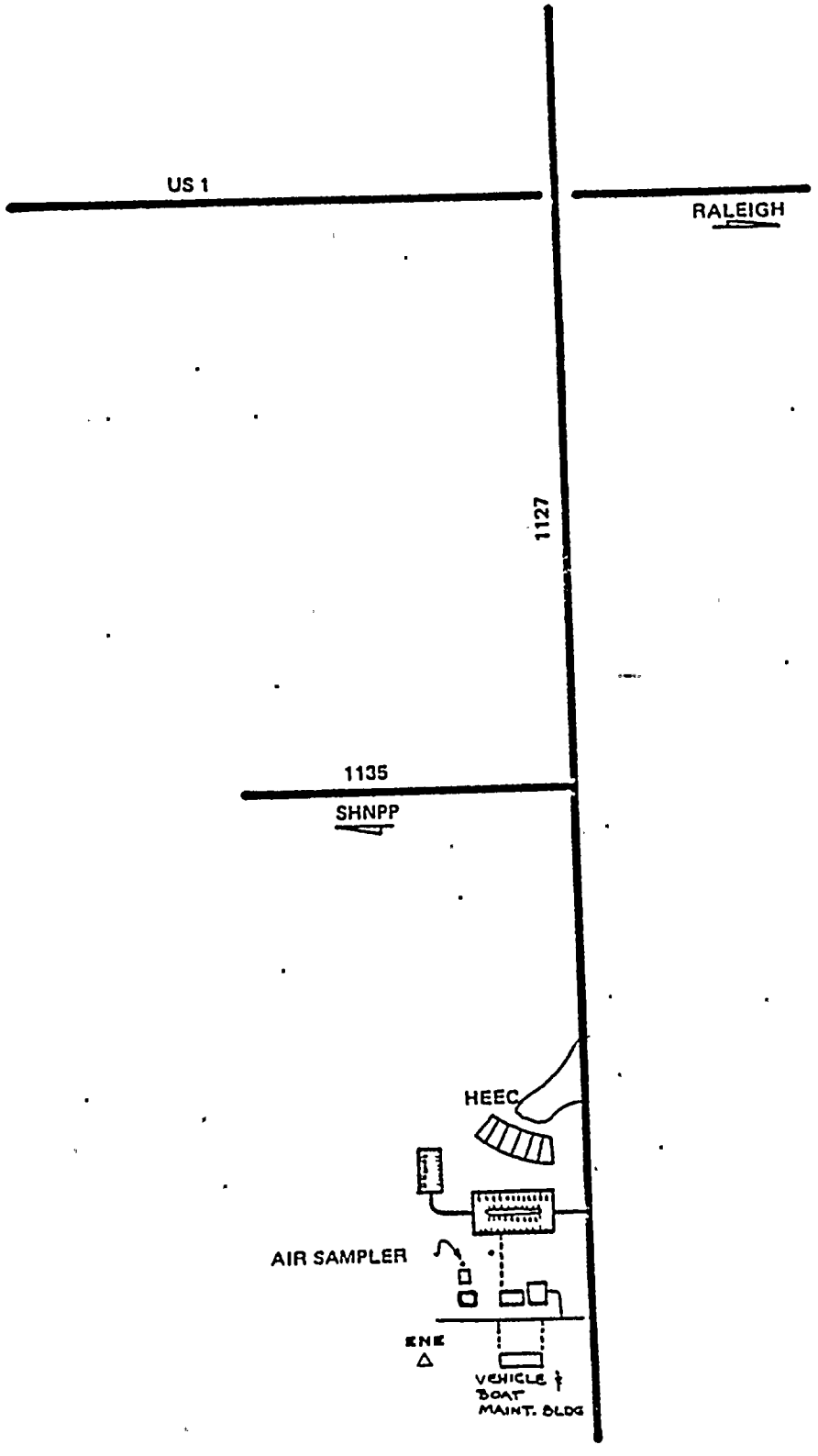
2. If activity concentration was determined from the radiation monitoring system:

   - Using the best available information on the type of accident, select a Thyroid and a Whole Body dose conversion factor from the table in Attachment 4. Use Attachment 1 as an aid in determining the type of accident. The accident type is used to aid in determining time after reactor shutdown when the plume is expected to reach the point of interest, which is specific to the source of the release. (e.g., "Time After Reactor Shutdown" for a gas decay tank that was last on line with the reactor at power 18 hours ago, with a five mile per hour wind and the point of interest is five miles=18 +(5/5) = 19 hours, you would use the closest conservative time in the table, i.e., 24 hours for child thyroid and 12 hours for whole body.) If the time after reactor shutdown cannot be determined, use 4.73E+2 for the whole body dose conversion factor and 3.42E+6 for the child thyroid dose conversion factor. Record the selected dose conversion factors on Attachment 2.

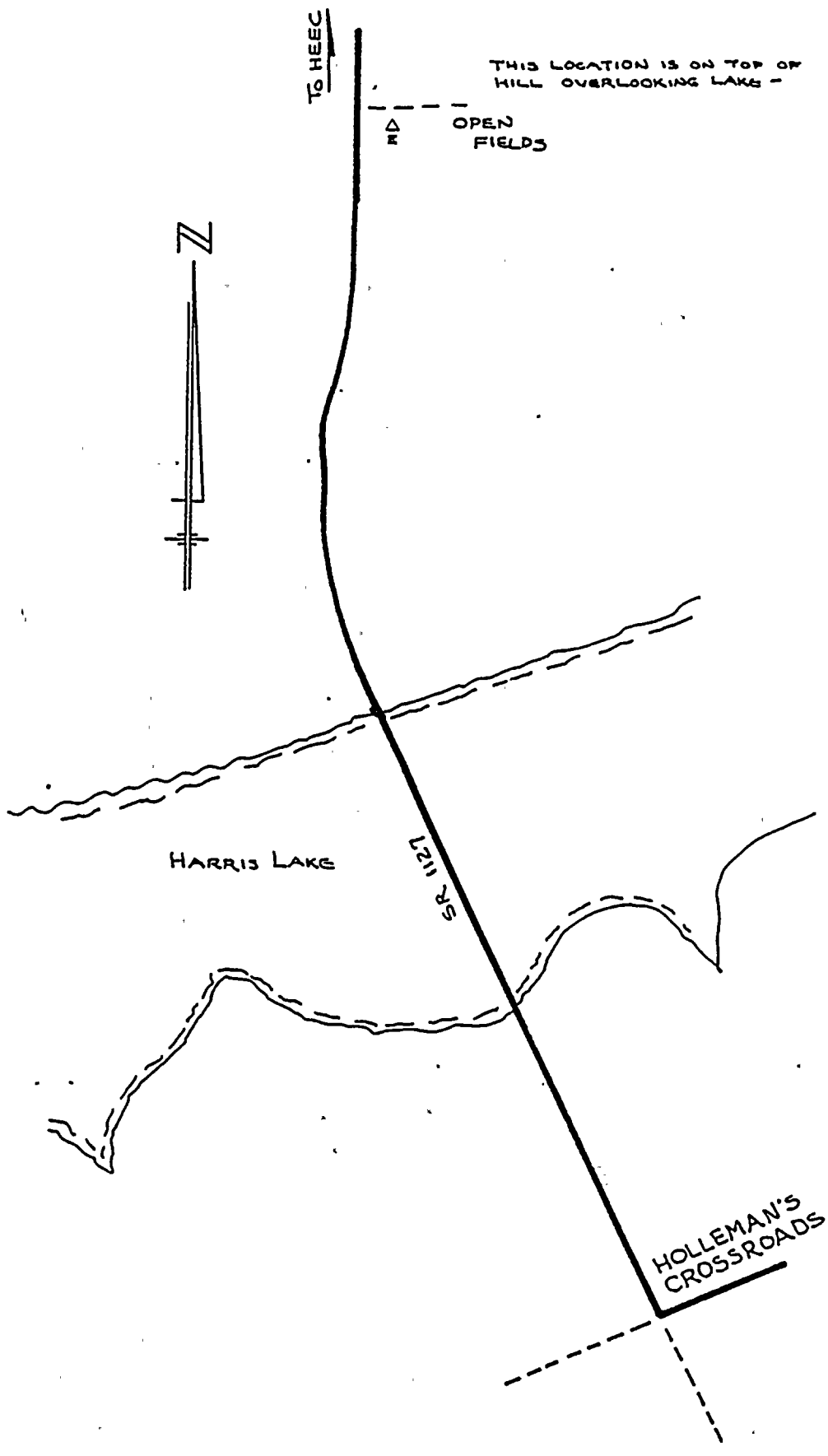
ATTACHMENT 1 (Continued)

EMERGENCY ENVIRONMENTAL MONITORING LOCATION MAP

LOCATION, ENE

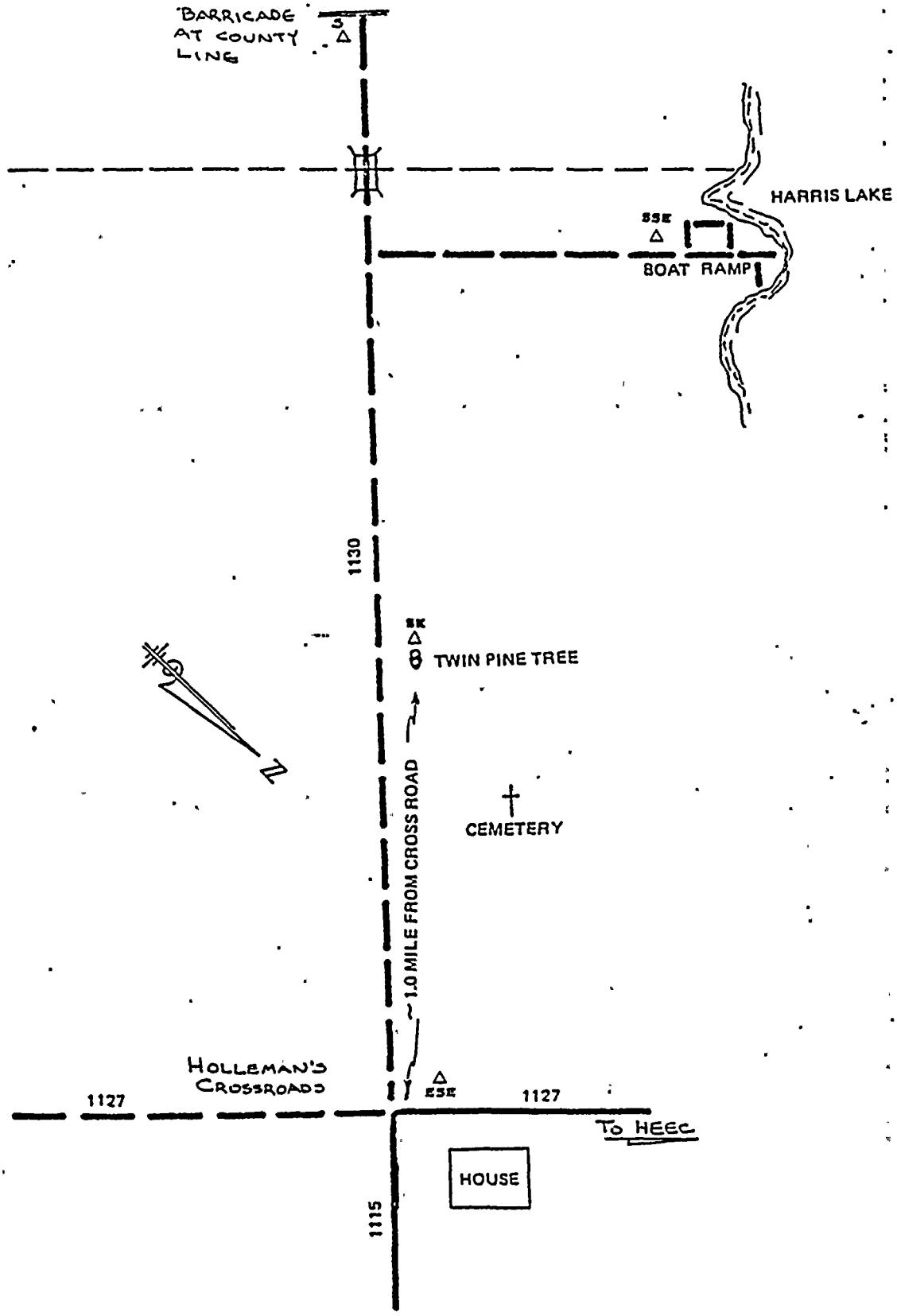


ATTACHMENT 1 (Continued)
EMERGENCY ENVIRONMENTAL MONITORING LOCATION MAP
LOCATION E



EMERGENCY ENVIRONMENTAL MONITORING LOCATION MAP

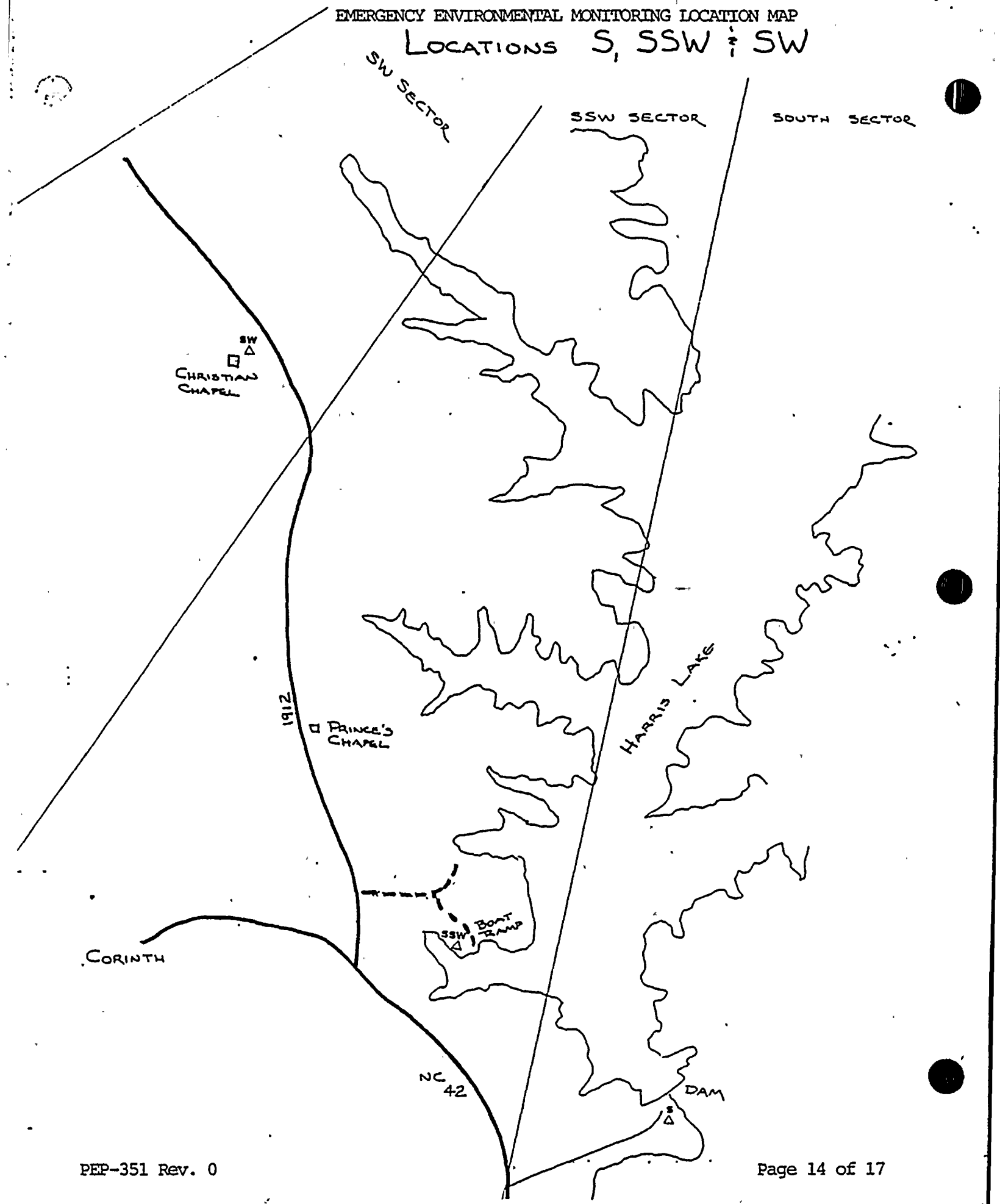
LOCATIONS ESE, SE, SSE & S



ATTACHMENT 1 (Continued)

EMERGENCY ENVIRONMENTAL MONITORING LOCATION MAP

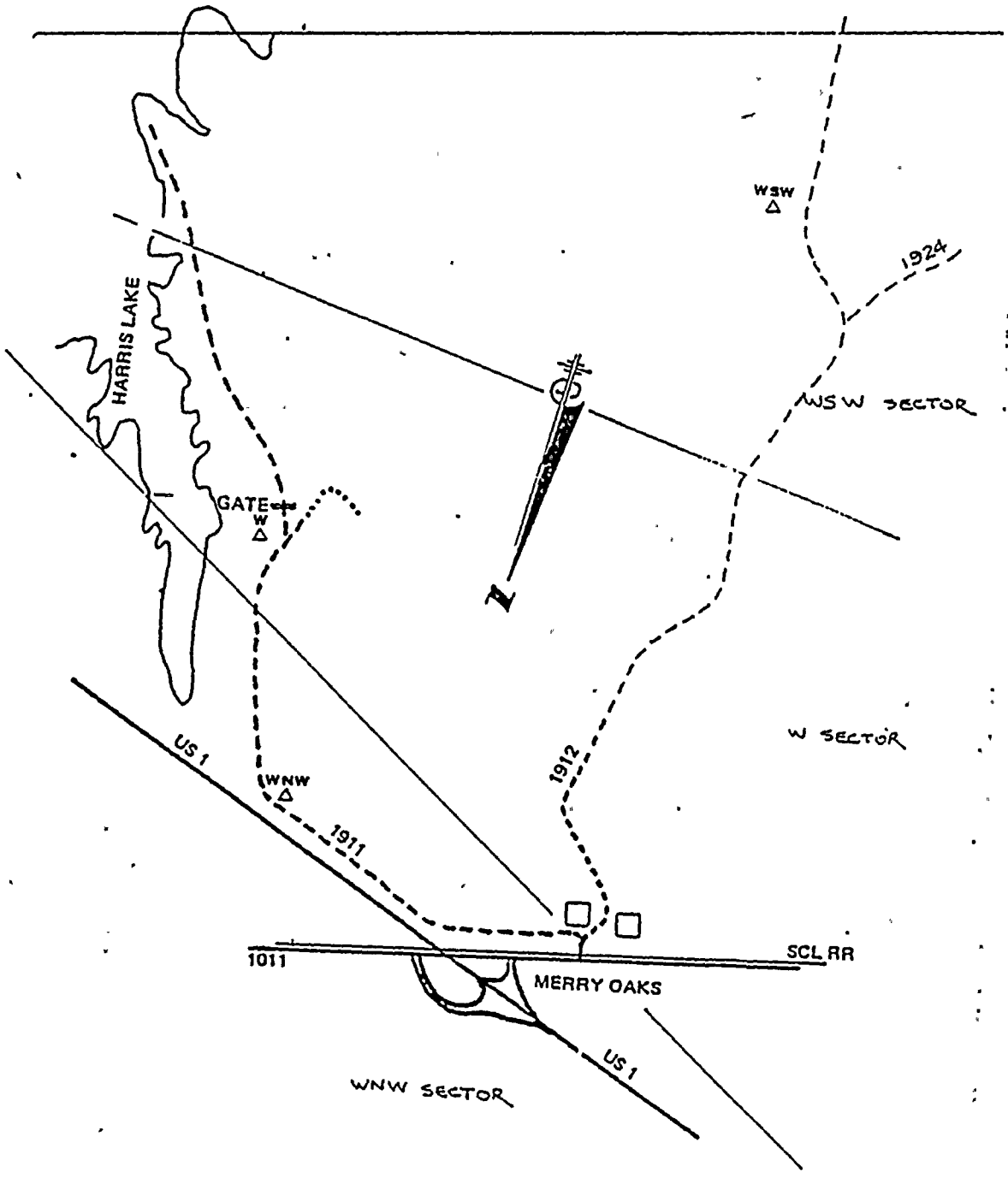
LOCATIONS S, SSW & SW



ATTACHMENT 1 (Continued)

EMERGENCY ENVIRONMENTAL MONITORING LOCATION MAP

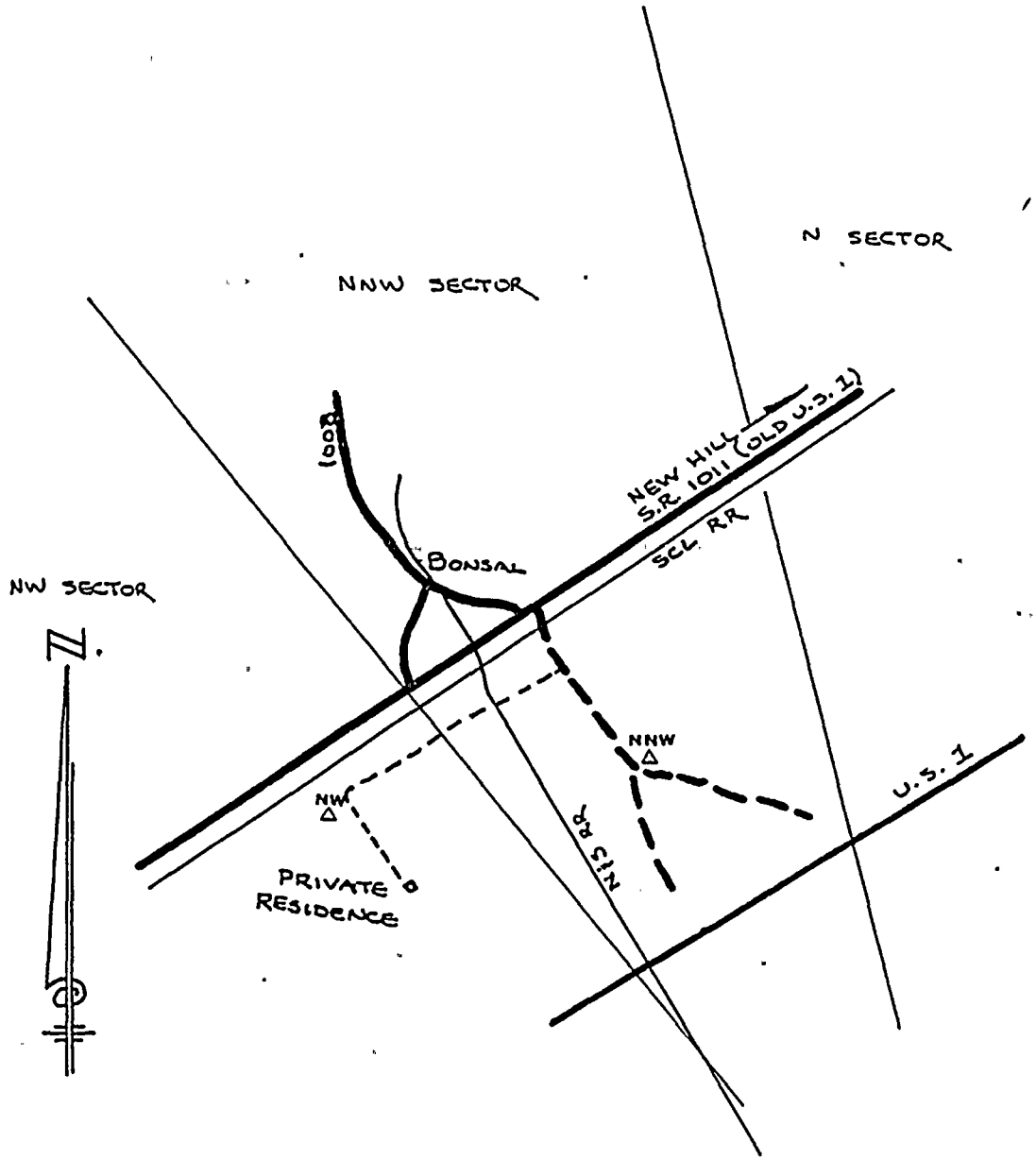
LOCATIONS WSW, W, WNW



ATTACHMENT 1 (Continued)

EMERGENCY ENVIRONMENTAL MONITORING LOCATION MAP

LOCATIONS NW, NNW



ATTACHMENT 2

DOWNWIND	LOCATION DESCRIPTION	DESIGNATOR DEGREE/MILES
N	Near intersection of S.R. 1134 and SCL R.R. at Dixie Pipeline R/W	007°/02.6
NNE	Approximately 0.15 miles S of US1 on SR 1134 and intersection of unpaved dead end road	002/01.9
NE	Turn W at J.C. Garnes Texaco Station on 1135 - proceed to end of road near rest home	036/02.3
ENE	Parking lot at vehicle maintenance/boat shed at Harris Energy and Env. Center	060/02.0
E	Proceed approximately 1 mile South of HEEC on SR 1127- There is an open knoll on east side of road	081/02.2
ESE	Holleman's Crossroads	117/02.9
SE	Approximately 1.0 mile WS of Holleman's Crossroads on SR 1130	130/02.4
SSE	Boat landing parking lot on SR 1130	155/02.0
S	Near barricade (Wake Co. line) on SR 1130	173/02.7
S	Near Harris Lake Dam Maintenance lot	190/04.7
SSW	Near CP&L boat landing - East of SR 1912	194/04.3
SSW	Near Prince Chapel on SR 1912	202/03.7
SW	Near Christian Church on SR 1912	220/02.8
WSW	Near intersection of SR 1912 and SR 1924	251/02.8
W	Near gate at end of SR 1911	265/01.4
WNW	Proceed approx. 0.8 miles on SR 1911 from SR 1912 at Merry Oaks	289/02.2
NW	From Bonsal, proceed SE on SR 1167 - after crossing over SCL RR, turn right into private road leading to the Fish residence - proceed approx. 0.5 miles west to sharp bend in road	318/02.0
NNW	Near Bonsal, near intersection of SR 1167 and SCL RR	332/02.1

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT-EMERGENCY PROCEDURE

NUMBER: PEP-362

TITLE: INTERPRETATION OF LIQUID AND GAS SAMPLES

REVISION 0

APPROVED: _____ DATE: 8/24/84
Signature

TITLE: Asst to General Manager

TABLE OF CONTENTS

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1.0 PURPOSE

The purpose of this procedure is to implement Section 4.4, "Assessment Actions," of the SHNPP Emergency Plan.
This procedure provides the means to relate core damage with measurements of radionuclide concentrations and with auxiliary indications (reactor vessel level, core exit thermocouples, containment hydrogen and radiation levels) such that it is possible to distinguish the four major fuel conditions: no damage, clad failure, fuel overheat, and core melt.

The approach utilized is the measurement of fission product concentrations via the post-accident sampling system and spectroscopic analysis. These results are corrected to account for sample pressures and temperatures, precursor effects, and radioactive decay to obtain the total activity release for the various isotopes. These are compared to the initial activity available for release from the core; the quantity and type of isotopes released are used to estimate the type and extent of core damage.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 4.4, "Assessment Actions"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-218, "Accident Assessment Team Leader"

2.3 OTHER REFERENCES

1. CRC-828, "Isotopic Analysis for Core Damage Evaluation"
2. Westinghouse Owners Group document, "Core Damage Assessment Methodology," February 1984.

3.0 RESPONSIBILITIES

1. The Accident Assessment Team is responsible for performing this procedure.

4.0 DEFINITIONS/ABBREVIATIONS

4.1 Terminology

None Applicable

4.2 ACRONYMS

1. BOL - Beginning of Life
2. CCW - Component Cooling Water
3. CF - Correction Factor

4.0 DEFINITIONS/ABBREVIATIONS

4.2 ACRONYMS (Cont'd)

4. EOL - End of Life
5. EFPD - Effective Full Power Days
6. MCB - Main Control Board
7. MOL - Middle of Life
8. PASS - Post Accident Sample Systems
9. PCF - Power Correction Factor
10. RCP - Reactor Coolant Pump
11. RCS - Reactor Coolant System
12. RTP - Rated Thermal Power
13. RVLIS - Reactor Vessel Level Indication System
14. SGTR - Steam Generator Tube Rupture
15. STP - Standard Temperature and Pressure

5.0 GENERAL

None Applicable

6.0 INITIATING CONDITIONS

1. An emergency has been declared and the Accident Assessment Team has been activated.

7.0 PRECAUTIONS AND LIMITATIONS

7.1. ACCURACY: The categories of core damage are considered to overlap considerably; this is, however, consistent with the intent of the procedure to provide a generalized estimate of the extent of core damage.

7.2 SPIKING PHENOMENA: If major transients in core power, pressure, or temperature have occurred prior to shutdown, iodine concentrations may indicate a significantly more severe damage state, and should therefore be considered -- Figure 6.

7.3 O_2 CONCENTRATION: If a significant decrease in containment oxygen concentration has occurred since shutdown, this may indicate a hydrogen burn has occurred, and should be considered in evaluating core damage.

7.4 SGTR OR OUTSIDE CONTAINMENT LOCA: If core activity has been released to systems not covered by the PASS, (e.g., secondary system, CCW), this procedure will give a non-conservative estimate of core damage. This will be noted as auxiliary indicators estimating more severe damage than the isotopic analysis. If accurate samples of these systems are available as well as reasonable estimates of the space volume or mass,

7.0 PRECAUTIONS AND LIMITATIONS

the methodology of this procedure may be applied to improve the accuracy of the isotopic release estimate of the core damage.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

NOTE: It is not necessary to have a complete isotopic analysis or to perform calculations for all the isotopes listed on Attachment 1, nor is it necessary to use sample analysis from all three locations. For a valid assessment of core damage, only one isotope from each of the three major groups is needed:

1. Clad Damage: Xe, Kr, I
2. Fuel Over-Temperature: Ba, Sr, Xe, Kr, I, Cs
3. Fuel Melt: Ce, Ba, Sr, Xe, I, Cs, Kr, Te, Sb

Additionally, samples are only required from locations consistent with accident conditions. For example, if no coolant has been released to containment, then containment sump and air sample analysis is not required.

9.1 As per Procedure CRC-828, "Isotopic Analysis for Core Damage Evaluation," request E&RC to sample the Reactor Coolant System, ECCS Recirculation Sumps, and the Containment Atmosphere, and perform spectroscopic analysis. From the data received, complete Form 2, recording time and date of samples, the actual pressures and temperatures of the samples when analyzed, and the containment atmosphere hydrogen and oxygen concentrations.

9.2 On Form 1, Column 11, enter the sample specific activity (μCi/g or μCi/cc) for each isotope, as determined from the analysis of Step 9.1.

9.3 On Form 1, Column 1, enter the time after shutdown (hrs.) from Form 2, Lines 3, 6, and 9, for Reactor Coolant System (R), ECCS Recirculation Sumps (S) and Containment Atmosphere (A) for each analyzed isotope.

9.4 Calculate the sample pressure/temperature correction factors by completing Form 3 (Part A) per the following instructions:

NOTE: If a sample is reported per unit mass, use a correction factor = 1.0 on Form 1, Column 13. Do not complete that section of Step 9.4.

9.0 PROCEDURE STEPS

9.4.1 A-1-1 and A-1-2: Containment Atmosphere Sample pressure and temperature from MCB instrumentation.

A-1-3 and A-1-4: Sample pressure and temperature from Form 2, Lines 8 and 7.

A-1-5: Containment atmosphere correction factor:

$$\frac{(A\text{-}1\text{-}1) * (A\text{-}1\text{-}4)}{(A\text{-}1\text{-}2) * (A\text{-}1\text{-}3)}$$

Enter calculated value on Form 1, Column 13, for each analyzed isotope's atmospheric sample.

9.4.2 A-2-1: Use RCS Sample temperature from Form 2, Line 7, and Figure 1 Temperature vs Density Ratio, H_2O.

A-2-2: Use RCS average temperature from MCB instrumentation and Figure 1 Temperature vs Density Ratio, H_2O.

A-2-3: CF = (A-2-2)/(A-2-1). Enter this value on Form 1, Column 13, for each analyzed isotope's RCS sample.

9.4.3 A-3-1: Use Containment Recirculation Sump Sample temperature from Form 2, Line 7, and Figure 1 Temperature vs Density Ratio.

A-3-2: Use sump temperature from MCB instrumentation and Figure 1 Temperature vs Density Ratio, H_2O.

A-3-3: CF = (A-3-2)/(A-3-1). Enter this value on Form 1, Column 13, for each analyzed isotope's sump sample.

9.5 Calculate the mass or volume of the three sample spaces by completing Form 3, Parts B, C, and D per the following instructions:

9.5.1 B-1: Pressure/temperature corrected containment free volume:

$$\frac{(A\text{-}1\text{-}2)}{(A\text{-}1\text{-}1)} * 2.04 \times 10^9 \text{ cm}^3$$

Enter the calculated value on Form 1, Column 15, for each analyzed isotope's containment atmosphere sample.

9.5.2 C-1: Containment level from MCB instrumentation or local indications.

C-2: Use Figure 2, H_2O STP Mass vs. Containment, to find mass of sump liquid at standard temperature and pressure.

9.0 PROCEDURE STEPS

C-3: Multiply STP sump mass by sump CF: (C-2) * (A-3-2). Enter calculated value on Form 1, column 15, for each isotope's recirculation sump sample.

9.5.3 D-1: When the pressurizer is empty, assume an otherwise filled RCS and multiply the RCS temperature correction factor by STP RCS mass: (A-2-2) * 2.14 x 10^8g.

or

D-2: When the pressurizer has a liquid level, multiply the RCS temperature correction factor by STP RCS and Pressurizer mass: (A-2-2) * [2.14 x 10^8g + (% PZR Level) * (.01) * (3.96 x 10^7g)].

Enter calculated value on Form 1, Column 15, for each analyzed isotope's RCS sample.

9.6 Calculate the correction factors for thermal power variation by completing Form 4 per the following instructions:

9.6.1 PART A: PCF for Long-Lived Isotopes [Cs-137, Sr-89, Sr-90]

A-1: Enter calendar days from initial criticality since refueling to time of reactor shutdown, obtained from operating logs.

A-2: Enter number of effective full power days during time period of A-1, obtained from operating logs.

A-3: $PCF = \frac{(A-1)}{(A-2)}$

Enter this value on Form 1, Column 18, for these three isotopes.

9.6.2 PART B: PCF for Short-Lived Isotopes [Kr-85m, Kr-87, Kr-88, Xe-135, I-132, I-133, I-135, Rb-88, Te-129, La-142, Pr-144]

B-1: If the reactor thermal power has been constant over the four (4) days prior to shutdown (‘10% RTP variation from 4-day average power level), then these isotopes have reached equilibrium, and the PCF is that fractional power level. Enter the value on Form 1, Column 18, for these nine isotopes.

Otherwise, Form 5 must be completed to account for power changes over the 4-day period. Using plant operating records, determine the power history for previous 96 hours. Whenever core power level has changed by more than

9.0 PROCEDURE STEPS

10% of rated thermal power (2775 MW), a separate Form 5 must be completed.

Instructions for Form 5:

NOTE: All transient time should be included at the lower power level for conservatism in the calculations.

Line (1): P_j - thermal power level for interval (MW_t)

Line (2): t_j - duration of core operation at Pj. (hrs)

Line (3): t_j* - duration from end of interval until shutdown (hrs)

Column (4): λ_i - decay constant of isotope

Column (5): 1 - exp (-(Column 4) * (Line 2))

Column (6): exp (-(Column 4) * (Line 3))

Column (7): (Line 1) * (Column 5) * (Column 6)

After completing the necessary Form 5s to cover the previous 96 hours, return to Form 4, Part B.

Column (1): For each isotope on the completed Form 5's, sum up the values recorded in Column (7), and enter that sum in the table.

Column (2): $RTP * (1-e^{-\lambda_i \Sigma t_j})$
Column (3): $PCF = \frac{(1)}{(2)}$

Enter this value on Form 1, Column 18, for these nine isotopes.

9.6.3 PART C: PCF for Intermediate-Lived Isotopes [Xe-131m, Xe-133, Xe-133m, I-131, Te-132, Ba-140, La-140]
C-1: If the reactor thermal power has been constant over the thirty (30) days prior to shutdown (‘ 10% RTP variation from the 30-day average power level), then these isotopes have reached equilibrium, and the PCF is that fractional power level. Enter the value on Form 1, Column 18, for these six isotopes.

Otherwise, Form 6 must be completed to account for power changes during the 30-day period. Using plant operating records, determine the power history for the previous 30 days. Whenever core power level has changed by more than 10% of rated thermal power (2775 MW), a separate Form 6 must be completed.

9.0 PROCEDURE STEPS

Instructions for Form 6:

NOTE: All transient time should be included at the lower power level for conservatism in the calculations.

Line (1): P_j - thermal power level for internal (MW_t)

Line (2): t_j - duration of core operation at P_j (days)

Line (3): t_j^* - duration from end of interval until shutdown (days)

Column (4): λ_i - decay constant at isotope

Column (5): 1-exp (-(Column 4) * (Line 2))

Column (6): exp (-(Column 4) * (Line 3))

Column (7): (Line 1) * (Column 5) * (Column 6)

After completing the necessary Form 6's to cover the previous 30 days, return to Form 4, Part C.

Column (1): For each isotope on the Form 6's completed, sum up the values recorded in Column 7 and enter that sum in the table.

Column (2): $RTP * (1-e^{-\lambda_i \Sigma t_j})$

Column (3): $PCF = \frac{(1)}{(2)}$

Enter this value on Form 1, Column 18, for these six isotopes.

9.6.4 PCF for Cs-134

Using the PCF for long-lived isotopes (A-3) and Figure 3 PCF for Cs-134, find the Cs-134 PCF. Enter this value on Form 1, Column 18 for Cs-134.

9.7 Complete Form 1 per the following instructions:

9.7.1 Column (4): exp (-(2) * (1))

9.7.2 Column (5): exp (-(3) * (1)) (if applicable for isotope)

9.7.3 Column (9): $\frac{[(6) * (7) * (2)]}{(3) - (2)} * [(4) - (5)] + [(8) * (4)]$

(if applicable for isotope)

(This is the isotope activity at time of sample.)

9.0 PROCEDURE STEPS

9.7.4 Column (10): $\frac{(8) * (4)}{(9)}$ (if applicable for isotope)

(This is the fraction of the isotope activity due to initial inventory at shutdown.)

9.7.5 Column (12): $\frac{(10) * (11)}{(4)}$

NOTE: For isotopes with two precursors,(Xe-133, Xe-135 and Te-129) add the two values of column 10 for each sample and subtract 1.0; then apply formula for Column (12).

(This accounts for the calculated precursor contribution and for radioactive decay since shutdown.)

9.7.6 Column (14): (12) * (13)

(This accounts for density variation of sample with the actual medium.)

9.7.7 Column (16): $(14) * (15) * 10^{-6}$

(This value is the total activity actually released in the RCS, sump, or containment atmosphere.)

9.7.8 Column (19): (17) * (18)

(This value is the source term corrected for power history and power level at shutdown.)

9.7.9 Column (20): $\frac{(16)}{(19)} * 100\%$. Sum the three values and enter as TOTAL.

(This value is the fraction of the total inventory available which was actually released to the RCS, sump, and containment atmosphere.)

9.7.10 Column (21): Applicable to noble gases and iodine:

Noble Gases - Divide isotope's column (20) Total by the Xe-133 column (20) Total.

Iodines - Divide isotope's column (20) Total by the I-131 column (20) Total.

9.8 Obtain the following general information from the data provided from the samples, plant operating records, control room personnel, Emergency Response Facility Information System and radiation monitors:

9.0 PROCEDURE STEPS

9.8.1 Containment Hydrogen (Form 1, Line 10) _____%

9.8.2 Containment Radiation Monitor _____R/hr.

9.8.3 Divide (9.8.2) by 2775 MW and multiply by 1.125 = _____R/hr-MWt

(This adjusts the radioactive levels to core power level and containment volume.)

9.8.4 All RCPs Stopped? Y/N _____

9.8.5 RVLIS - Was Core Uncovered? Y/N _____

Duration and depth of uncovery: _____

_____

9.8.6 Thermocouples - Superheated Steam? Y/N _____

Highest temperatures and duration:

_____

_____

9.9 Core Damage Assessment

From the isotope release fractions and gap activity ratios of Form 1, columns 20 and 21, estimate the state of the core using Figures 4 through 17. Categorize the fuel damage as -- (1) no damage; (2) clad failure (%); (3) fuel overheat (%); or (4) core melt (%). See section 7.0 before making final determination. Note that for each figure, maximum, nominal or minimum refer to core burnup--EOL, MOL or BOL.

As a correlation to these estimates, the data of Steps 9.8.1 - 9.8.3 is used with Figures 18 and 19. These provide estimates of clad failure based on noble gas activity and containment hydrogen concentration.

The following information applies to the analysis of RVLIS and core exit thermocouples, Steps 9.8.4 - 9.8.6:

* Highest clad temperatures will be greater than thermocouple readings -- thus if thermocouple readings are

  greater than 1300°F, clad failure may have occurred. (1300°F is the lower limit for clad failure.)

* If any RCP's are operating, thermocouples will be good indicators of clad temperature -- no core damage should occur due to cooling by steam - water forced flow.

If no RCP's are operating, the following apply:

9.0 PROCEDURE STEPS

* No generalized core damage can occur if the core has not uncovered; so if RVLIS indicates full range and thermocouple indicates no superheated steam, no generalized damage has occurred.

* If RVLIS indicates a liquid level of less than 3.5 ft. in the core OR thermocouples indicate superheated steam, then the core has uncovered and core damage may have occurred depending upon the time after shutdown, duration and depth of uncovery.

* If RVLIS indicates a liquid level between 3.5 ft. and the top of the core, then thermocouple readings should be monitored for superheated steam temperatures to determine if core uncovery has occurred.

10.0 DIAGRAMS/ATTACHMENTS

1. Temperature Vs. Density Ratio, H_2O
2. STP H_2O Mass Vs. Containment Level
3. Power Conversion Factor For Cs-134
4. Clad Damage Vs. Released Fraction of Xe-133
5. Clad Damage Vs. Released Fraction of I-131
6. Clad Damage Vs. Released Fraction of I-131 With Spiking
7. Clad Damage Vs. Released Fraction of Kr-87
8. Clad Damage Vs. Released Fraction of Xe-131m
9. Clad Damage Vs. Released Fraction of I-132
10. Clad Damage Vs. Released Fraction of I-133
11. Clad Damage Vs. Released Fraction of I-135
12. Activity Ratios of Noble Gases and Iodines
13. Fuel Over-Temperature Damage Vs. Released Fractions of Xe, Kr, I and Cs
14. Fuel Over-Temperature Damage Vs. Released Fractions of Ba and Sr
15. Fuel Melt Damage Vs. Released Fractions of Xe, Kr, I, Cs and Te
16. Fuel Melt Damage Vs. Released Fractions of Ba and Sr.

10.0 DIAGRAMS/ATTACHMENTS

17. Fuel Melt Damage Vs. Released Fraction of Pr.

18. Containment Hydrogen Concentration Vs. Zirconium - Water Reaction

19. Gamma Exposure Vs. Released Fraction of Noble Gases

20. Form 1, Isotope Release Worksheet

21. Form 2, PASS Data

22. Form 3, Sample Space Mass Calculations

23. Form 4, Power Factor Calculations

24. Form 5, Worksheet for Short-Lived Isotype PCF

25. Form 6, Worksheet for Intermediate-Lived Isotype PCF

ATTACHMENT 1
Figure 1
Temperature vs, Density Ratio, H2O

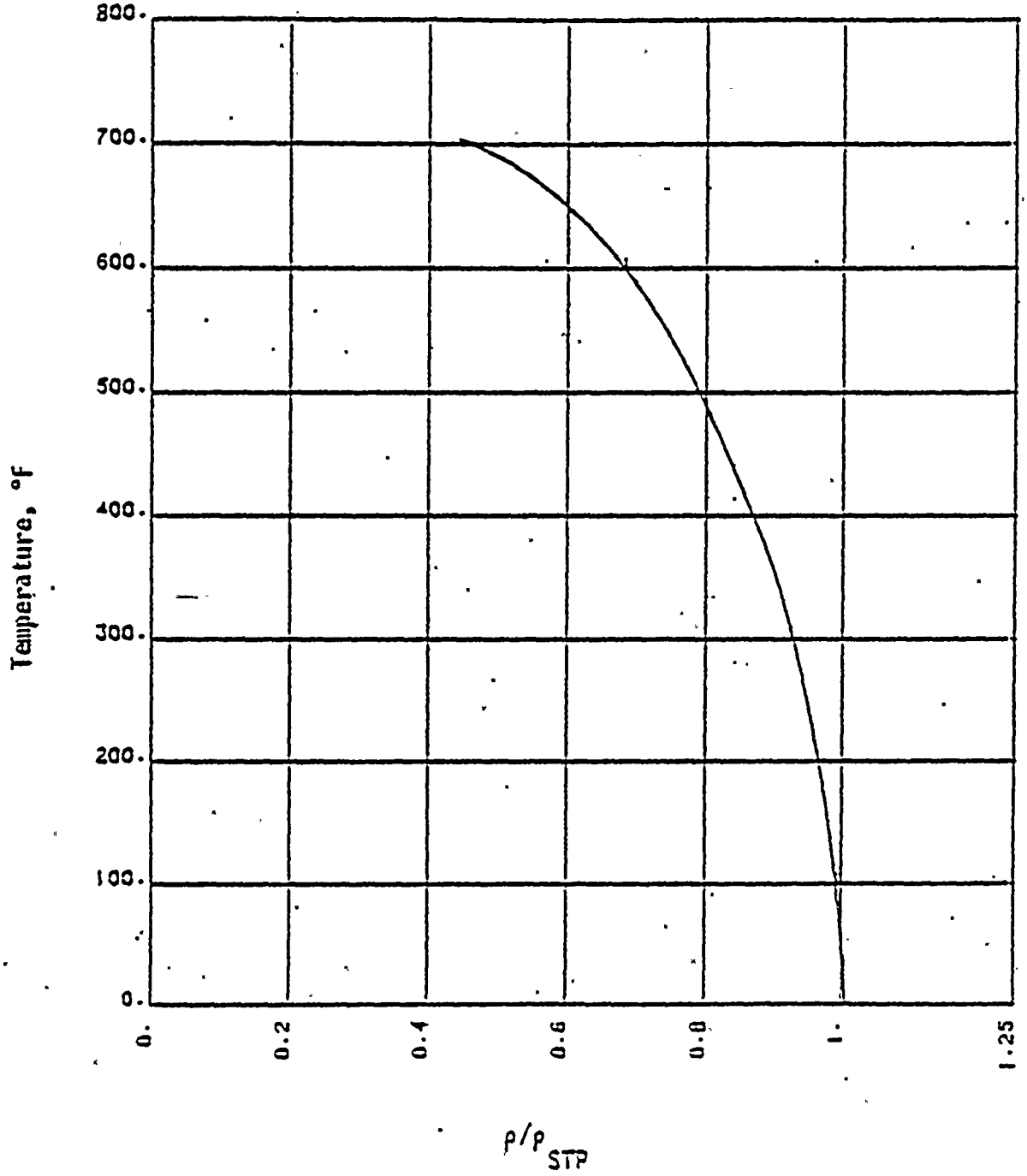
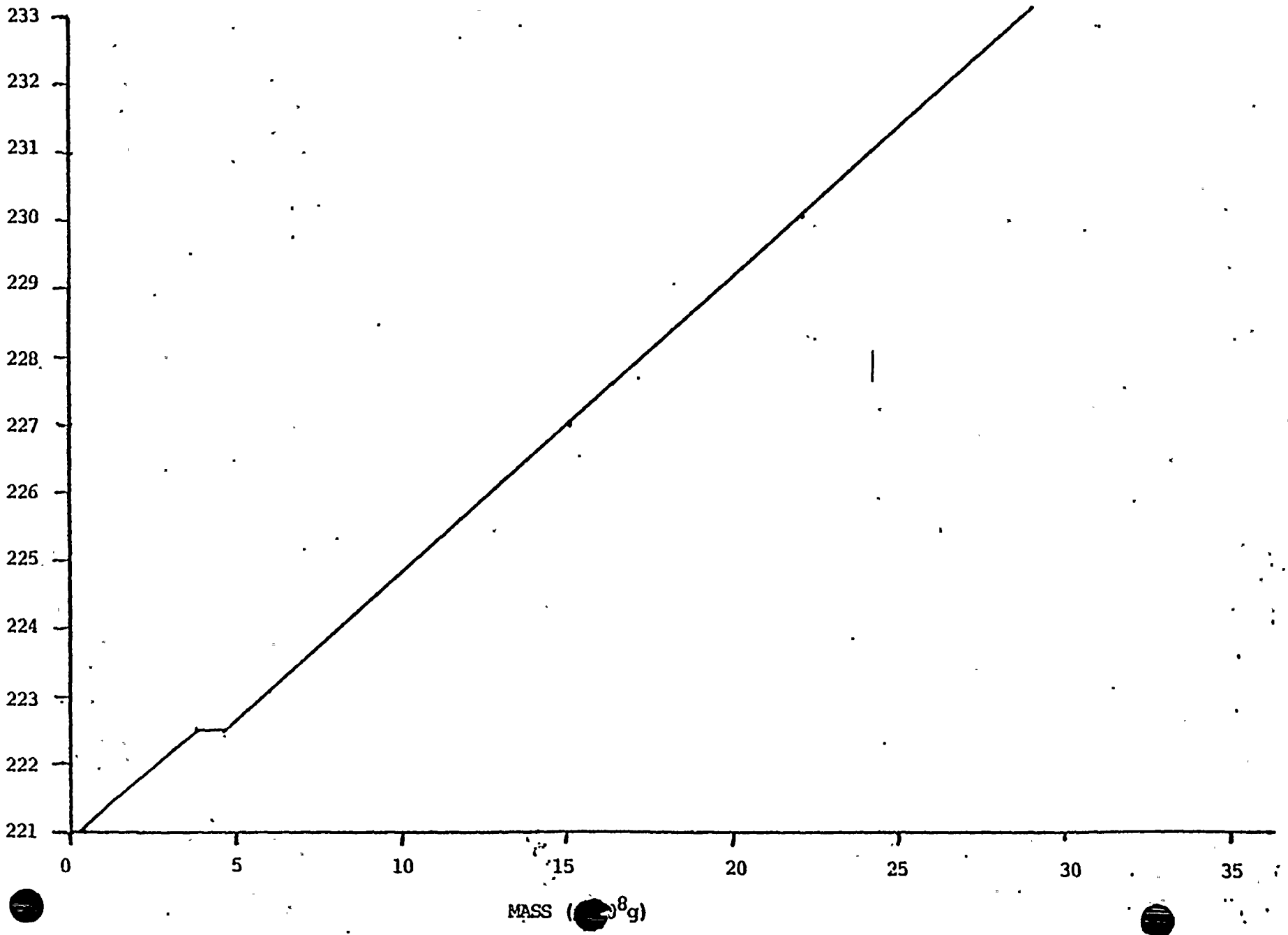


Figure 2

STP H2O Mass vs, Containment Level



Figure

Power Conversion Factor for Cs-134

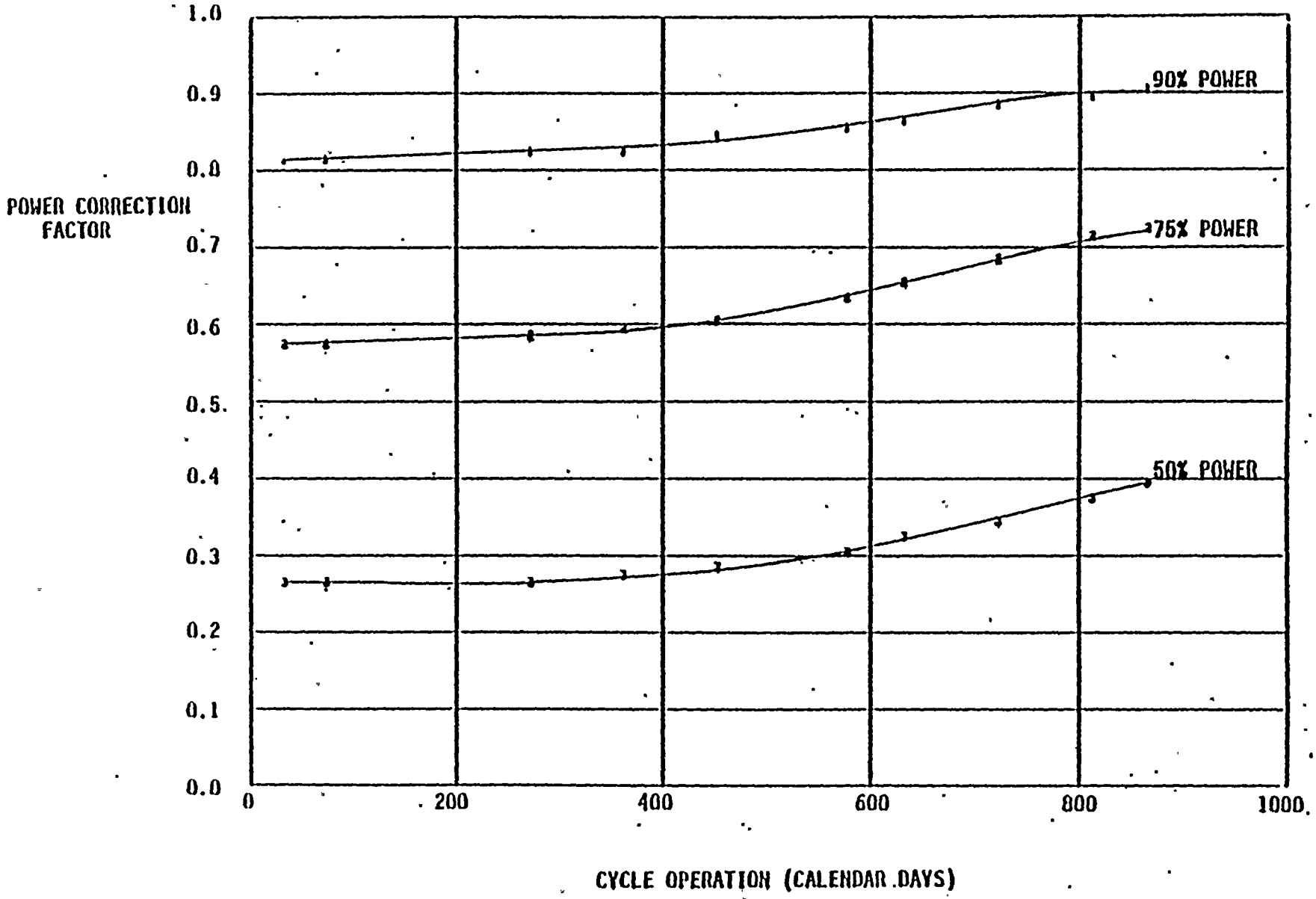
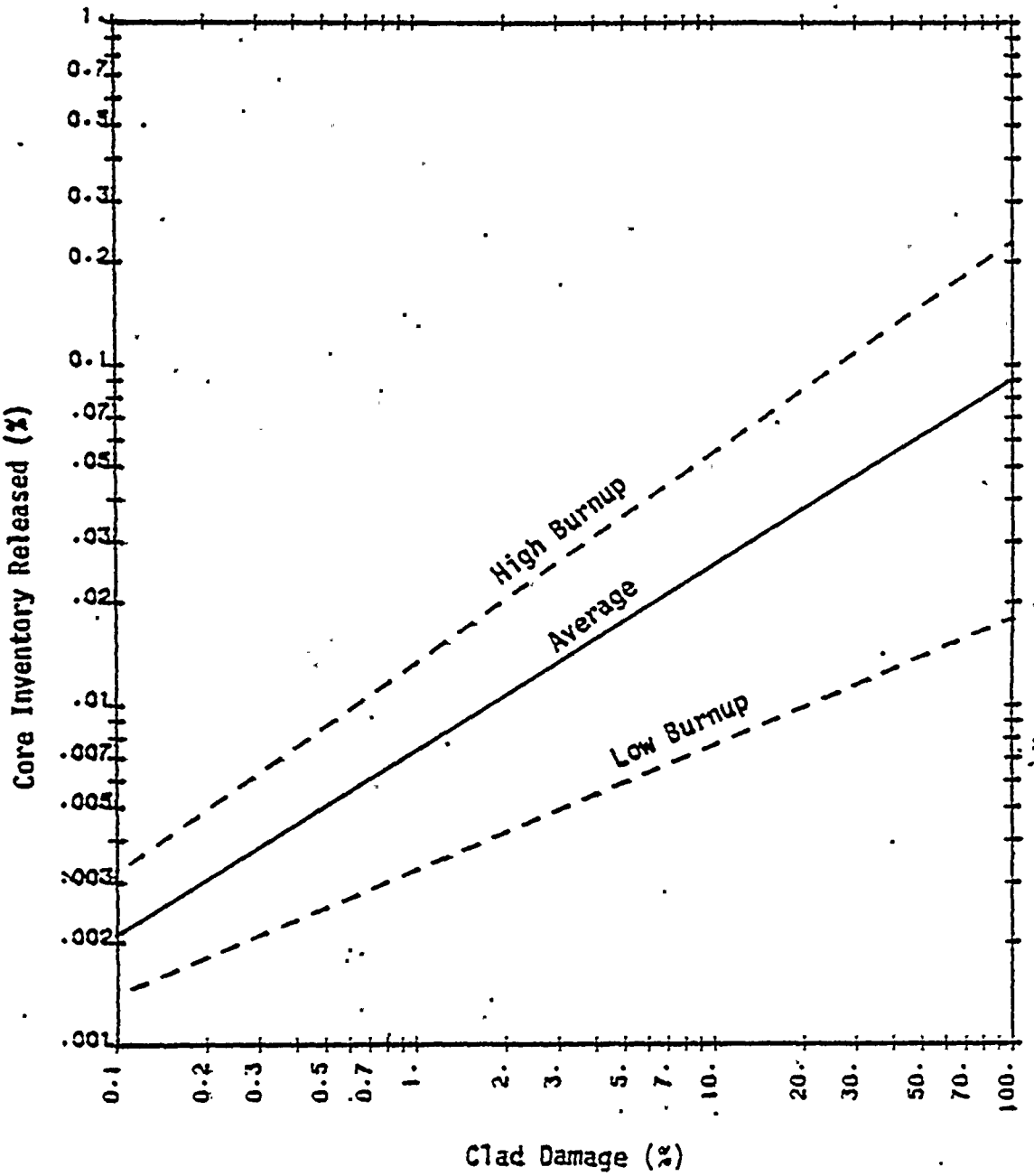


Figure 4
Clad Damage vs Released Fraction of Xe-133



ATTACHMENT 5

Figure 5
Clad Damage vs. Released Fraction of I-131

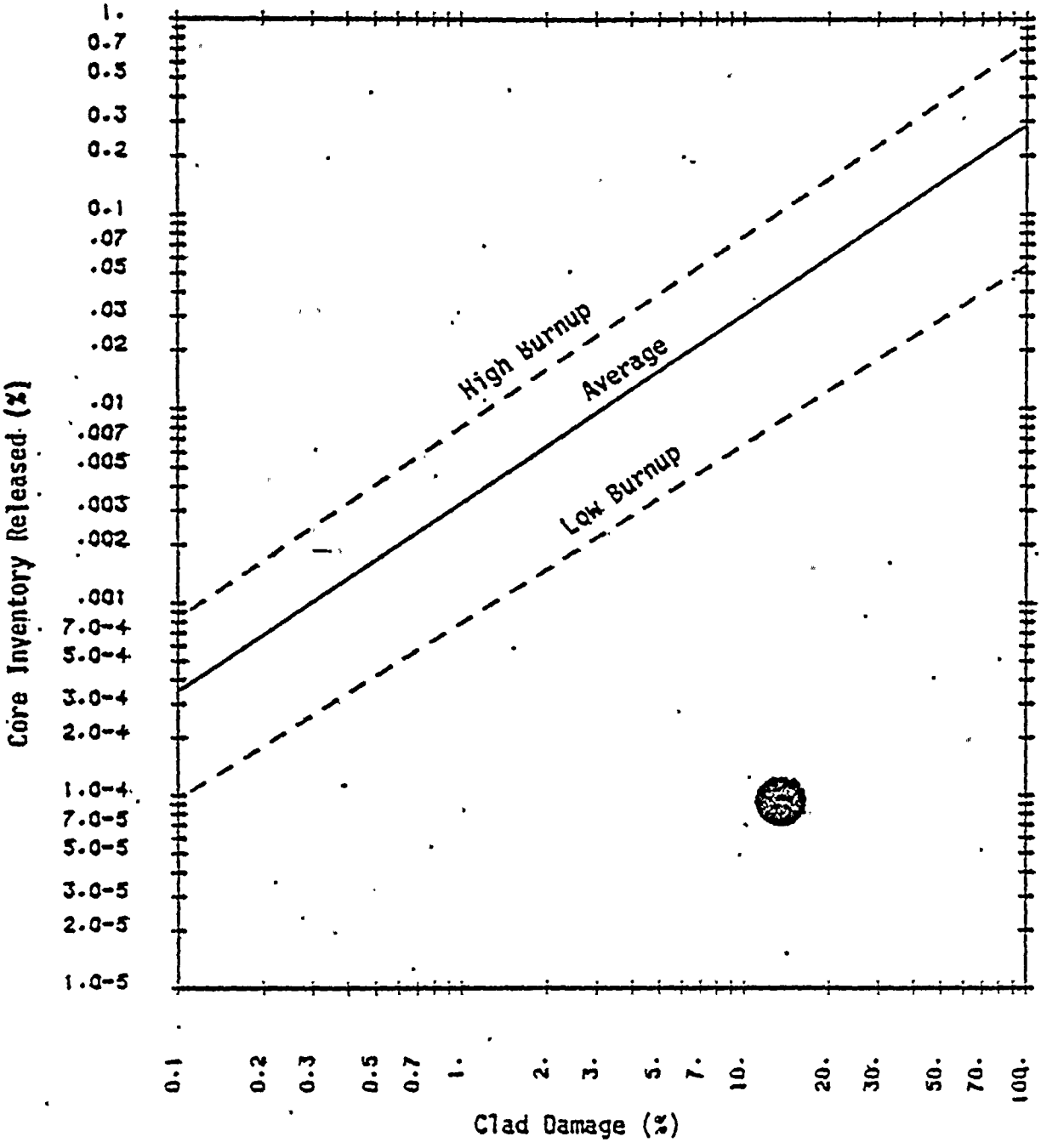


Figure 6
Clad Damage vs. Released Fraction of I-131 with Spiking

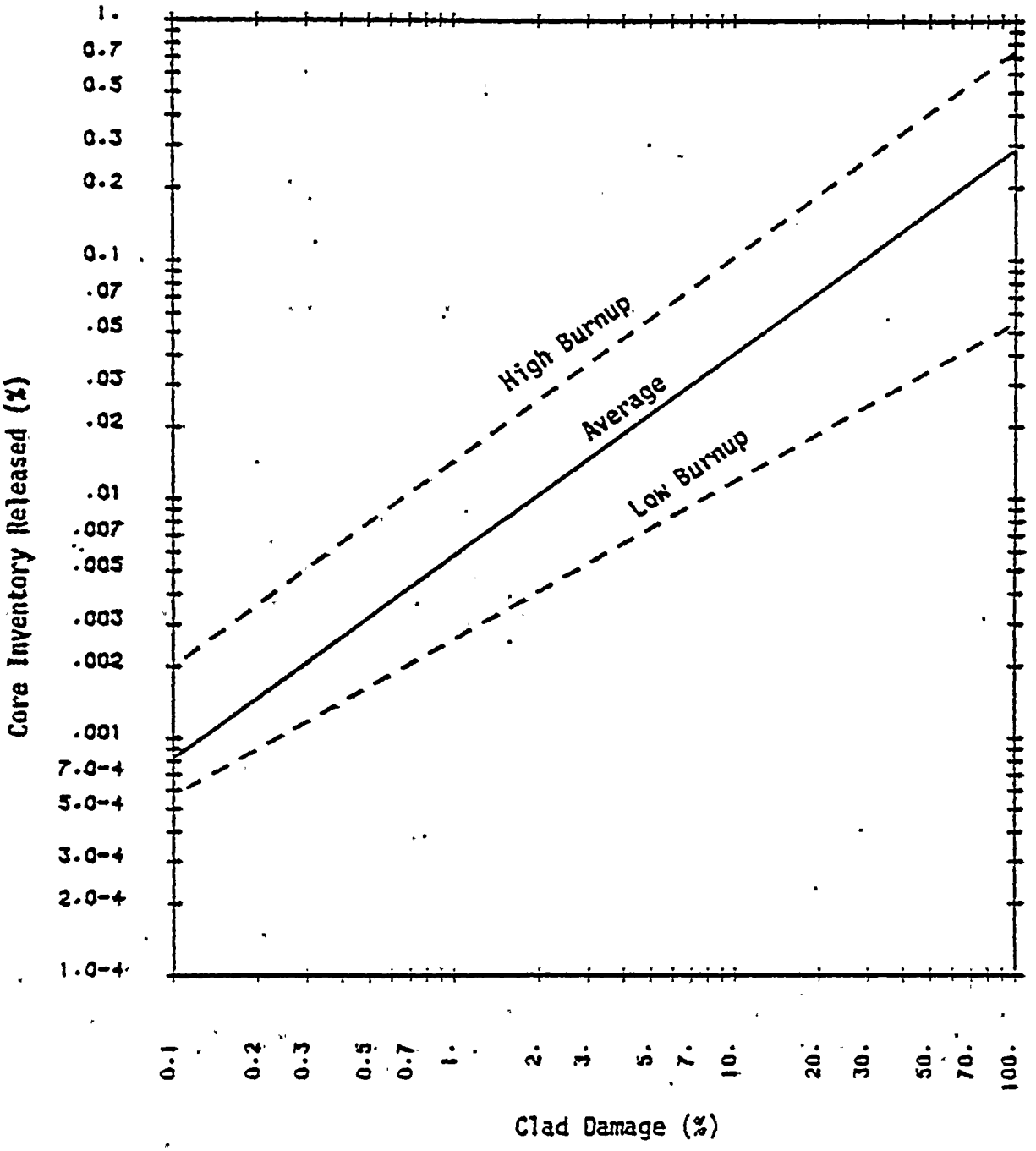


Figure 7
Clad Damage vs. Released Fraction of Kr-87

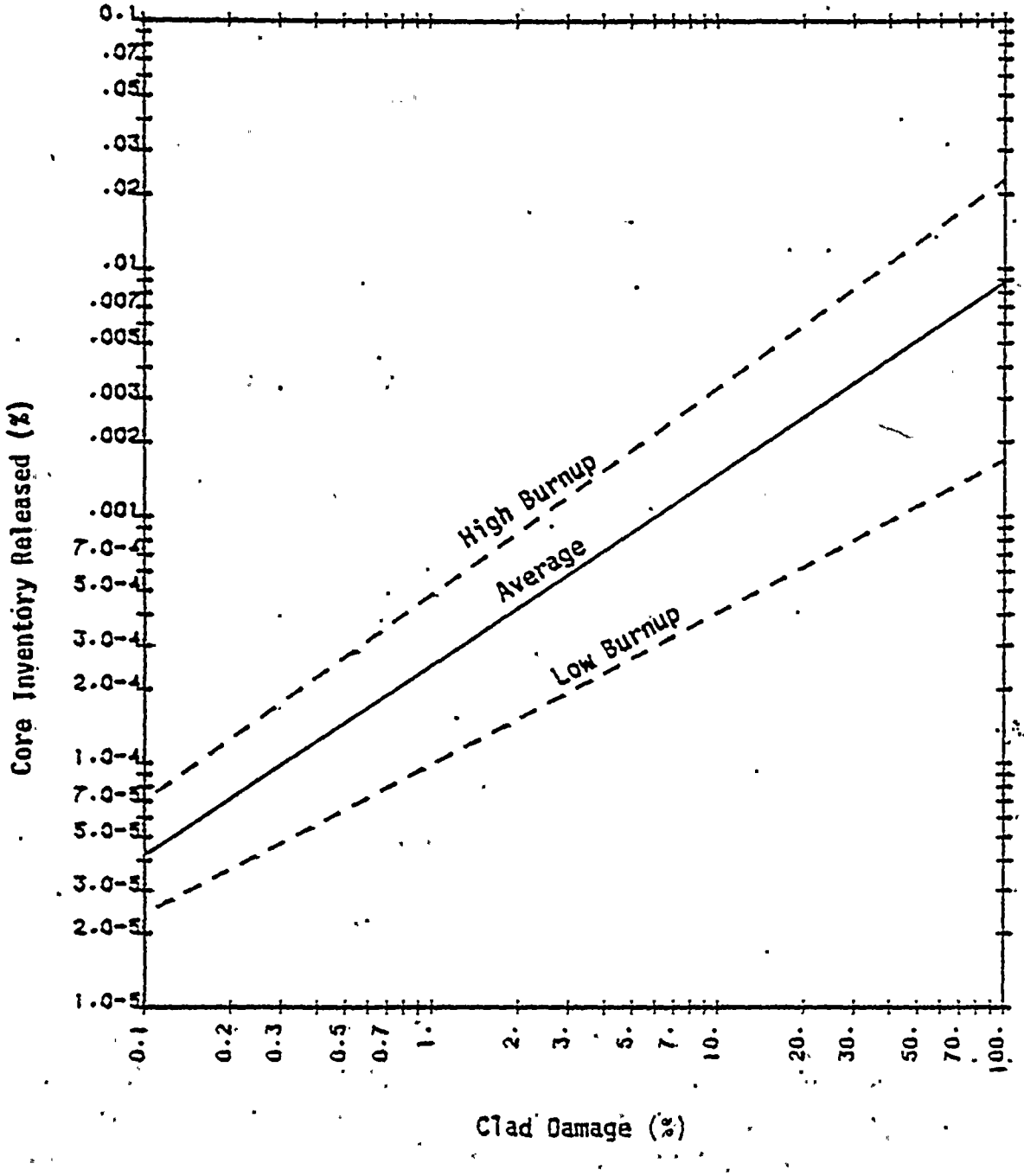


Figure 8
Clad Damage vs. Released Fraction of Xe-131m

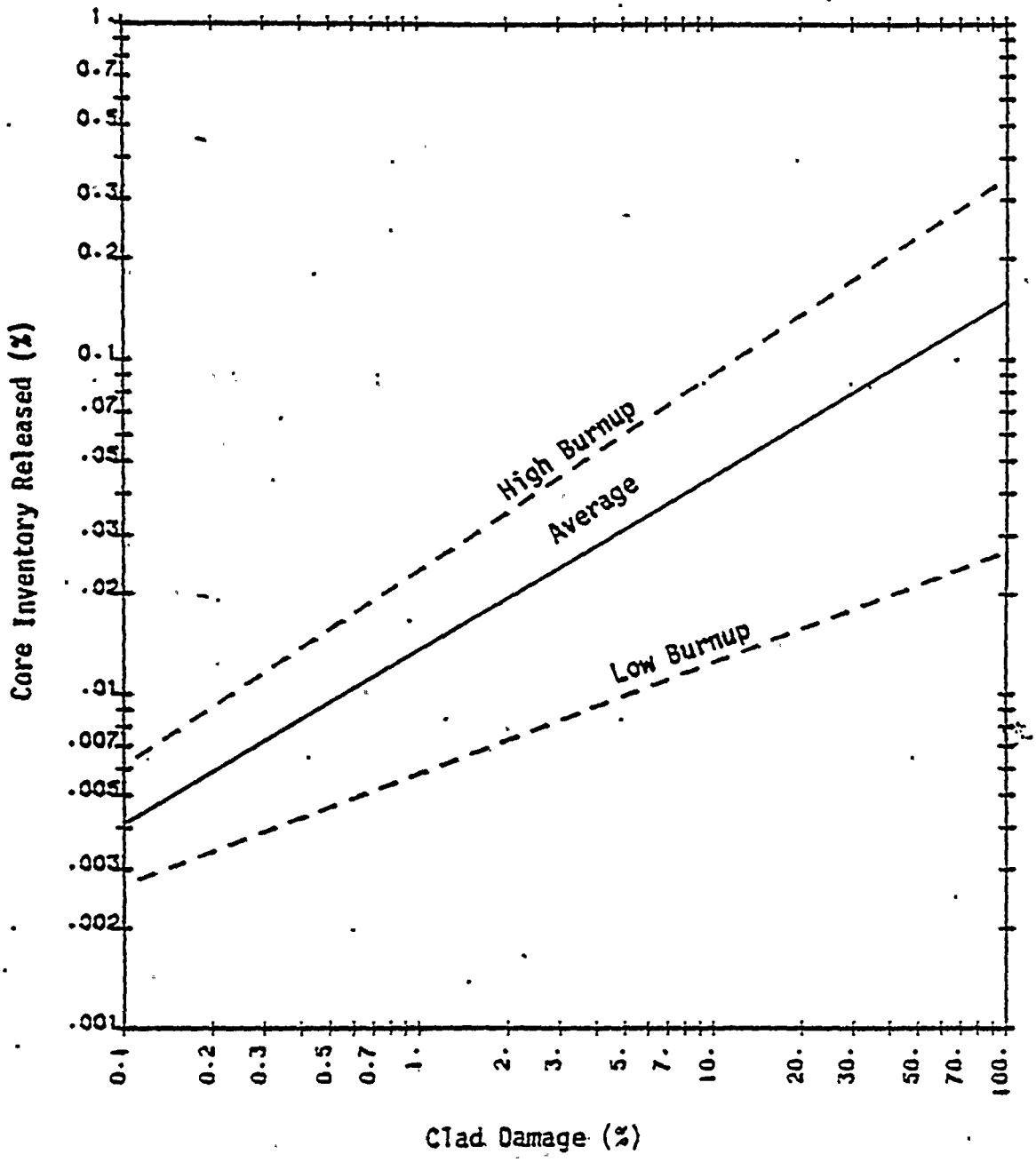


Figure 9
Clad Damage vs. Released Fraction of I-132

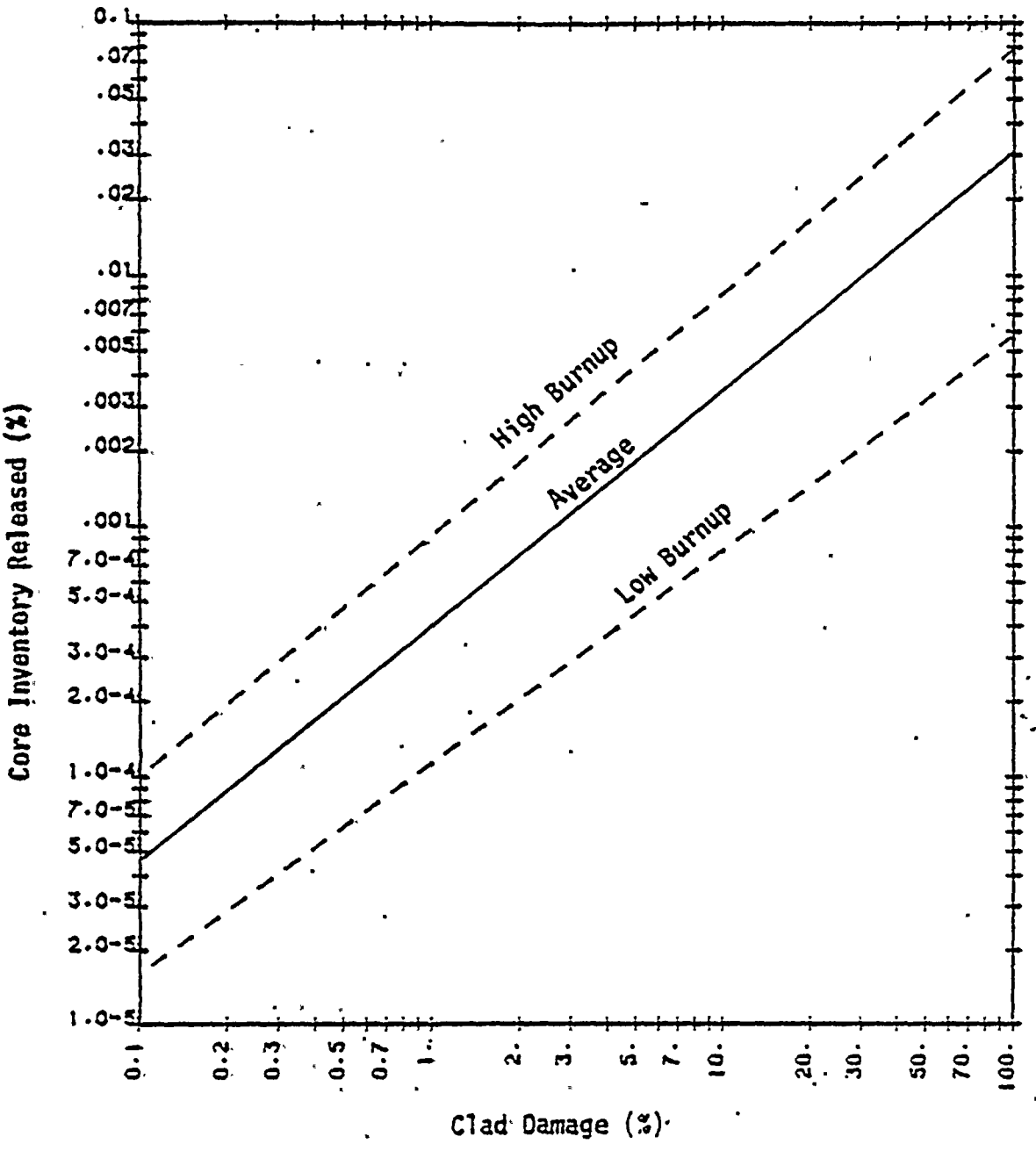


Figure 1B
Clad Damage vs. Released Fraction of I-133

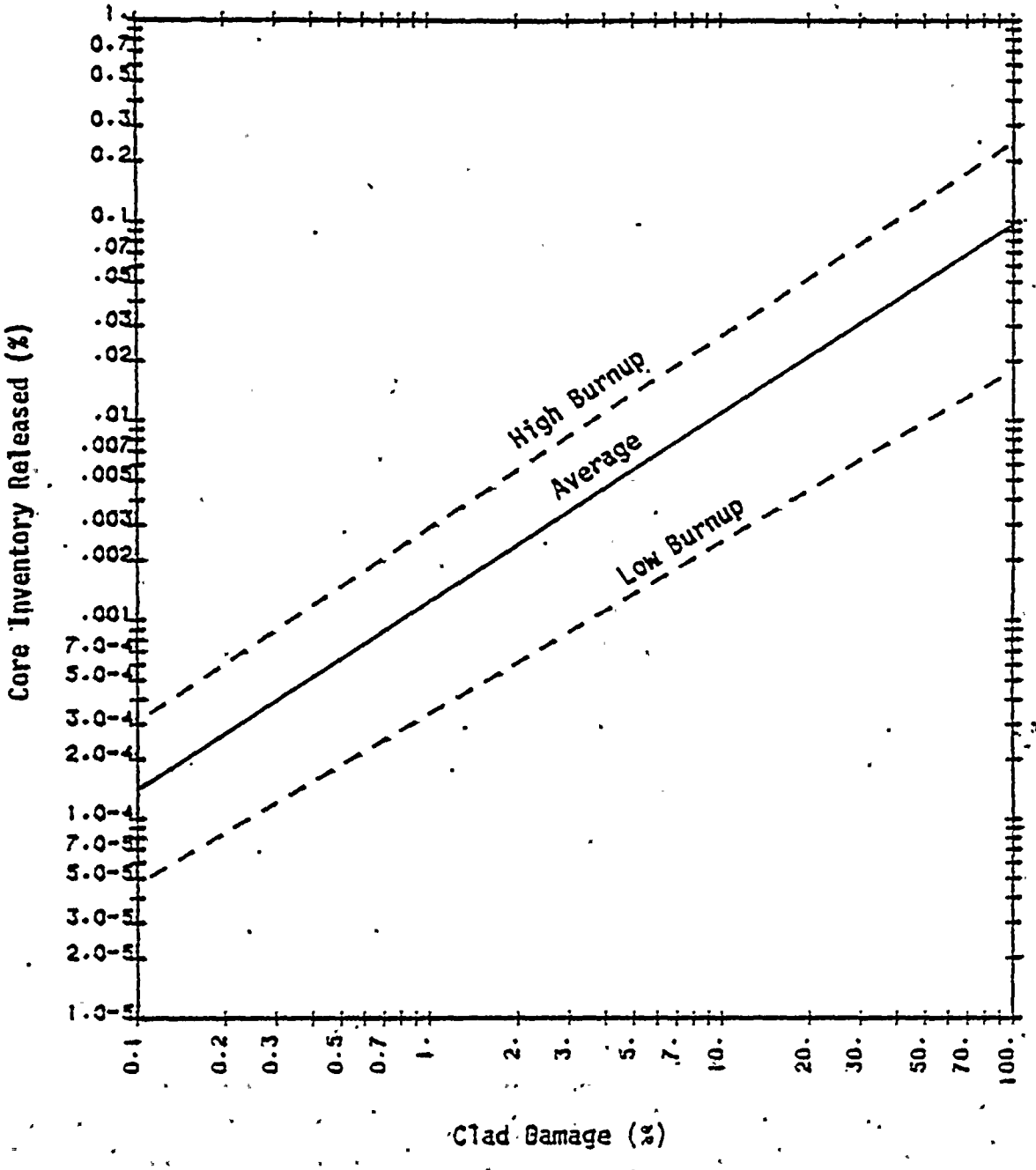


Figure 11
Clad Damage vs. Released Fraction of I-135

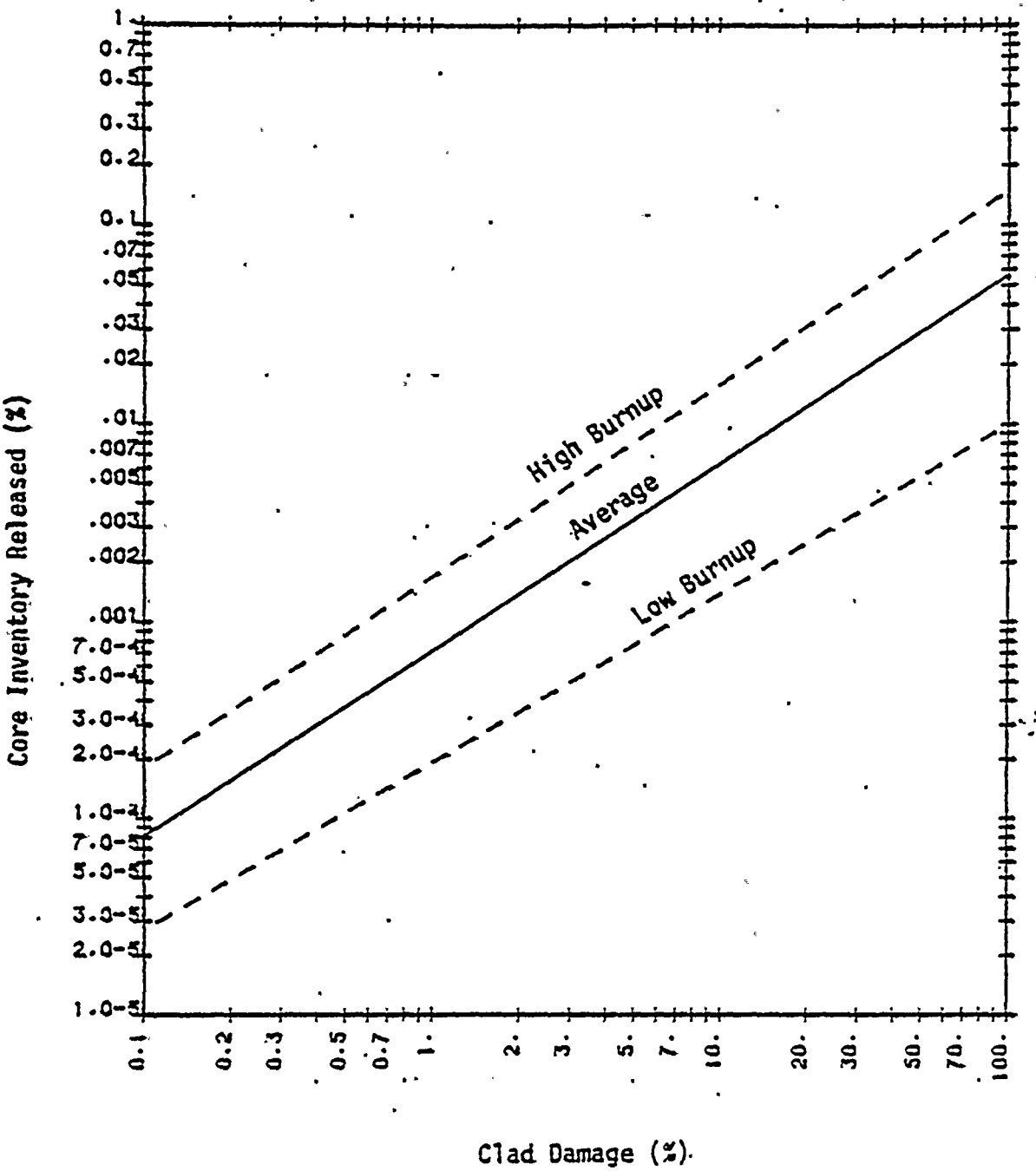


Figure 12
Activity Ratios of Noble Gases and Iodines

Nuclide	Fuel Pellet Activity Ratio	Gap Activity Ratio
Kr-85m	0.11	0.022
Kr-87	0.22	0.022
Kr-88	0.29	0.045
Xe-131m	0.004	0.004
Xe-133	1.0	1.0
Xe-133m	0.14	0.096
Xe-135	0.19	0.051
I-131	1.0	1.0
I-132	1.5	0.17
I-133	2.1	0.71
I-135	1.9	0.39

$$\text{Noble Gas Ratio} = \frac{\text{Noble Gas Isotope Inventory}}{\text{Xe-133 Inventory}}$$

$$\text{Iodine Ratio} = \frac{\text{Iodine Isotope Inventory}}{\text{I-131 Inventory}}$$

* The measured ratios of various nuclides found in reactor coolant during normal operation is a function of the amount of "tramp" uranium on fuel rod cladding, the number and size of "defects" (i.e. "pin holes"), and the location of the fuel rods containing the defects in the core. The ratios derived in this report are based on calculated values of relative concentrations in the fuel or in the gap. The use of these present ratios for post accident damage assessment is restricted to an attempt to differentiate between fuel overtemperature conditions and fuel cladding failure conditions. Thus the ratios derived here are not related to fuel defect levels incurred during normal operation.

Figure 13
Fuel Over-Temperature Damage vs, Released Fractions of Xe, Kr, I, and Cs

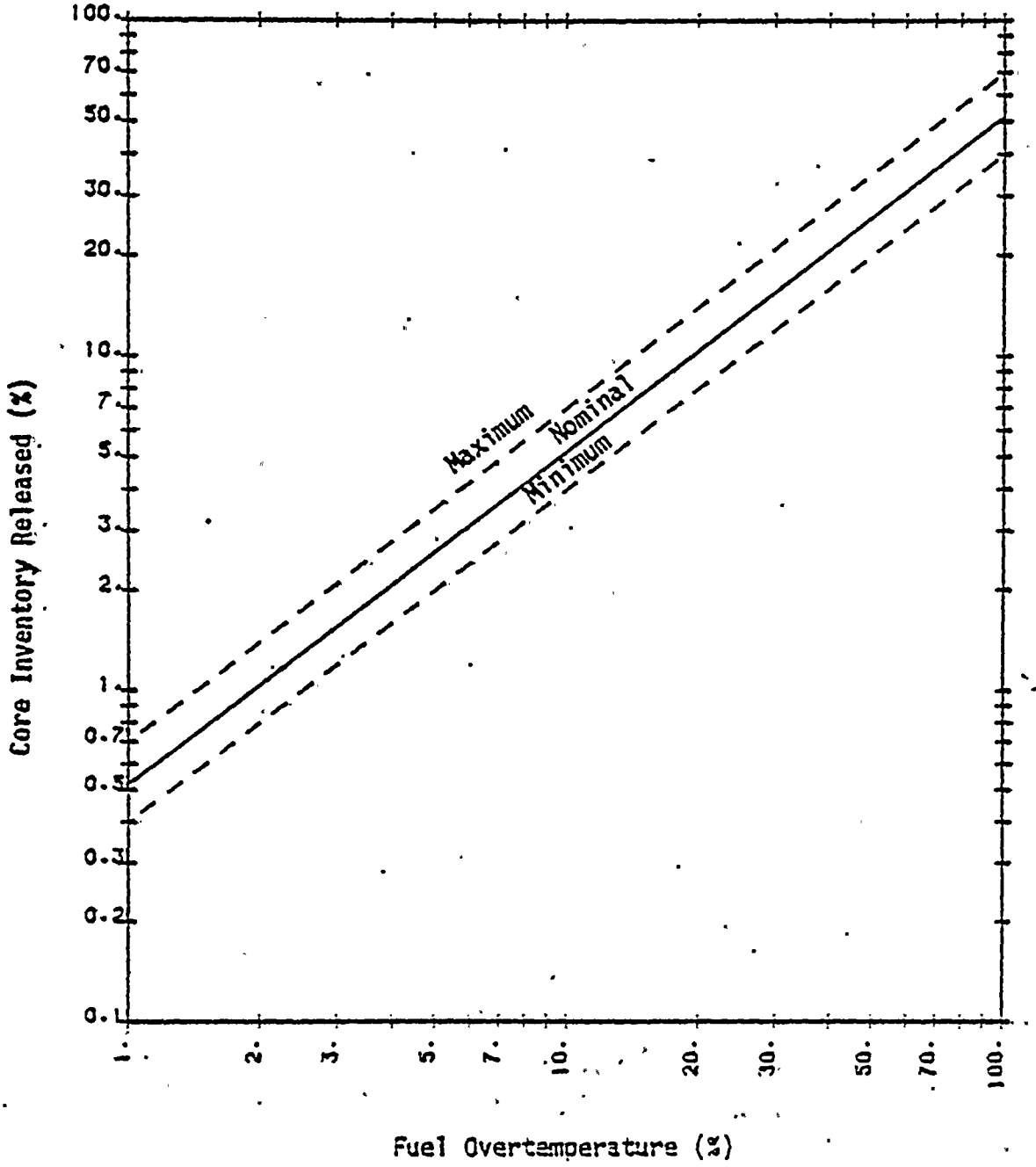


Figure 14
Fuel Over-Temperature Damage vs. Released Fraction of Ba and Sr

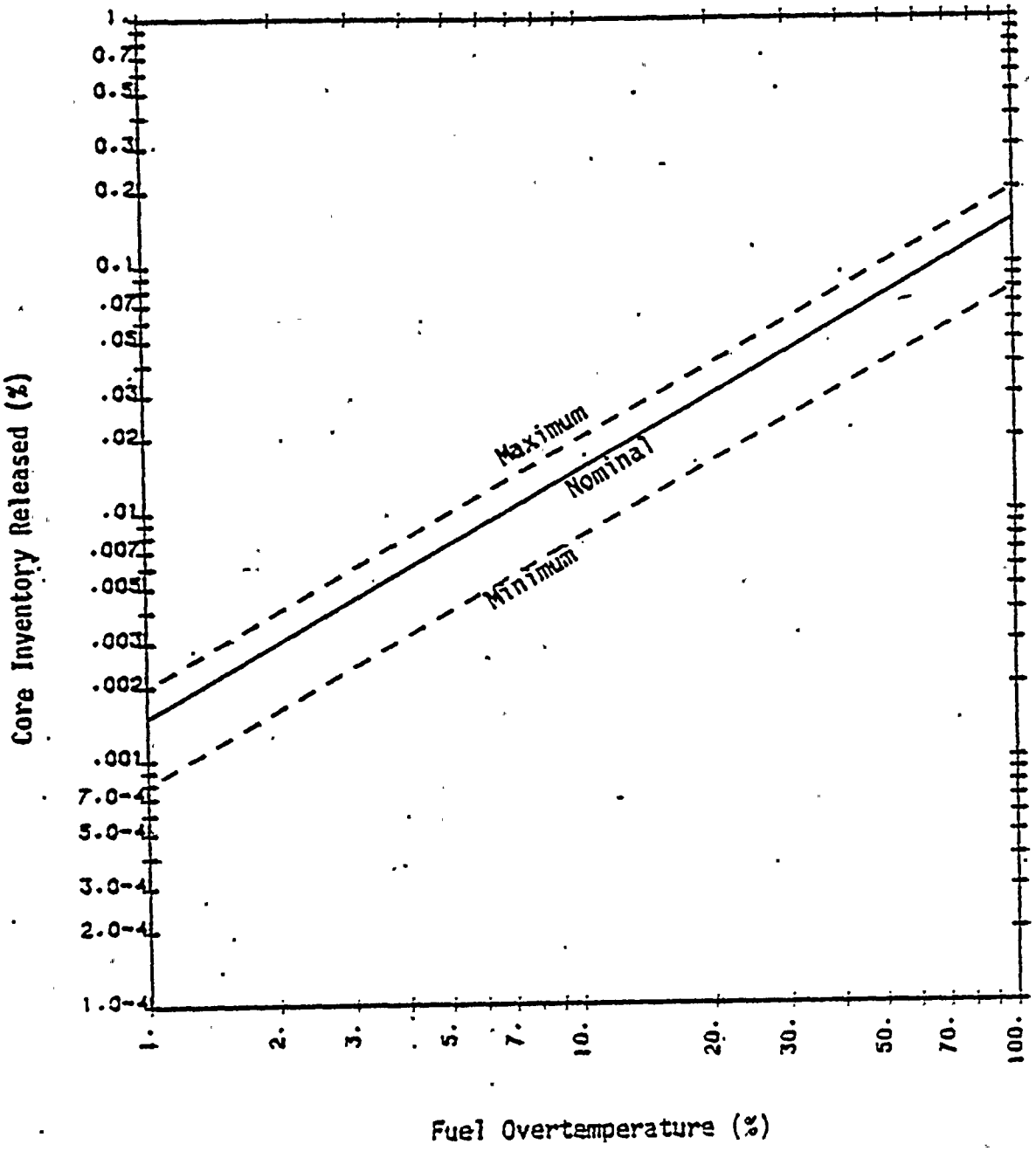


Figure 15

Fuel Melt Damage vs. Released Fractions of Xe, Kr, I, Cs, and Te

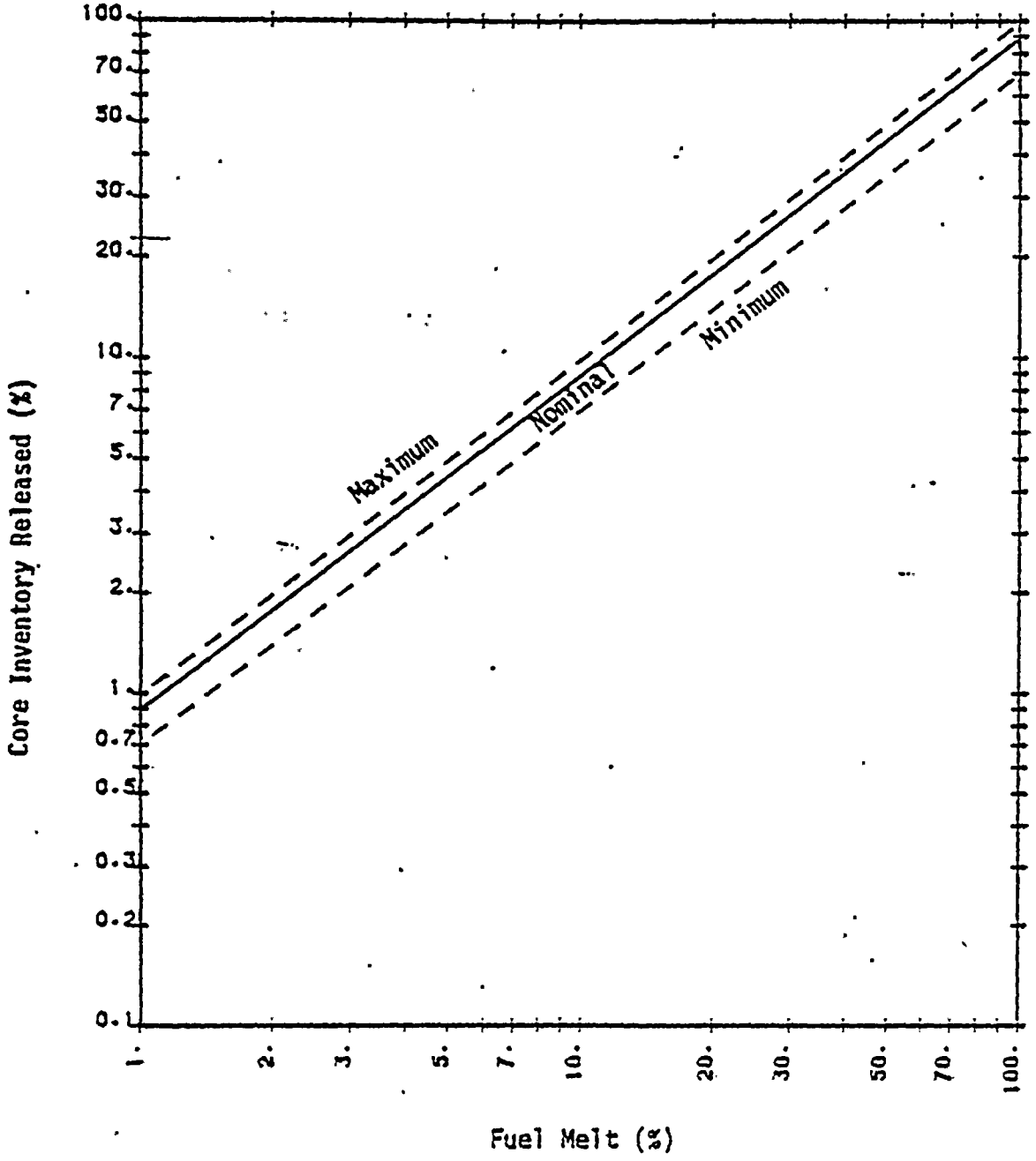


Figure 16
Fuel Melt Damage vs. Released Fractions of Ba and Sr

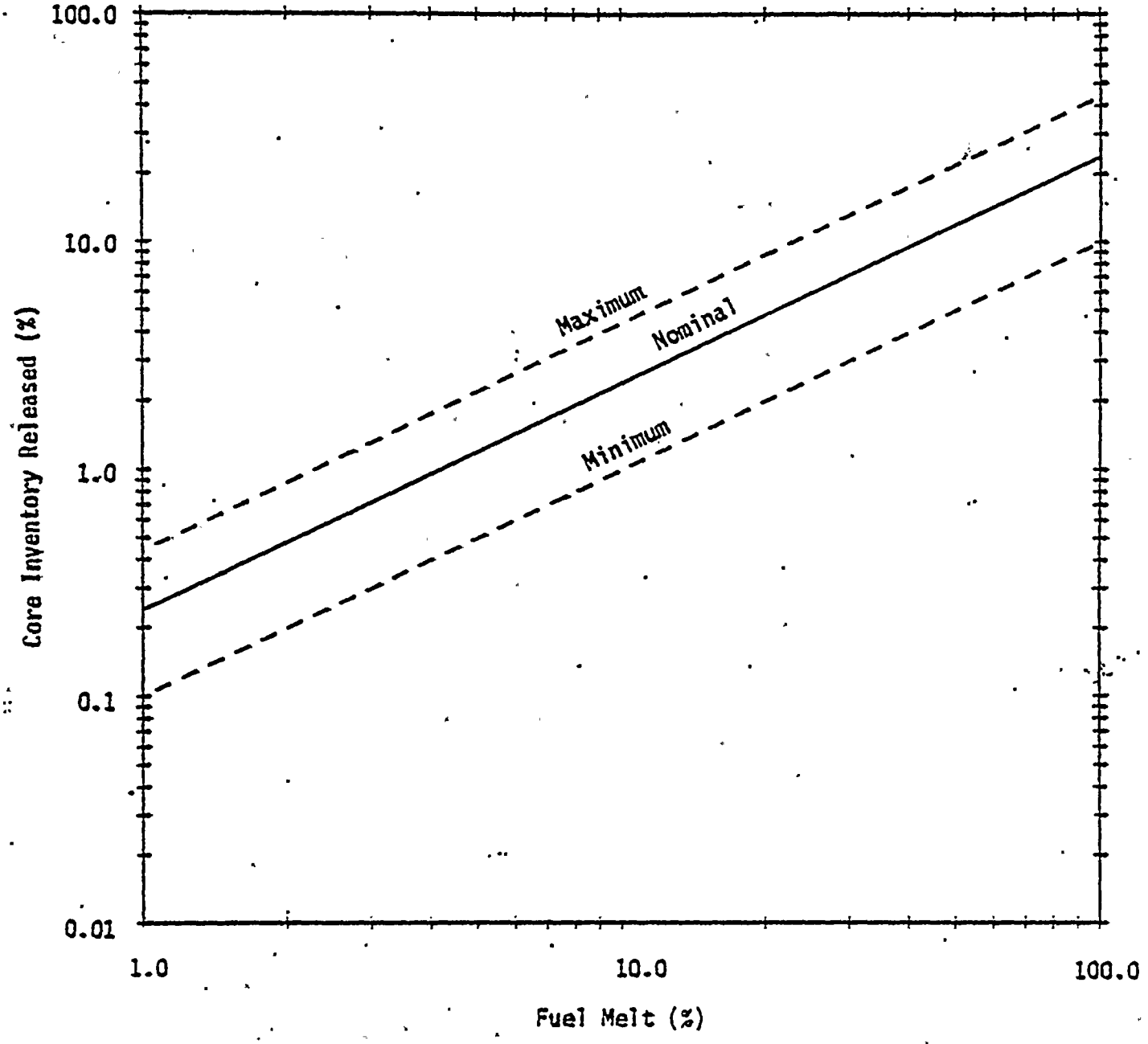


Figure 17
Fuel Melt Damage vs. Released Fraction of Pr

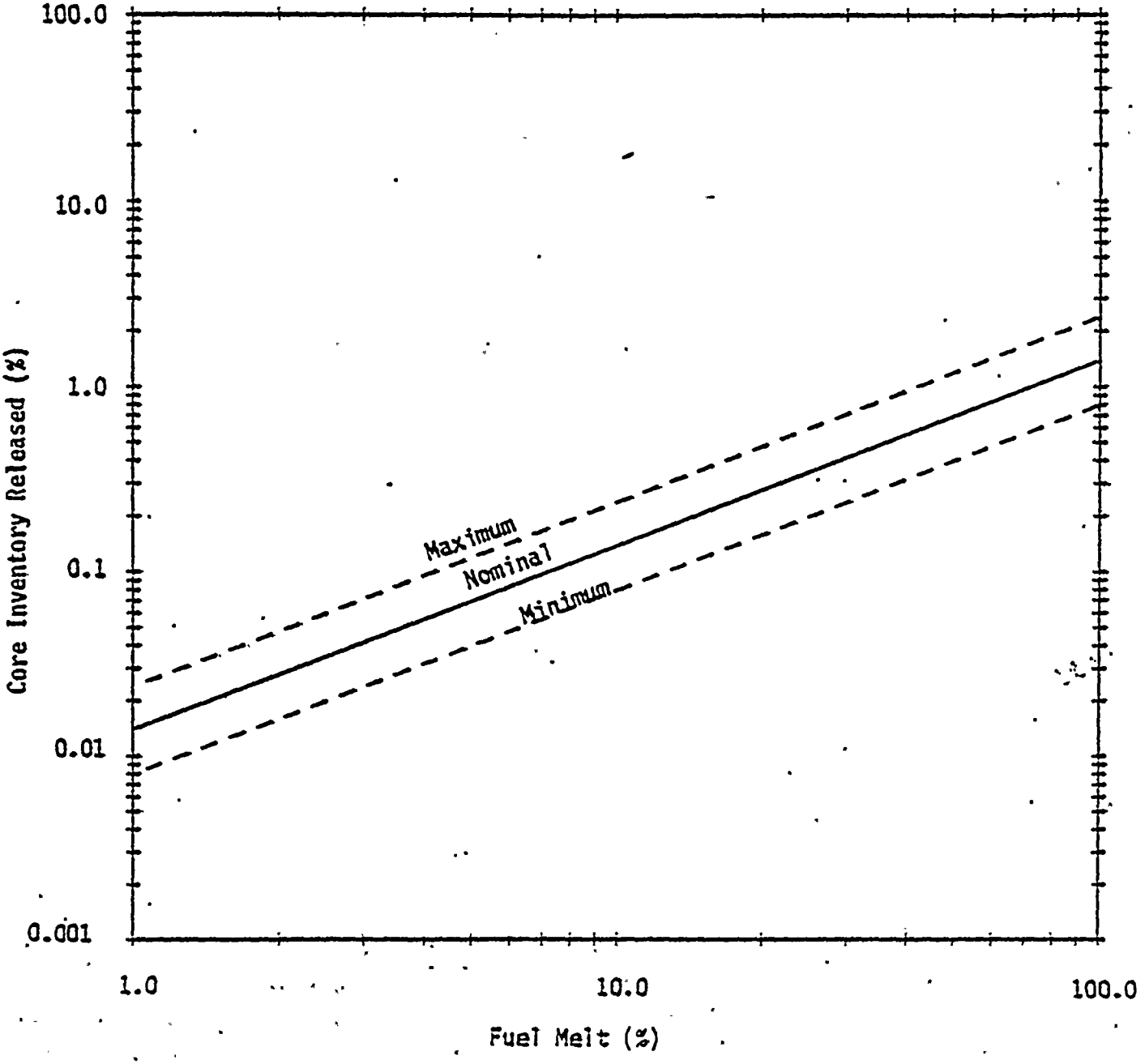


Figure 18
Containment Hydrogen Concentration vs. Zirconium-Water Reaction

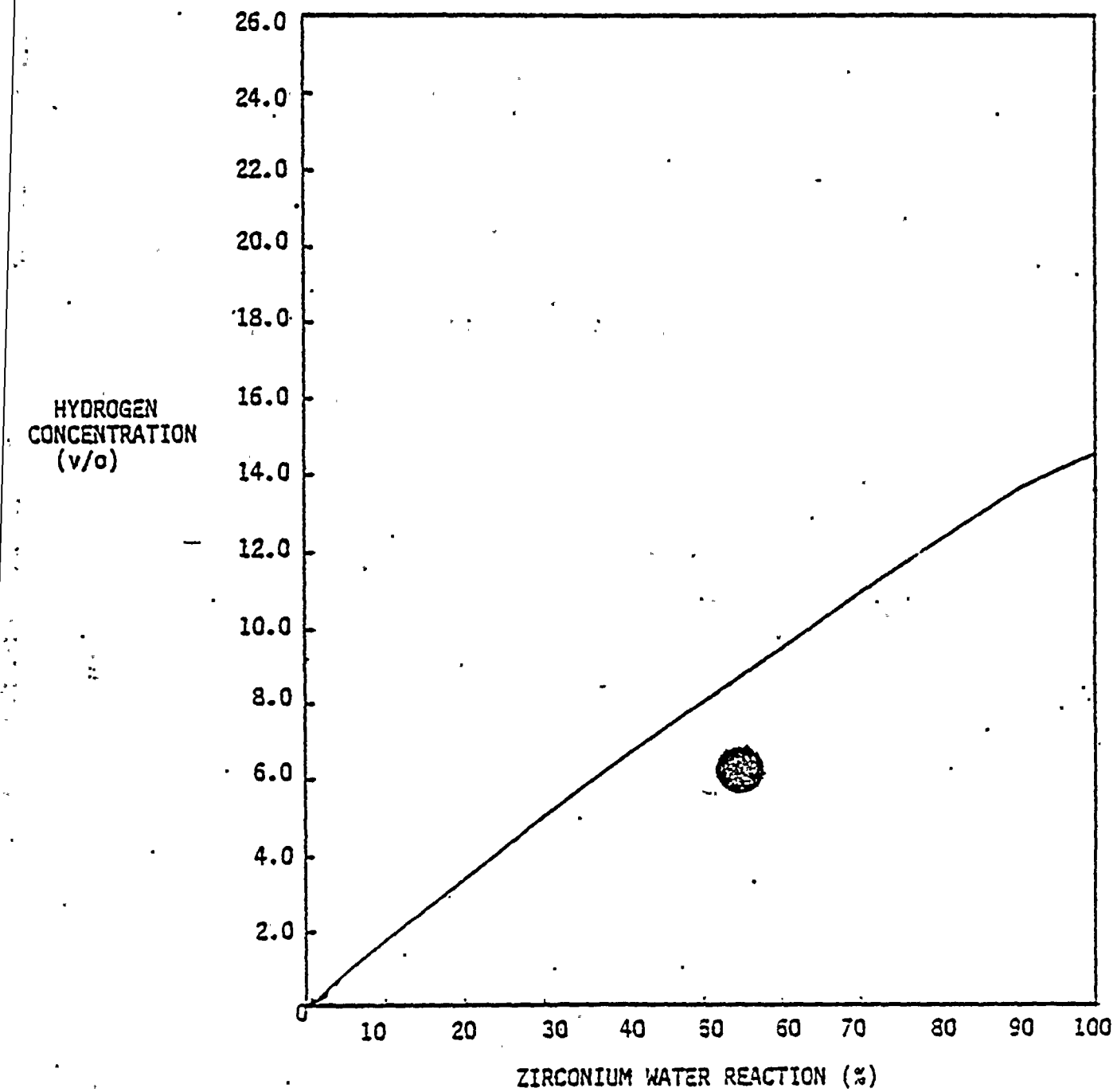
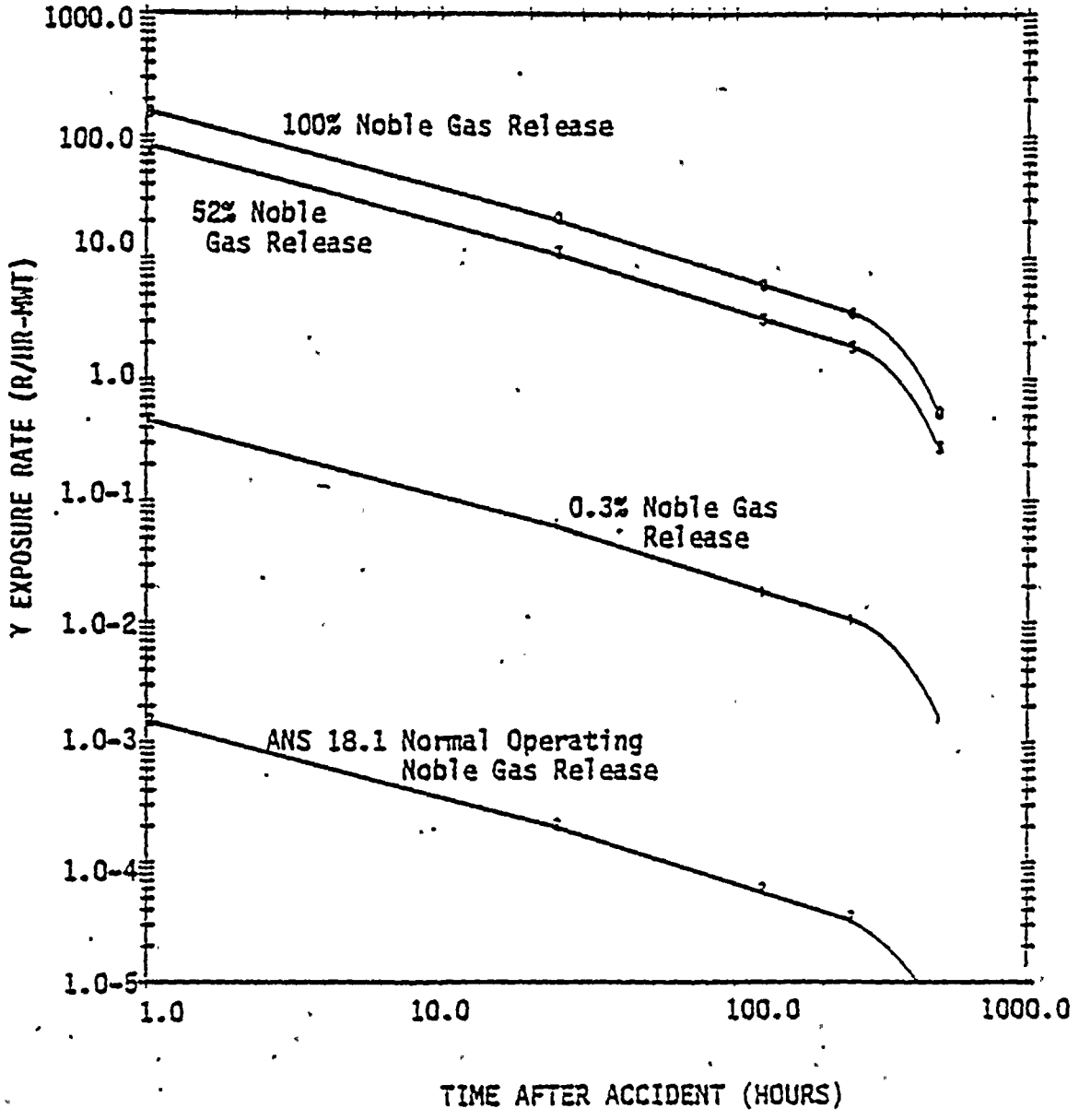


Figure 19
Gamma Exposure vs. Released Fraction of Noble Gases



ATTACHMENT 21

Form 2

PASS Data

Reactor Coolant Sample

Date: ____/____/____ (1) Temp: ____°F

Time: _____ (2) Press. ____ psig

(3) Time After Shutdown: _____hr.

Containment Sump Sample

Date: ____/____/____ (4) Temp: ____°F

Time: _____ (5) Press. ____ psig

(6) Time After Shutdown: _____hr.

Containment Atmosphere Sample

Date: ____/____/____ (7) Temp: ____°F

Time: _____ (8) Press. ____ psig

(9) Time After Shutdown: _____hr.

(10) Containment H_2 Concentration: ____v/o

(11) Containment O_2 Concentration: ____v/o

ATTACHMENT 22

Form 3

Sample Space Mass Calculations

A. Pressure/Temperature Correction Factors

A-1 Containment Atmosphere

A-1-1 Containment Atmosphere Pressure _____ psig + 14.7 = _____ psia

A-1-2 Containment Atmosphere Temperature _____°F + 460 = _____ R

A-1-3 Sample Pressure _____ psig + 14.7 = _____ psia

A-1-4 Sample Temperature _____°F + 460 = _____ R

A-1-5 $CF = \frac{(A\text{-}1\text{-}1) * (A\text{-}1\text{-}4)}{(A\text{-}1\text{-}2) * (A\text{-}1\text{-}3)} =$ _____

A-2 RCS (Note: If sample activity is reported per unit mass, use CF = 1.0.)

A-2-1 CF for Sample _____ (Figure 1)

A-2-2 CF for RCS _____ (Figure 1)

A-2-3 RCS Sample $CF = \frac{(A\text{-}2\text{-}2)}{(A\text{-}2\text{-}1)}$ _____

A-3 Sump (Note: If sample activity is reported per unit mass, use CF = 1.0)
on Form 1).

A-3-1 CF for Sample _____ (Figure 1)

A-3-2 CF for Sump _____ (Figure 1)

A-3-3 RCS Sample $CF = \frac{(A\text{-}3\text{-}2)}{(A\text{-}3\text{-}1)}$ _____

B. Containment Free Volume

B-1 $\frac{(A\text{-}1\text{-}2)}{(A\text{-}1\text{-}1)} * 2.04 \times 10^9 =$ _____ cm^3

C. Recirculation Sump Mass

C-1 Containment Level _____ ft. MSL

ATTACHMENT 22 (Cont'd)

Form 3 (Cont'd)

Sample Space Mass Calculations

C-2 Sump Mass _____ g (Figure 2)

C-3 (C-2) * (A-3-2) _____ g

D. RCS

(D-1) No Level Indicated on Pressurizer:

RCS Mass = 2.14×10^8 * (A-2-2) = _____ g

OR

(D-2) Level Indicated On Pressurizer:

RCS Mass = $[2.14 \times 10^8 + (\%\ PZR\ Level)(0.01)(3.96 \times 10^7)]$ * (A-2-2)

= _____ g

ATTACHMENT 23

Form 4

Power Factor Calculations

A. PCF for Long-Lived Isotopes

A-1: Calendar Days in Core Cycle _____ days

A-2: EFPDs in Core Cycle _____ EFPDs

A-3: PCF = $\frac{(A\text{-}1)}{(A\text{-}2)}$ _____

B. PCF for Short-Lived Isotopes

B-1: PCF = $\frac{\text{Thermal Power}}{2775\ \text{MW}}$ _____

OR

If power not constant four days prior to shutdown:

Isotope	(1) Σ(Form 5, Column 7)	(2) RTP * $(1-e^{-\lambda_i \Sigma t_j})$	(3) PCF = $\frac{(1)}{(2)}$
Kr-85m		2775	
Kr-87		2775	
Xe-135		2773	
I-132		2775	
I-133		2670	
I-135		2775	
RB-88		2775	
Te-129		2775	
La-142		2775	
Pr-144		2775	

ATTACHMENT 23. (Cont'd)

Form 4 (Cont'd)

Power Factor Calculations

C. PCF for Intermediate-Lived Isotopes

C-1: PCF = $\frac{\text{Thermal Power}}{2775 \text{ MW}}$ _____

OR

If thermal power level not constant over 30 days prior to shutdown:

Isotope	(1) Σ(Form 6, Column 7)	(2) RTP * $(1-e^{-\lambda_i \Sigma t_j})$	(3) PCF = $\frac{(1)}{(2)}$
Xe-131m		2299	
Xe-133		2722	
Xe-133m		2775	
I-131		2566	
Te-132		2770	
Ba-140		2229	
La-140		2775	

D. PCF for Cs-134 from Figure 3 _____

ATTACHMENT 24

Form 5

Worksheet for Short-Lived Isotope PCF

(1) P_j = _____ MW_t

(2) t_j = _____ hrs.

(3) t_j^* = _____ hrs.

Isotope i	(4) $\lambda_i hr^1$	(5) $1-e^{-\lambda_i t_j}$	(6) $e^{-\lambda_i t_j^*}$	(7) $P_j*(5)*(6)$
Kr-85m	0.158			
Kr-87	0.547			
Kr-88	0.248			
Xe-135	7.58E-2			
I-132	0.307			
I-133	3.41E-2			
I-135	0.104			
Rb-88	2.34			
Te-129	0.605			
La-142	0.450			
Pr-144	2.41			

ATTACHMENT 25

Form 6

Worksheet for Intermediate-Lived Isotope PCF

(1) P_j = _____ MW_t

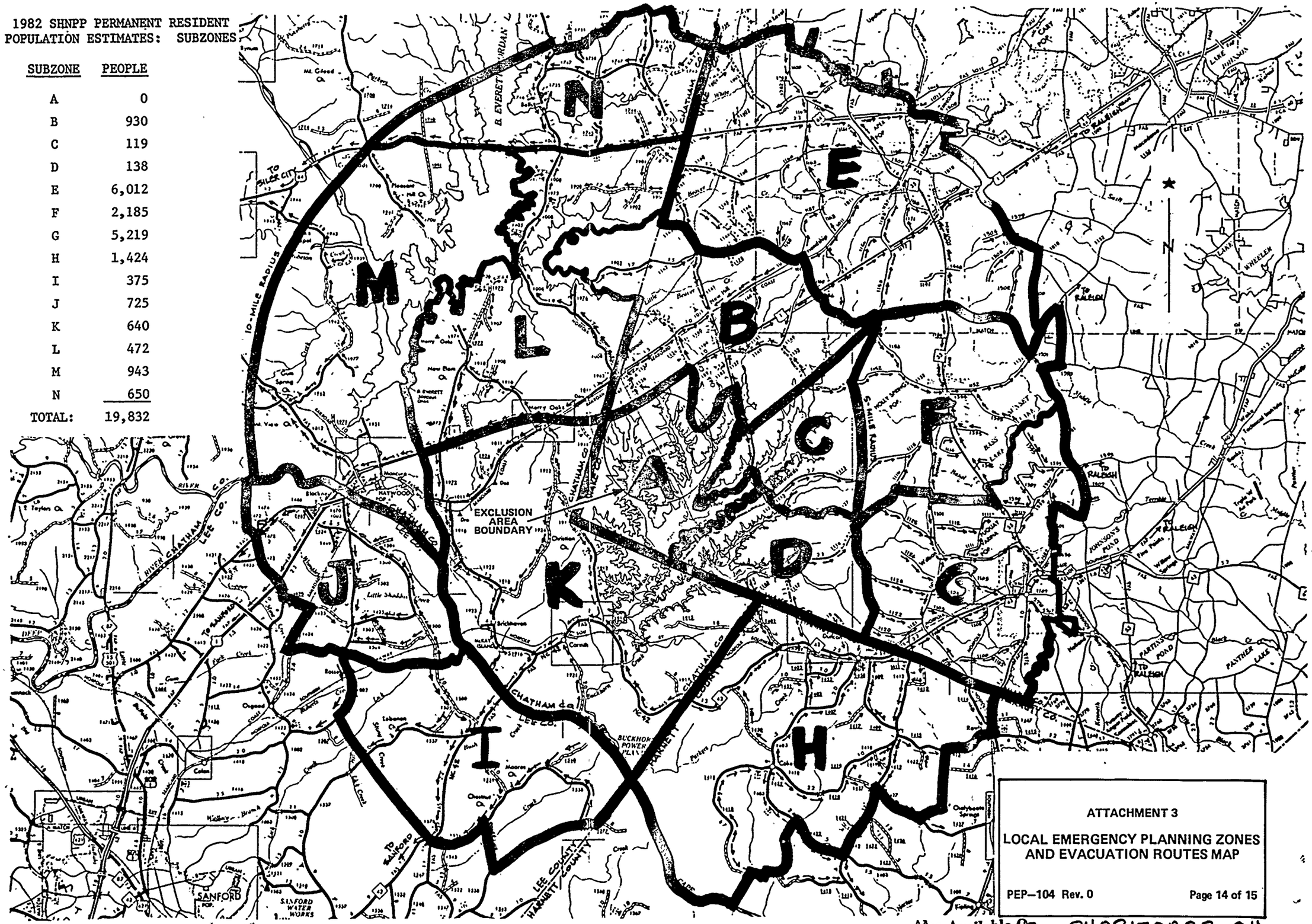
(2) t_j = _____ days

(3) t_j^* = _____ days

Isotope i	(4) λ_i (day^{-1})	(5) $1-e^{-\lambda_i t_j}$	(6) $e^{-\lambda_i t_j^*}$	(7) P_j^**(5)*(6)
Xe-131m	5.88E-2			
Xe-133	0.132			
Xe-133m	0.307			
I-131	8.62×10^{-2}			
Te-132	0.214			
Ba-140	5.42E-2			
La-140	0.413			

1982 SHNPP PERMANENT RESIDENT POPULATION ESTIMATES: SUBZONES

SUBZONE	PEOPLE
A	0
B	930
C	119
D	138
E	6,012
F	2,185
G	5,219
H	1,424
I	375
J	725
K	640
L	472
M	943
N	650
TOTAL:	19,832



ATTACHMENT 3

LOCAL EMERGENCY PLANNING ZONES AND EVACUATION ROUTES MAP

PEP—104 Rev. 0 Page 14 of 15

LIST OF EFFECTIVE PAGES

Page	Revision
1 through 15	0

1.0 PURPOSE

The purpose of this procedure is to implement Section 4.6.3 of the SHNPP Emergency Plan, "Radiological Exposure Control." It provides the means for controlling radiation exposures to on-site emergency workers, and for documenting exposure limits and requirements for protective equipment and dosimetry.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.2, "Site Emergency Coordinator"
2. Section 2.4.6, "Radiological Control Director"
3. Section 4.6.3, "Radiological Exposure Control"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-102, "Site Emergency Coordinator Control Room"
2. PEP-103, "Site Emergency Coordinator Technical Support Center"
3. PEP-204, "Radiological Control Director
4. PEP-208, "Personnel Protection and Decontamination Team Leader"

2.3 OTHER REFERENCED PLANT PROCEDURES

1. PLP-511, "Radiation Control and Protection Program"
2. AP-510, "Radiation Exposure Budgeting"
3. PLP-510, "Respiratory Protection Program"
4. DP-001, "Dosimetry Issuance"
5. DP-005, "Calculation & Determination of Neutron Dose"
6. DP-010, "Special Dosimetry Issuance"
7. DP-012, "Quarterly Dose Limit Extension Authorization"
8. DP-103, "Whole Body Counting"
9. DP-105, "Operation of Automatic Model UD710A and Manual Model UD707E TLD Reader"
10. HPP-020, "Radiation Work Permits"
11. HPP-035, "Posting and Barricading of Radiological Areas"
12. HPP-203, "Requirements for Protective Clothing"
13. HPP-302, "Use of Respirator Equipment"

3.0 RESPONSIBILITIES

3.1 PLANT GENERAL MANAGER

The Plant General Manager is responsible for authorizing planned radiation exposures to emergency workers in excess of regulatory limits or entry into radiation fields of greater than 100R/hr. He

3.0 RESPONSIBILITIES

3.1 PLANT GENERAL MANAGER (Cont'd)

is the primary person to hold the emergency position of Site Emergency Coordinator-Technical Support Center.

3.2 ENVIRONMENTAL AND RADIATION CONTROL (ER&C) MANAGER

In the absence of the Plant General Manager, the Environmental and Radiation Control Manager is responsible for authorizing planned radiation exposures to emergency workers in excess of regulatory limits or entry into radiation fields of 100R/hr. He is the primary designee for the emergency position of Radiological Control Director.

3.3 SITE EMERGENCY COORDINATOR

In the absence of both the Plant General Manager and the Environmental and Radiation Control Manager, the individual holding the position of Site Emergency Coordinator is responsible for authorizing planned radiation exposures to emergency workers in excess of regulatory limits or entry into radiation fields of greater than 100R/hr.

3.4 RADIOLOGICAL CONTROL DIRECTOR

The Radiological Control Director is responsible for ensuring that all on-site personnel are monitored for both external radiation exposure and internal deposition of radioactive material, and that appropriate protective clothing and respiratory protection equipment is used as necessary.

3.5 PERSONNEL PROTECTION AND DECONTAMINATION TEAM LEADER

The Personnel Protection and Decontamination Team Leader is responsible for establishing requirements for protective clothing, respirators, dosimetry, and exposure control for all on-site emergency personnel. He is responsible for obtaining authorizations for personnel to exceed regulatory exposure limits or enter radiation fields in excess of 100R/hr if required. He is also responsible for documenting radiation protection requirements on Emergency Radiation Work Permits and for transmitting these requirements to appropriate personnel.

3.6 PERSONNEL PROTECTION AND DECONTAMINATION TEAM

The Personnel Protection and Decontamination Team is responsible for providing survey data to the Personnel Protection and Decontamination Team Leader, for assisting emergency workers in maintaining their radiation exposure As Low As Reasonably Achievable (ALARA), for providing and reading dosimetry for all onsite personnel, for reading dosimetry for immediate response personnel, and for performing whole body counts.

3.0 RESPONSIBILITIES

3.7 EMERGENCY SECURITY TEAM LEADER

The Emergency Security Team Leader is responsible for ensuring that dosimetry is issued to immediate response personnel (ambulance crews, fire departments, etc.) upon arrival at the site.

3.8 ONSITE EMERGENCY PERSONNEL

All emergency workers on site are responsible for continuously being aware of and controlling their own radiation exposure, for ensuring that the Personnel Protection and Decontamination Team Leader has been made aware of their intended activities, and for adhering to radiation protection requirements as specified by the Personnel Protection and Decontamination Team Leader. They are responsible for reporting immediately if their self reading pocket dosimeter is either offscale or indicates that they have received 75 percent of their exposure limit. All personnel who are issued dosimetry under emergency conditions are responsible for reporting to the Personnel Protection and Decontamination Team as time permits to complete necessary documentation.

4.0 DEFINITIONS

1. Facsimile - a copy generated by manual entry of data on a blank duplicate copy of a form based on verbal data transmission.
2. Planned Exposure - exposure to radiation that resulted from intentional actions with prior knowledge of the expected integrated exposure.
3. Immediate Response Personnel - individuals who are members of organizations that have executed agreements with CP&L to provide emergency assistance at SHNPP to combat fires and/or provide emergency medical treatment or transportation.

5.0 GENERAL

5.1 GUIDELINES FOR CONTROL OF PERSONNEL RADIATION EXPOSURE

Although an emergency situation transcends the normal requirements for limiting exposures to ionizing radiation, guideline levels are established for exposures that may be acceptable in emergencies. The maximum whole body dose received by any worker should not exceed established regulatory limits. The acceptability of higher exposures is restricted to emergency situations where some clear and definite advantage can be gained by such worker exposure. The saving of a life, or measures to circumvent substantial exposures to population groups, may be sufficient cause for accepting above normal exposures. Attachment 1 gives the criteria for invoking emergency exposure limits.

5.0 GENERAL

5.1 GUIDELINES FOR CONTROL OF PERSONNEL RADIATION EXPOSURE (Cont'd)

Decision making is based on conditions at the time of an emergency and should always consider the probable effects of an exposure prior to allowing any individual to be exposed to radiation levels exceeding the established occupational limits. The probable high radiation exposure effects are:

1. Up to 50 rem in 1 day - no physiological changes are likely to be observed.
2. 50 to 100 rem - no impairment likely but some physiological changes, including possible temporary blood changes, may occur. Medical observations would be required after exposure.
3. 100 to 300 rem - some physical impairment possible. Some lethal exposures possible.

5.2 ENTERING HIGH RADIATION EXPOSURE AREAS

Emergency teams that must enter areas where they might be expected to receive higher than normal doses will be fully briefed regarding their duties and actions and what they are to do while in the area. They will also be fully briefed as to expected dose rates, stay time, and other hazards. All team members will use protective clothing, dosimeters, respiratory devices, and other protective devices as specified by the Personnel Protection and Decontamination Team Leader. The team members will be instructed not to deviate from the planned route unless required by unanticipated conditions, such as rescue,performing an operation that would minimize the emergency condition, or unexpected radiation levels. If the monitored dose rates or stay times encountered during the entry exceed the limits set forth for the operation, the team will immediately communicate with the Personnel Protection and Decontamination Team Leader, or will return to the area from which they were dispatched.

Once their operation has been completed, the team personnel will follow monitoring and personnel decontamination procedures as specified by the Personnel Protection and Decontamination Team Leader.

5.3 ADMINISTRATIVE CONTROLS

Normal administrative controls for controlling radiation exposure may become too cumbersome to permit expeditious emergency response. During an emergency, the requirements of DP-012, "Quarterly Dose Limit Extension Authorization," and HPP-020, "Radiation Work Permits," will be temporarily suspended, and the Emergency Radiation Work Permit form (Attachment 2) will be used to document radiation protection and dosimetry requirements. Documentation that is normally required by DP-001, "Dosimetry Issuance" and DP-010,

5.0 GENERAL

5.3 ADMINISTRATIVE CONTROLS (Cont'd)

"Special Dosimetry Issuance" to be completed prior to issuance of dosimetry may be temporarily deferred if necessary. The normal requirements of HPP-035 for posting radiological areas, including the requirement to lock or guard radiation areas in excess of 1000 mr/hr, will be temporarily suspended if necessary for those areas outside the normal Radiological Controlled Area that are affected by the accident.

6.0 INITIATING CONDITIONS

An emergency has been declared and entry to or transit through plant areas other than designated emergency facilities and assembly areas is required.

7.0 PRECAUTIONS AND LIMITATIONS

7.1 LIFESAVING ACTIONS

In emergency situations that require personnel to search for and remove injured persons or entry to prevent conditions that would probably injure numbers of people, a planned dose shall not exceed 75 rem to the whole body. This guideline also applies to the removal of injured persons if the saving of life is possible, or entry to prevent conditions that, if left uncorrected, could lead to damage or releases that would probably injure numbers of people on or off site. The following additional criteria should be considered:

1. Rescue personnel should be volunteers.

2. Rescue personnel should be broadly familiar with the probable consequence of exposure.

3. Women capable of reproduction should not take part in these actions.

4. Other things being equal, volunteers above the age of 45 should be selected whenever possible for the purpose of avoiding unnecessary genetic effects.

5. Internal exposure should be minimized by the use of the most appropriate respiratory protection, and contamination should be controlled by the use of protective clothing when practical.

6. Exposure under these conditions should be limited to once in a lifetime, and will be included when calculating future lifetime permissible exposures.

7.0 PRECAUTIONS AND LIMITATIONS

7.1 LIFESAVING ACTIONS (Cont'd)

7. Persons receiving exposures as indicated above should be counseled to avoid procreation for a period up to a few months.

7.2 EXPOSURE DURING RE-ENTRY/REPAIR EFFORTS

There may be situations where saving a life is not at issue, but where it is necessary to enter a hazardous area to make the facility more secure against events which could lead to radioactive releases. In such instances, planned dose to emergency workers should not exceed 25 rem to the whole body or 125 rem to the thyroid. The following additional criteria should also be considered:

1. Persons performing the planned actions should be volunteers broadly familiar with exposure consequences.

2. Women capable of reproduction should not take part in these actions.

3. Internal exposures shall be minimized by respiratory protection and contamination controlled by the use of protective clothing.

7.3 APPROVAL AUTHORITY FOR EMERGENCY EXPOSURES

Entry into radiation fields of greater than 100 R/hr or planned exposure in excess of 3 rem shall not be permitted unless specifically authorized by the Plant General Manager. In his absence the Environmental & Radiation Control Manager or Site Emergency Coordinator, in that order, may grant approval.

7.4 RADIOLOGICAL ACCESS CONTROL

Because an accident may result in radiological hazards being present in areas outside of the normal Radiological Control Area, personnel on site shall not leave their designated assembly area or emergency facility without first obtaining approval from the Personnel Protection and Decontamination Team Leader.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Emergency Radiation Work Permit forms (Attachment 2).
2. Thermoluminescent Dosimeters
3. Self-Reading Pocket Dosimeters
4. Whole Body Counter
5. Digital Alarming Dosimeters
6. Thermoluminescent Dosimeter Reader

9.0 PROCEDURE STEPS

9.1 RADIOLOGICAL CONTROLS FOR EMERGENCY WORKERS

9.1.1 When notified that entry to or transit through plant or site areas are required, the Personnel Protection and Decontamination Team Leader will evaluate the radiological hazards by obtaining Radiation Monitoring System data and/or by dispatching the Personnel Protection and Decontamination Team to perform surveys.

9.1.2 The Personnel Protection and Decontamination Team Leader will estimate the individual and total man-rem exposure for the proposed entry or transit, and discuss possible exposure reduction techniques with the appropriate Team Leaders if warranted by prospective exposures.

9.1.3 Using the criteria in HPP-020 for normal Radiation Work Permits, the Personnel Protection and Decontamination Team Leader will determine whether or not an Emergency Radiation Work Permit is required. If an Emergency Radiation Work Permit is not required, he will so inform the Personnel Protection and Decontamination Team and the appropriate Team Leaders.

9.1.4 If the Personnel Protection and Decontamination Team Leader determines that an Emergency Radiation Work Permit is required, he will prepare one based on information provided by Team Leaders and the Personnel Protection and Decontamination Team to document protective action decisions made. He will use the normal criteria in DP-001, DP-005, and/or DP-010 for establishing what dosimetry is required; the normal criteria in HPP-203 for establishing protective clothing requirements; and the normal criteria in PLP-510 for establishing respiratory protection requirements.

9.1.5

CAUTION

Planned exposure to fertile women shall not exceed regulatory limits.

The Personnel Protection and Decontamination Team Leader will determine the exposure history for each individual, then determine and enter on the Emergency Radiation Work Permit the allowable dose for each individual based on the criteria in Attachment 1.

9.1.6 The Personnel Protection and Decontamination Team Leader, will authorize all Emergency Radiation Work Permits. He

9.0 PROCEDURE STEPS

9.1 RADIOLOGICAL CONTROLS FOR EMERGENCY WORKERS (Cont'd)

shall obtain the Plant General Manager's authorization signature on the Emergency Radiation Work Permit if the proposed activity requires entry into radiation fields greater than 100 R/hr or may result in radiation exposure in excess of regulatory limits. In the absence of the Plant General Manager, the Environmental & Radiation Control Manager or Site Emergency Coordinator, in that order, may authorize invoking the emergency exposure limits.

9.1.7 The Personnel Protection and Decontamination Team Leader will verbally transmit the Emergency Radiation Work Permit requirements to the Personnel Protection and Decontamination Team and the appropriate Team Leader(s). Personnel Protection and Decontamination Team members will transcribe this information onto a facsimile copy Emergency Radiation Work Permit form, and have each individual listed on the form initial it to acknowledge the requirements.

9.1.8 The Personnel Protection and Decontamination Team will issue equipment as specified on the Emergency Radiation Work Permit:

1. Normal pre-issue documentation for dosimetry and respirators shall be filled out, but may be deferred until after the task is complete.

2. Assist individuals in donning protective clothing and respirators as required.

9.1.9 The Personnel Protection and Decontamination Team will accompany other teams to provide continuous coverage, and/or neutron dosimetry in accordance with DP-005, as specified on the Emergency Radiation Work Permit.

9.1.10 When the task is complete, Personnel Protection and Decontamination Team personnel will:

1. Assist emergency workers in removing protective equipment and monitoring for contamination, if required.

2. Record exposures from Self Reading Pocket Dosimeters on the facsimile Emergency Radiation Work Permit and transmit the same verbally to the Personnel Protection and Decontamination Team Leader, who will transcribe the information onto the original.

9.0 PROCEDURE STEPS

9.1 RADIOLOGICAL CONTROLS FOR EMERGENCY WORKER (Cont'd)

3. Ensure that any deferred issue documentation is completed.

9.1.11 The Personnel Protection and Decontamination Team Leader will enter exposure data into the Radiation Information Management System as time permits, and direct Personnel Protection and Decontamination Team personnel to read Thermoluminescent Dosimeters if any personnel are approaching their exposure limit.

9.2 DOSIMETRY FOR IMMEDIATE RESPONSE PERSONNEL.

9.2.1 Emergency Security Team personnel will issue a packet containing a Thermoluminescent Dosimeter and a Self Reading Pocket Dosimeter to each individual when they arrive on-site. No documentation will be completed at the time of issue.

9.2.2 Immediate response personnel exposures will be controlled in accordance with Section 9.1 of this procedure.

9.2.3 When immediate response personnel are ready to leave the site, Personnel Protection and Decontamination Team Personnel will collect their dosimetry, and record the name; social security number; Thermoluminescent Dosimeter, and Self Reading Dosimeter serial numbers; and the reading on the Self Reading Pocket Dosimeter for each individual.

9.2.4 Personnel Protection and Decontamination Team personnel will read the Thermoluminescent Dosimeters of immediate response personnel as soon as possible in accordance with DP-105.

9.2.5 The Personnel Protection and Decontamination Team will verbally transmit exposure information for immediate response personnel to the Personnel Protection and Decontamination Team Leader as soon as it is available.

9.3 DOSIMETRY FOR SHELTERED PERSONNEL

9.3.1 The Personnel Protection and Decontamination Team will issue one Thermoluminescent Dosimeter and one self reading pocket dosimeter to each Assembly Area Leader in the on-site shelters. This dosimetry will be used to determine the exposure to all personnel in the shelter who do not have permanently assigned dosimetry.

9.3.2 When the emergency is terminated or an evacuation is ordered, the Personnel Protection and Decontamination Team

9.0 PROCEDURE STEPS

9.3 DOSIMETRY FOR SHELTERED PERSONNEL (Cont'd)

will collect assembly area dosimetry and read it as soon as possible in accordance with DP-105. The Personnel Protection and Decontamination Team will verbally transmit assembly area exposure information to the Personnel Protection and Decontamination Team Leader as soon as it is available.

9.3.3 After the emergency is terminated, Radiation Control personnel will determine the names of personnel who were present in the assembly area by contacting a manager, supervisor, or foreman for each organizational group assigned to the assembly area and having them provide a list of who was present. The dose recorded for each assembly area will be assigned to all personnel who were not wearing individual dosimetry and who were present in that assembly area.

10.0 DIAGRAMS/ATTACHMENTS

1. Emergency Worker Exposure Criteria.
2. Special Radiation Work Permit.

ATTACHMENT 1

EMERGENCY WORKER EXPOSURE CRITERIA

	TASK	EXPOSURE LIMITS	
		Whole Body	Thyroid
1.	Removal of injured personnel from an area immediately hazardous to life; providing first aid, personnel decontamination, ambulance service, or medical services when failure to do so would be life-threatening to the individual.	75 Rem	No Limit
2.	Undertaking corrective actions that are necessary to prevent or correct a condition that would probably result in death or injury to large numbers of persons, either on or off site.	75 Rem	No Limit
3.	Undertaking corrective actions that are necessary to prevent the release of radioactive material, and the projected dose from such a release would probably exceed EPA Protective Action Guides (e.g., emergency operation of or repairs to equipment that is necessary to establish or maintain safe shutdown of the plant).	25 Rem	125 Rem
4.	All other actions, including assessment actions.	Use regulatory limits	

NOTES:

1. Exposure limits are based on EPA Protective Action Guides.

EMERGENCY RADIATION WORK PERMIT

Date _____ Time _____ Requested by _____

Task to be performed _____

_____

Location of personnel who will perform task: _____

_____

Personnel who will perform task:

Name	Projected Dose	Current Exposure Lifetime	Current Exposure Quarter	Allowable Exposure	SRPD Readings IN	SRPD Readings OUT

Estimated Area Dose Rate: _____ Projected Stay Time: _____

Estimated Airborne Activity: _____

Access Point: _____

Access Route: _____

Dosimetry Required: _____

_____

Protective Clothing Required: _____

_____

Respiratory Protection Required: _____

_____

Approval: _____
Personnel Protection and Decontamination Team Leader

_____
Plant General Manager/Environmental and Radiation Control Manager/Site Emergency Coordinator

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-381

TITLE: EVACUATION

REVISION 0

APPROVED: C R Gibson (Signature) 8/8/84 (Date)

TITLE: Asst to General Manager

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LIST OF EFFECTIVE PAGES (LEP)

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1.0 PURPOSE

The purpose of this procedure is to implement Section 4.6.2 of the SHNPP Emergency Plan, "Evacuation and Personnel Accountability."

The procedure provides instructions for implementing an evacuation of the Protected Area, the Plant Site, and/or the Exclusion Area. It does not apply to evacuation of members of the general public from affected areas outside of the Exclusion Area.

This procedure is primarily directed at evacuations initiated by actual or imminent radiological conditions. The basic actions contained in this PEP also apply, where appropriate, to evacuations related to other habitability hazards, such as toxic gases, fire, or natural phenomena.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 4.6.2, "Evacuation and Personnel Accountability."

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-101, "Initial Emergency Action"
2. PEP-102, "Site Emergency Coordinator - Control Room"
3. PEP-103, "Site Emergency Coordinator - Technical Support Center"
4. PEP-210, "Emergency Security Team Leader"
5. PEP-217, "Emergency Communicator"
6. PEP-371, "Radiation Work Permits and Exposure Control"
7. PEP-382, "Personnel Accountability."
8. PEP-384, "Access Control"

2.3 OTHER REFERENCED PLANT PROCEDURES

1. SP-015, "Emergency Plan Support"

3.0 RESPONSIBILITIES

3.1 SITE EMERGENCY COORDINATOR

The Site Emergency Coordinator is responsible for the safety and well-being of all personnel on site. It is his responsibility to determine the need for, and to direct an evacuation of hazardous areas, and for directing personnel to a safe assembly area.

3.0 RESPONSIBILITIES

3.2 WORK GROUP SUPERVISORS

Work group supervisors and assembly area leaders are responsible for the safety of their assigned personnel.

3.3 PERSONNEL PROTECTION AND DECONTAMINATION TEAMS

The Personnel Protection and Decontamination Teams are responsible for monitoring and decontamination, if necessary, of evacuating personnel and equipment, and for verifying the radiological safety of the assembly areas.

3.4 INDIVIDUALS ON CP&L PROPERTY

All CP&L employees and contractors on CP&L property are responsible for responding to evacuation notifications and escorting assigned visitors to evacuation assembly areas as described in this procedure.

4.0 DEFINITIONS/ABBREVIATIONS

1. Protected Area Evacuation - This is the evacuation of all personnel, except for emergency response personnel, from within the Protected Area boundary.

2. Plant Site Evacuation - This is the evacuation of all personnel, except for emergency response personnel, from the SHNPP site, including the Protected Area, outside construction areas, the parking lots, the cooling tower area, intake structures, cement plant, and construction lay down areas.

3. Evacuation Assembly Area - This is the area where evacuating personnel assemble so that radiological monitoring of personnel that were in the affected area can be performed.

4. Assembly Area - those areas on the plant site where personnel assemble when an emergency is first declared for accountability purposes. These areas are designated in PEP-382, "Personnel Accountability."

5.0 GENERAL

Evacuation is one of several available protective actions for on-site personnel. It is not applicable for personnel with emergency assignments, whose exposure will be controlled in accordance with PEP-371. The general decision levels for taking protective action are projected doses of 500 mrem whole body and 1500 mrem thyroid. Based on recommendations from the Radiological Control Director, the Site Emergency Coordinator will implement the protective action that will result in the greatest dose reduction.

6.0 INITIATING CONDITIONS

6.1 PROTECTED AREA AND/OR SITE EVACUATIONS

1. An emergency has been declared, and all on-site personnel have been accounted for in accordance with PEP-382, and

2. Radiation doses in excess of 500 mrem whole body and/or 1500 mrem Thyroid are projected for personnel in one or more of the Assembly Areas, and

3. The Radiological Control Director has determined that evacuation will provide the greatest degree of protection for on-site personnel.

6.2 EXCLUSION AREA EVACUATIONS

The Site Emergency Coordinator has recommended evacuation of Emergency Planning Subzone A to off-site authorities.

7.0 PRECAUTIONS AND LIMITATIONS

1. The implementation of evacuation must be based on the protective action which will result in the lowest personnel exposure (or injury).

2. Ensure that proper health physics practices are followed to the extent possible during the evacuation.

3. Evacuations should be accomplished either before or after the passage of a release (typically a gaseous release), and the evacuation route should be chosen that leads personnel away from the path of the plume. Direction from the Dose Projection Team Leader (or Radiological Control Director, if available) is needed to obtain this information.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Public Address system, evacuation alarm, megaphones, and patrol boat.

9.0 PROCEDURE STEPS

Proceed to the section that applies; i.e., Protected Area Evacuation (Section 9.1), Plant Site Evacuation (Section 9.2), or Exclusion Area Evacuation (Section 9.3).

9.1 PROTECTED AREA EVACUATION

1. Upon direction from the Site Emergency Coordinator, the Emergency Communicator - Control Room sounds the Site Evacuation Alarm.

9.0 PROCEDURE STEPS

9.1 PROTECTED AREA EVACUATION (Cont'd)

2. The Emergency Communicator instructs personnel over the Public Address system to evacuate:

   *** EXAMPLE MESSAGE ***

   "ATTENTION, ALL PERSONNEL. UNSAFE CONDITIONS EXIST IN THE PROTECTED AREA. ALL PERSONNEL IN THE PROTECTED AREA WITHOUT EMERGENCY ASSIGNMENTS EVACUATE THE PROTECTED AREA AND ASSEMBLE IN THE PARKING LOT. WAIT THERE FOR FURTHER INSTRUCTIONS.

   Continue with additional instructions as necessary.

3. The Emergency Communicator(s) repeat the alarm and announcement after approximately one minute.

4. All personnel in the Protected Area who do not have emergency assignments exit thru the Security Building in accordance with normal Security procedures. If portal radiation monitors detect contamination on personnel, those individuals will be directed by a Personnel Protection and Decontamination Team member to return to the Waste Processing Building decontamination area for monitoring and decontamination by the Personnel Protection and Decontamination Team. If contamination is detected on large numbers of individuals, a Personnel Protection and Decontamination Team member will instruct an evacuating individual to direct the contaminated individuals assembled at the Waste Processing Building decontamination area to proceed through the security building to a segregated area of the parking lot, and any additional contaminated personnel will be directed to assemble in the same area. If the portal radiation monitors are alarming continuously or inoperable they will be disregarded and all evacuating personnel will be assumed to be contaminated.

5. The Radiological Control Director directs Personnel Protection & Decontamination Team personnel to perform radiological surveys in the assembly area.

6. If the radiation surveys at the Protected Area Evacuation Assembly Area (parking lot) indicate a projected dose in excess of 500 mrem whole body or 1500 mrem Thyroid, the Site Emergency Coordinator directs the relocation of evacuated personnel to the Construction Warehouse, or if necessary initiates a Plant Site Evacuation (Section 9.2).

9.0 PROCEDURE STEPS

9.1 PROTECTED AREA EVACUATION (Cont'd)

7. Evacuated personnel will remain in the Assembly area until it is determined by the Site Emergency Coordinator that it is safe for them to return to the Protected Area, or until a Site or Exclusion Area evacuation is ordered. Contaminated personnel will be decontaminated at the remote assembly area if a Site or Exclusion Area evacuation is ordered, or at the Waste Processing Building decontamination area if conditions permit returning to the Protected Area.

9.2 PLANT SITE EVACUATION

1. The Site Emergency Coordinator ensures that the Radiological Control Director has directed the Personnel Protection and Decontamination Team to establish radiological monitoring stations at the Site Evacuation Assembly Area near the meteorological tower.

2. The Site Emergency Coordinator ensures that the Emergency Security Team Leader has implemented PEP-384, "Access Control."

3. When the access control points and radiological monitoring stations are ready, the Site Emergency Coordinator directs the Emergency Communicator - Control Room to sound the Site Evacuation Alarm and announce over the PA system to evacuate.

*** EXAMPLE MESSAGE ***

"ATTENTION, ALL PERSONNEL ON-SITE AN UNSAFE CONDITION AFFECTING THE SITE EXISTS. ALL PERSONNEL EXCEPT THOSE WITH EMERGENCY ASSIGNMENTS EVACUATE THE SITE AND ASSEMBLE AT THE METEOROLOGICAL TOWER. REPORT TO YOUR FOREMAN OR SUPERVISOR AND AWAIT FURTHER INSTRUCTIONS."

Continue with additional instructions as necessary.

4. The Emergency Communicator repeats the alarm and announcement after approximately one minute.

5. All personnel on site without emergency assignments exit the site in accordance with normal security procedures, proceed in their personal vehicles to the Site Evacuation Assembly Area near the meteorological tower, and report to their supervisor or foreman.

9.0 PROCEDURE STEPS

9.2 PLANT SITE EVACUATION (Cont'd)

6. The Site Emergency Coordinator ensures that the Radiological Control Director has directed Personnel Protection & Decontamination Team personnel to perform contamination monitoring at the remote assembly area. If contamination is detected on personnel or vehicles, they will be directed by Personnel Protection & Decontamination Team personnel to report to the Fire Training Area for decontamination.

9.3 EXCLUSION AREA EVACUATION

NOTE: Exclusion Area evacuation will be implemented only when the Site Emergency Coordinator has recommended the evacuation of Emergency Planning Subzone A to local authorities.

1. Conduct a plant site evacuation in accordance with section 9.2 of this procedure, except that personnel will be directed to assemble at the CP&L Cape Fear plant (which is in Emergency Planning Subzone K) and/or at the CP&L District Office in Cary (which is outside of the Plume Exposure Pathway Emergency Planning Zone).

*** EXAMPLE MESSAGE ***

"ATTENTION, ALL PERSONNEL IN THE EXCLUSION AREA. AN UNSAFE CONDITION AFFECTING THE EXCLUSION AREA EXISTS. ALL PERSONNEL EXCEPT THOSE WITH EMERGENCY ASSIGNMENTS ASSEMBLE AT: CP&L CAPE FEAR PLANT or CP&L DISTRICT OFFICE IN CARY (Specify one which is not in the downwind direction). REPORT TO YOUR FOREMAN OR SUPERVISOR AND AWAIT FURTHER INSTRUCTIONS.

2. The Emergency Security Team Leader will assist in warning members of the general public that may be within the Exclusion Area in accordance with Security procedure SP-015, "Emergency Plan Support."

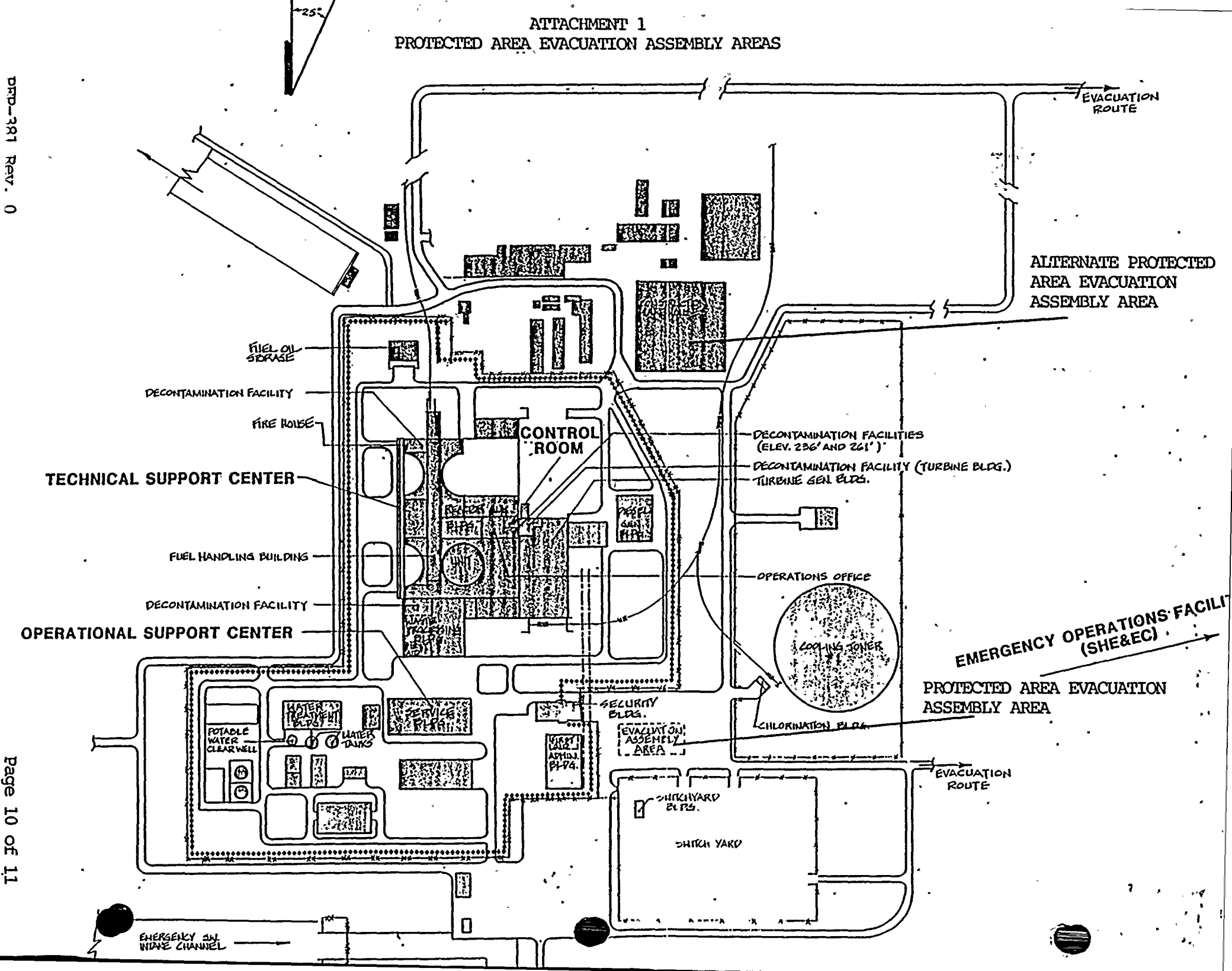
3. The Emergency Security Team Leader will notify Emergency Operations Facility Security that evacuation of Emergency Planning Subzone A, which includes the Harris Energy and Environmental Center, has been recommended by the Site Emergency Coordinator. All Harris Energy and Environmental Center Personnel who do not have emergency assignments will evacuate with the local population as directed by local authorities.

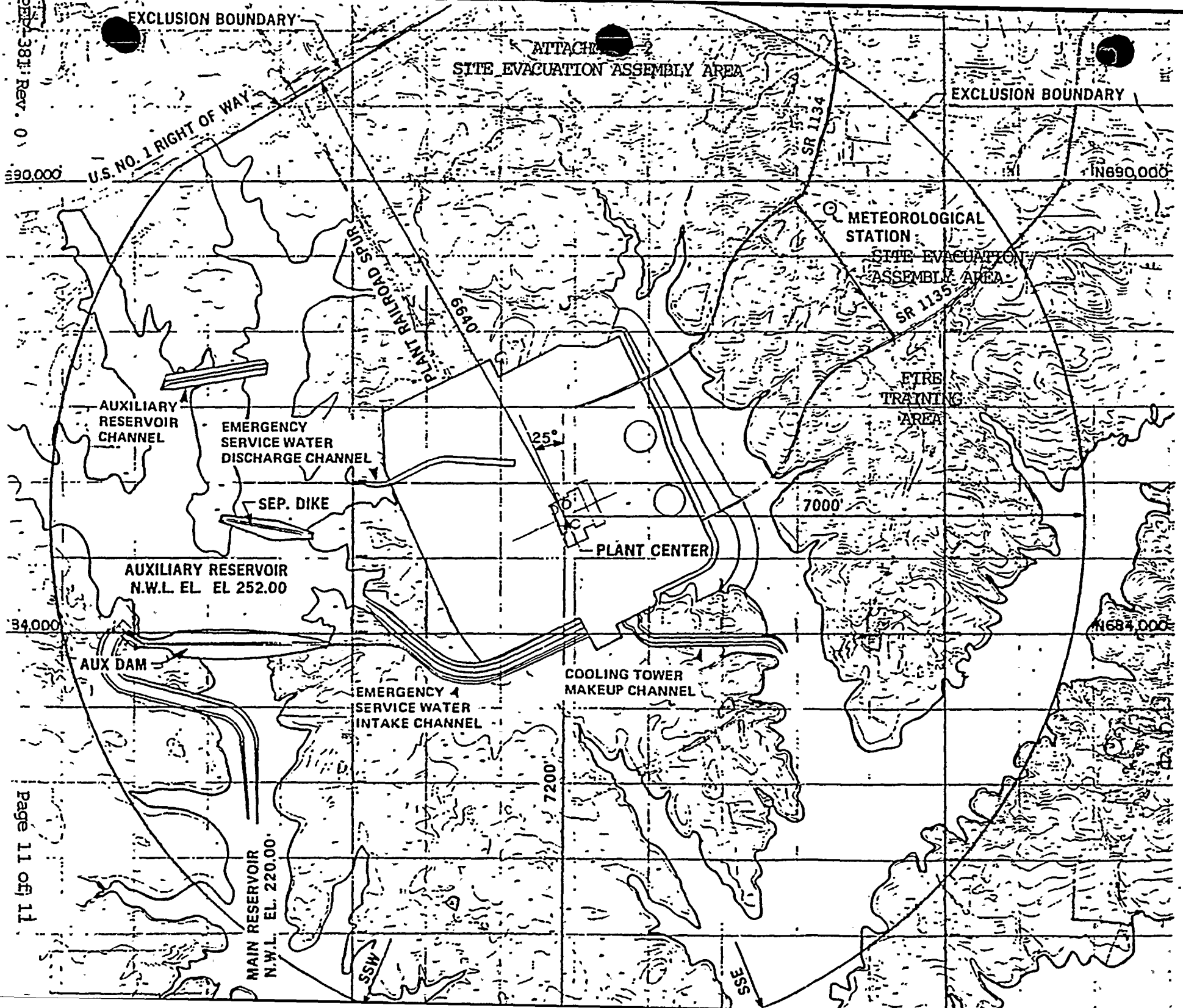
10.0 DIAGRAMS/ATTACHMENTS

1. Protected Area Evacuation Assembly Areas

2. Site Evacuation Assembly Area

ATTACHMENT 1
PROTECTED AREA EVACUATION ASSEMBLY AREAS




EXCLUSION BOUNDARY
ATTACHMENT 2
SITE EVACUATION ASSEMBLY AREA
EXCLUSION BOUNDARY
U.S. NO. 1 RIGHT OF WAY
SR 1134
690,000
N690,000
METEOROLOGICAL STATION
SITE EVACUATION ASSEMBLY AREA
SR 1135
PLANT RAILROAD SPUR
6640'
AUXILIARY RESERVOIR CHANNEL
EMERGENCY SERVICE WATER DISCHARGE CHANNEL
25°
FIRE TRAINING AREA
SEP. DIKE
7000'
PLANT CENTER
AUXILIARY RESERVOIR N.W.L. EL EL 252.00
684,000
N684,000
AUX DAM
EMERGENCY SERVICE WATER INTAKE CHANNEL
COOLING TOWER MAKEUP CHANNEL
7200'
MAIN RESERVOIR N.W.L. EL. 220.00'
SSW
SSE

AREA =

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-382

TITLE: PERSONNEL ACCOUNTABILITY

REVISION 0

APPROVED: C M Gibson (Signature) 8/21/84 (Date)

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 4.6.2 of the SHNPP Emergency Plan, "Evacuation and Personnel Accountability."

This procedure provides instructions for accounting for personnel and visitors on-site in the event of an Alert, Site Emergency, or General Emergency. This procedure also addresses maintaining accountability of personnel after the initial assembly.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 4.6.2, "Evacuation and Personnel Accountability"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-394, "Search and Rescue"
2. PEP-403, "Performance of Training"

2.3 OTHER REFERENCES

1. SP-016, "Emergency Plan Support"

3.0 RESPONSIBILITIES

3.1 SITE EMERGENCY COORDINATOR

The Site Emergency Coordinator is responsible for the safety and well-being of all personnel on-site. It is his responsibility to account for all personnel on-site, to direct search and rescue operations as required, to locate missing personnel, and to direct protective actions as appropriate.

3.2 EMERGENCY SECURITY TEAM LEADER

The Emergency Security Team Leader is responsible for reporting personnel accountability to the Logistics Support Director within 30 minutes of (and continuously thereafter) an Alert, Site Emergency, General Emergency, or upon activation of this procedure by the Site Emergency Coordinator. The support given by security during an emergency is discussed in SP-016.

3.3 WORK GROUP SUPERVISORS

Work group supervisors, assembly area leaders, emergency team leaders, and/or directors are responsible to account for all individuals assigned to them on-site and to ascertain and report the names of missing persons to the Emergency Security Team Leader.

3.4 INDIVIDUALS

Individuals are responsible for expeditiously going to their appropriate emergency facility or assembly area, reporting to their

3.0 RESPONSIBILITIES

3.4 INDIVIDUALS (Cont'd)

respective foreman or supervisor, and keeping their foreman or supervisor informed of their whereabouts after the initial assembly.

3.5 ESCORTS FOR VISITORS

An individual who is escorting visitors must escort them to the assembly area.

4.0 DEFINITIONS

4.1 TERMINOLOGY

1. Radiologically Controlled Area - an area that is controlled for radiological purposes.

2. Protected Area - the area within the security fence around Unit 1 buildings and other equipment necessary for the operation of Unit 1.

3. Shift Operating Crew - those plant staff personnel reporting operationally to the Shift Foreman, including the shift technical advisor, operators, radwaste operators, mechanics, electricians, radiation control technicians, instrumentation and control technicians, etc.

4. Qualified - a qualified individual is one who has been trained to carry out emergency responsibilities in accordance with PEP-403.

5.0 GENERAL

When an emergency of alert classification or greater is first declared on-site, an assembly of all site personnel is conducted to account for all site personnel and determine missing persons. Once the initial accountability is determined, supervisors and emergency team leaders maintain accountability of their personnel until they are relieved or the emergency is ended. The assembly areas can provide limited sheltering for nonessential personnel if immediate evacuation is not advisable.

The assembly area for all personnel inside the Protected Area who are not primary designees for an emergency position is the Fuel Handling Building lunch room and auditorium during normal working hours.

The assembly area for all site personnel outside the Protected Area who are not primary designees for an emergency position is the Construction Warehouse during normal working hours.

5.0 GENERAL

During off hours (2nd & 3rd shifts), the assembly area is the Security Building or other single location designated by the Site Emergency Coordinator.

At the assembly areas, nonessential personnel remain until the Site Emergency Coordinator has determined that they may return to their work place, evacuate, or remain sheltered in the assembly area.

Personnel at the assembly areas who are needed to fill vacancies in the emergency organization proceed to their assigned emergency facility or work stations once the initial accountability has taken place.

6.0 INITIATING CONDITIONS

1. An Alert, Site Emergency, or General Emergency at SHNPP has been declared.

2. Other conditions not specifically listed, as determined by the Site Emergency Coordinator (Shift Foreman).

7.0 PRECAUTIONS/LIMITATIONS

1. Initial accountability must be performed and the Logistics Support Director or Site Emergency Coordinator notified within 30 minutes after an Alert, Site Emergency, or General Emergency is declared.

2. Once the initial accountability has been completed, an evacuation can be performed at any time, without another assembly even if nonessential personnel have been permitted to return to their work place.

3. Once the emergency has been downgraded below the Alert level, the accountability requirement is removed and a new assembly will be required if the emergency classification is subsequently raised to Alert, or higher.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Emergency organization personnel rosters

2. Public address system, telephone system, and security/-operations portable radios.

9.0 PROCEDURE STEPS

9.1 INITIAL ACCOUNTABILITY

1. Immediately upon declaration of an Alert, Site Emergency, or General Emergency, the Shift Operating Crew shall place their work area in a safe condition and proceed to their

9.0 PROCEDURE STEPS

9.1 INITIAL ACCOUNTABILITY (Cont'd)

assigned emergency locations unless specifically directed otherwise by the Site Emergency Coordinator:

- The Shift Technical Advisor, Control Operators, and Auxiliary Operators report to the Control Room.
- All other personnel on shift report to the Operational Support Center.

2. The senior on-site member of the security organization will request that all other security organization personnel report in by radio, and designate an individual to report to the Technical Support Center as Emergency Security Team Leader.

3. All personnel on-site who are not on the Shift Operating Crew or members of the security organization place their work area in a safe condition and report to their designated assembly area or emergency facility:

- The primary designees for Technical Support Center emergency positions will report to the Technical Support Center.
- The primary designees for Operational Support Center positions will report to the Operational Support Center.
- All personnel who normally work inside the Protected Area who are not primary designees for an emergency position will assemble in the Fuel Handling Building lunch room and auditorium.
- All personnel who normally work outside of the Protected Area who are not primary designees for an emergency position will assemble in the construction warehouse.

NOTE: On back shifts, when few non-shift personnel are likely to be on-site, the Site Emergency Coordinator may designate a single assembly area (usually the security building so that only one Assembly Area Leader is needed for personnel inside and outside the Protected Area) for all on-site non-shift personnel who are not primary designees for an emergency position.

4. Any personnel who must exit Radiologically Controlled Areas, or enter or exit security areas to get to their designated assembly area or emergency facility, will do so in accordance with normal security and/or radiation control procedures.

9.0 PROCEDURE STEPS

9.1 INITIAL ACCOUNTABILITY (Cont'd)

5. Upon arrival at the assembly areas, all personnel will report to their supervisor or foreman. Within twenty minutes after the emergency is declared, supervisors and foremen will report the names of unaccounted-for personnel to the Assembly Area Leader.

6. Personnel reporting to the Technical Support Center, Control Room, and Operational Support Center will report their arrival to the Emergency Communicator - Technical Support Center, Emergency Communicator - Control Room, or Operational Support Center Leader, respectively.

7. Assembly Area Leaders, the Operational Support Center Leader, the Emergency Communicator - Technical Support Center, the Emergency Communicator-Control Room, and the senior-on-site member of the security organization will report the names of any personnel who have not been accounted for within 25 minutes after the emergency was declared to the Emergency Security Team Leader in the Technical Support Center.

8. The Emergency Security Team Leader will report a consolidated summary of all missing personnel to the Logistics Support Director (or Site Emergency Coordinator) within 30 minutes after the Emergency is declared. The Logistics Support Director will notify the Site Emergency Coordinator if any personnel are missing.

9. The Site Emergency Coordinator will direct the Plant Operations Director to implement PEP-394, "Search and Rescue," if any personnel are missing.

10. Personnel who are alternate designees for emergency positions, and those without emergency assignments will remain in the assembly areas at least until the Site Emergency Coordinator has determined that no additional personnel from the assembly areas are required to augment the emergency organization. The Logistics Support Director will inform the Assembly Area Leader(s) of which personnel to direct to report to emergency facilities to fill vacancies and/or augment the emergency organization.

11. Based on recommendations from the Radiological Control Director, the Site Emergency Coordinator decides what protective actions (if any) to implement for personnel in the assembly areas. If on-site sheltering is implemented, personnel will remain in the assembly areas. If no protective actions are necessary, personnel may be allowed to return to work if conditions in their work area permit.

9.0 PROCEDURE STEPS

9.2 MAINTAINING ACCOUNTABILITY

1. All personnel on-site will ensure that their supervisor, foreman, or team leader is aware of their location at all times during the emergency by informing him before leaving their present building or facility of where they are going, and reporting their arrival when they get to the new location.

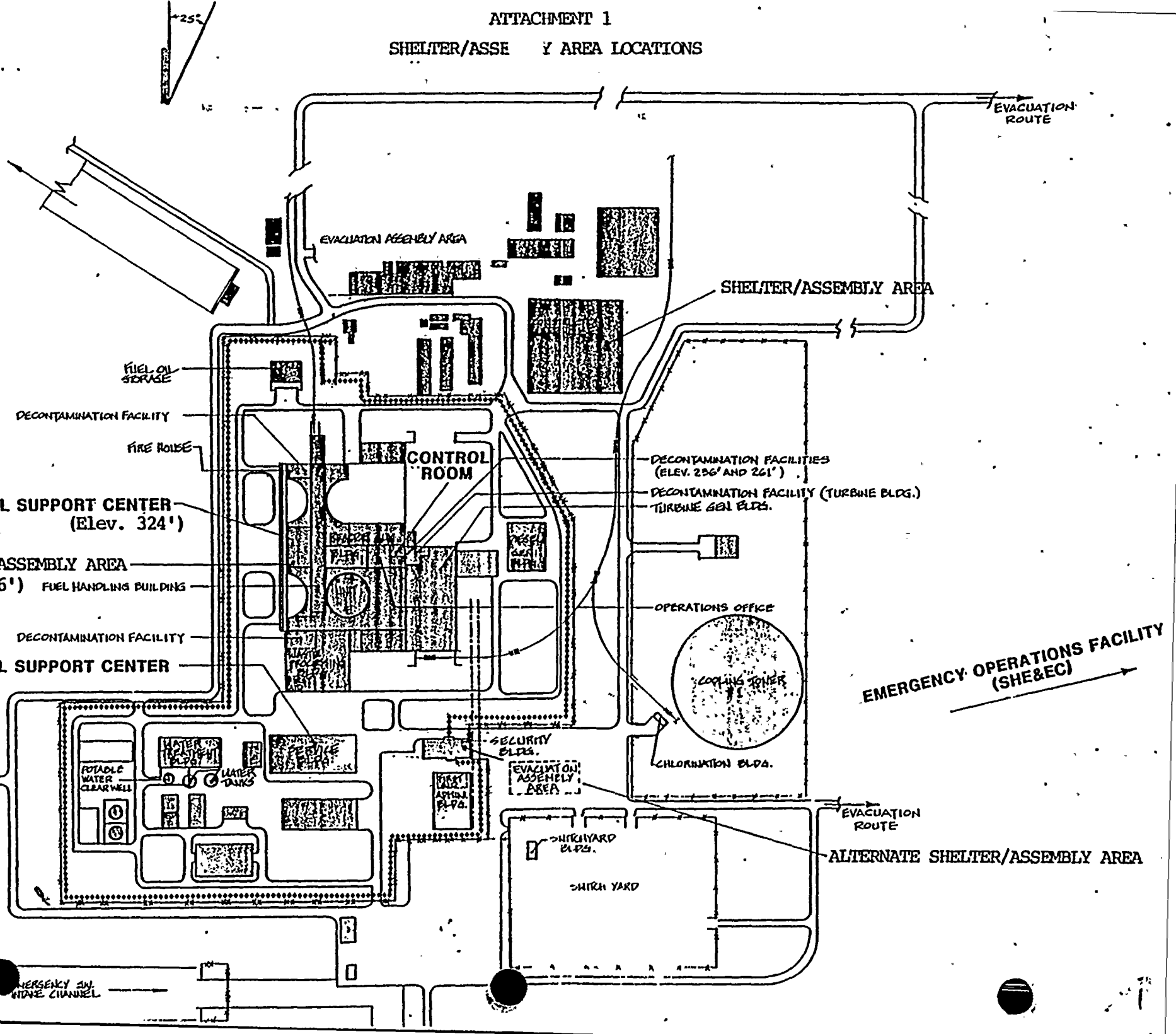
2. Supervisors, Foremen, and Team Leaders will report missing personnel to the Emergency Security Team Leader.

10.0 DIAGRAMS/ATTACHMENTS

1. Shelter/Assembly Area Locations

ATTACHMENT 1

SHELTER/ASSE Y AREA LOCATIONS



CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-383

TITLE: ADMINISTRATION OF POTASSIUM IODIDE

REVISION 0

APPROVED: _____ 8/21/84
Signature Date

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to partially implement section 4.6.3.3 of the SHNPP Emergency Plan, "Use of Protective Equipment and Supplies."

This procedure provides instructions for administering potassium iodide to emergency workers employed by Carolina Power & Light Company..

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 4.6.3.3, "Use of Protective Equipment and Supplies"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-204, "Radiological Control Director"

2. PEP-208, "Personnel Protection and Decontamination Team Leader"

2.3 OTHER REFERENCES

1. Department of Health, Education, and Welfare/ Food and Drug Administration Federal Register Note FR No.232 December 15, 1978 "Potassium Iodide as a Thyroid Blocking Agent in a Radiation Emergency".

2. National Council on Radiation Protection and Measurements Report No.55, "Protection of the Thyroid Gland in the Event of Releases of Radioiodine", National Council on Radiation Protection and Measurements, Washington DC, 1977.

3. "Environmental Protection Agency, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," June 1980.

4. "Patient Package Insert for Thyro-Black", Wallace Laboratories, Inc. Publication CW-107915-10/79

3.0 RESPONSIBILITIES

3.1 SITE EMERGENCY COORDINATOR

The Site Emergency Coordinator is responsible for authorizing the distribution of Potassium Iodide to on-site emergency workers.

3.0 RESPONSIBILITIES

3.2 RADIOLOGICAL CONTROL DIRECTOR

The Radiological Control Director is responsible for consulting with the Agreement physician as to the need for administration of Potassium Iodide. The Radiological Control Director shall advise the Site Emergency Coordinator of any recommendation based on the consultation regarding the administration of Potassium Iodide to on-site personnel.

3.3 PERSONNEL PROTECTION AND DECONTAMINATION TEAM

Personnel Protection and Decontamination Team personnel are responsible for administering potassium iodide to on-site personnel under the direction of the Radiological Control Director and agreement physician.

4.0 DEFINITIONS

1. Agreement Physician - A medical doctor who has agreed to provide medical services as stated in (an) agreement letters(s) included in Annex A of the SHNPP Emergency Plan.

5.0 GENERAL

The release of substantial quantities of radioiodines is postulated for nearly every accident scenario that involves significant offsite exposures. These radioiodines pose a significant threat to the thyroid gland and will require protective action to minimize the thyroid exposure. Stable iodine is a useful agent to block the uptake of radioiodine by the thyroid gland. Blocking occurs when the thyroid gland is saturated with stable iodine, thus preventing the uptake of radioactive iodine species. Potassium iodide has been approved by the Food and Drug Administration for this use.

Potassium iodide must be taken prior to exposure to radioiodine to be completely effective. Approximately 30 minutes are required for the onset of blocking following administration. A substantial benefit is obtainable, however, when the potassium iodine is administered within 3 to 4 hours following acute exposure to radioiodine. Limited benefits are obtainable up to 12 hours following exposure. Most of the radioiodine which is not taken up by the thyroid will be eliminated from the body in about 48 hours, however, some recirculation is possible, so potassium iodide should be administered (about 130mg/day) for 3 to 10 days following confirmed acute exposure.

This procedure only applies to employees and contractors of CP&L. CP&L personnel shall not supply potassium iodide to members of the general public. The risk of detrimental side effects from the short term use of potassium iodide for thryoid blacking in a radiation

5.0 GENERAL

emergency have been determined by the U. S. Food and Drug Administration to be outweighed by the risks of radioiodine induced thryoid nodules or cancer at a projected dose to the thyroid gland of 25 Rem or greater (Reference 1).

6.0 INITIATING CONDITIONS

1. A release of radioactive iodine to the atmosphere has occurred, or is likely to occur, and projected thyroid doses to personnel are equal to or greater than 25 rem.

7.0 PRECAUTIONS/LIMITATIONS

1. Potassium Iodide should only be administered if individual respiratory protection has been determined to be ineffectual or not feasible.

2. Potassium iodide has no effect for particulate radioactivity nor for noble gases. Appropriate protective measures must still be established for these types of airborne radioactivity.

3. There is no protection factor associated with the use of potassium iodide.

4. Potassium iodide will be administered in accordance with directives of the agreement physician. Since potassium iodide tablets have a shelf life, they should not be administered if the expiration date has passed.

5. Potassium iodide should not be used by individuals who know that they are allergic to iodine.

6. Potassium iodide should be administrated on a voluntary basis.

7. Whole body counting should be performed on individuals who have been administered potassium iodide to determine whether continued treatment is necessary.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Whole body counter (located in the Whole Body Counting Room)

2. Potassium Iodide tablets (located in the Technical Support Center and the Operations Support Center)

9.0 PROCEDURE STEPS

9.1 ACTIONS OF RADIOLOGICAL CONTROL DIRECTOR

1. The Radiological Control Director determines from the Dose Projection Team Leader, Personnel Protection and Decontamination Team Leader, Plant Monitoring Team Leader or others that conditions are such that personnel are likely to receive a significant dose (25rem) to the thyroid from radioiodine, and that alternative protective actions are not feasible or would be ineffective.

2. The Radiological Control Director calls the agreement physician and:

   - Notifies the physician of the expected thyroid doses that will be received with and without the administration of potassium iodide.
   - Requests any guidance or recommendations that may be applicable to the specific situation, including how soon any allergic reactions are likely to occur and what actions should be taken if any do occur.
   - Obtains agreement from the physician to administer the KI.
   - Instructs the physician to standby in case there are any allergic reactions.
   - Logs any recommendations and the Doctors consent together with the date and time in the RCD Log book.

3. The Radiological Control Director notifies the Site Emergency Coordinator (and Radiological Control Manager, if the Emergency Operations Facility is activated) of the approval by the agreement physician to administer Potassium Iodide to selected personnel, and obtains authorization from the Site Emergency Coordinator to distribute it.

4. The Radiological Control Director directs the Personnel Protection and Decontamination Team Leader to administer potassium iodide to the selected personnel according to this procedure.

9.2 ACTIONS OF PERSONNEL PROTECTION AND DECONTAMINATION TEAM

The Personnel Protection and Decontamination Team Leader (or other available Personnel Protection and Decontamination Team personnel as directed by the Leader) performs the following steps.

9.0 PROCEDURE STEPS

9.2 ACTIONS OF PERSONNEL PROTECTION AND DECONTAMINATION TEAM (Cont'd)

1. Obtain authorization from the Radiological Control Director to administer the potassium iodide.

2. Ask those individuals reporting to the potassium iodide administration locations if they have ever had an allergic reaction to iodide. Advise them that most table salt contains iodide.

3. Advise all personnel that the use of potassium iodide is voluntary, have them read a copy of the Instructional Material on the Use of Potassium Iodide (Attachment 1) and ensure that they complete and sign the upper portion of a potassium iodide consent and record form (Attachment 2) before administering potassium iodide.

4. CAUTION: Administer potassium iodide only to individuals who are not allergic to iodide. Do not administer potassium iodide if its expiration date has passed.

   Administer one potassium iodide tablet (100 mg. iodine per 130 mg. tablet) to each person.

5. Complete and sign the lower portion of the potassium iodide Consent and Record Form (Attachment 2) for each individual.

6. Instruct each individual to report back the next day for an evaluation as to whether an additional dosage of potassium iodide is necessary.

7. On the following days, if it is known or suspected that an individual was actually exposed to elevated concentrations of airborne radioiodine at levels and for a duration whereby a dose commitment to his thyroid of 25 Rem could be exceeded, perform a whole body count for each individual (if possible) before the additional potassium iodide tablet is administered. If the <u>whole body</u> burden of I-131 is less than 17nCi, discontinue administering potassium iodide. If a whole body count cannot be performed or if the <u>whole body</u> burden exceeds 17nCi, administer an additional dosage of potassium iodide and notify the Radiological Control Director. If actual exposure to an individual is not suspected, do not administer any additional tablets.

10.0 DIAGRAMS/ATTACHMENTS

1. Instructional Material on the Use of Potassium Iodide
2. Potassium Iodide Consent and Record Form

ATTACHMENT 1

INSTRUCTIONAL MATERIAL

on the

USE OF POTASSIUM IODIDE

General

Many of the accident scenarios analyzed in the Shearon Harris Nuclear Plant Final Safety Analysis Report postulate the sudden release of large quantities of radionuclides, which might include a large number of isotopes of radioiodine, into the environment and into plant areas.

When iodines, including radioactive and non-radioactive, are inhaled or indigested, they rapidly accumulate in the thyroid gland. Radioiodines could reside in the thyroid gland long enough to allow localized radiation damage.

In order to minimize the dose to the thyroid, some protective action must be taken to minimize uptake or to minimize the effects of this uptake. Saturating the thyroid with stable (or non-radioactive) iodine will "block" the thyroid, preventing the uptake of additional iodine. Most of the iodine indigested or inhaled, but not absorbed by the thyroid, will be eliminated from the body in about 48 hours by normal bodily processes. Thus, if stable iodine is administered prior to or immediately after (less than 2 hours) exposure to radioiodine, the radioiodine will not be taken up but rather, will be eliminated from the body.

Although a variety of chemical substances can block the accumulation of radioiodine in the thyroid gland, potassium iodide appears to be the most suitable.

- The blocking is essentially complete with a dosage of 100 mg iodide (130 mg potassium iodide).
- The onset of blocking occurs at about 30 minutes following administration.
- The blocking effect from a single dosage lasts about one day.
- The potential for side effects is very low at the dosages involved.

General

To be completely effective, the potassium iodide should be taken prior to exposure to radioiodine, or very shortly thereafter. Approximately 50% blocking will occur if the iodide is administered within 3 to 4 hours after exposure. Limited benefits are possible up to 12 hours following acute exposure. Because of the potential for recirculation in the body, potassium iodide should be taken for 3 to 10 days following exposure to minimize the uptake of recirculated radioiodine.

Side Effects

Potassium iodide has been used widely for several years in the treatment of bronchial asthma. Daily oral doses of potassium iodide ranging from 300 to 1200 mg have been administered to patients over a long time. Only the repeated administration of daily doses far in excess of those necessary for thyroid blocking have resulted in significant side effects.

Although side effects are unlikely because of the small dose and short period of time that the drug would be used for thyroid blocking, effects noted have been:

- The taking of iodide has been associated with skin rashes, swelling of the salivary glands, and iodism (burning in the throat and mouth, metallic taste, soreness of mouth and gums, symptoms of a head cold, and diarrhea). Also, allergic reactions may produce symptoms such as fever and pains in the joints, or on rare occasions swelling of various parts of the body with severe shortness of breath.

- Overactivity or underactivity of the thyroid gland and/or goiter. Symptoms of thyroid overactivity include nervousness, sweating, and rapid heartbeat.

If side effects are noted, report to your supervisor for possible transfer to a hospital or consultation with a physician. Discontinue use of the potassium iodide. If the heartbeat is rapid and irregular, or if shortness of breath (associated with the iodide) is noted, seek medical attention immediately.

Usage

The only people who should not take potassium iodide are people who know that they are allergic to iodide. (Note: table salt is commonly iodized). You may take potassium iodide even if you are taking medication for a thyroid problem. Pregnant and nursing women and children may take the drug.

Usage

Potassium iodide should be taken as soon as possible after you are directed. You will probable be directed to take one dosage every 24-hours for no more than 10 days. Do not take larger doses. Larger doses do not increase the radioiodine protection, but may increase the chance of side effects.

Potassium iodide for emergency use will probably be provided in 130 mg tablets (corresponds to 100 mg iodide), but liquid solutions to be added to a glass of water may be used.

ATTACHMENT 2

POTASSIUM IODIDE CONSENT AND RECORD FORM

Full Name _____ SSN _____

Employer _____ Employee No. _____

I have read "Instructional Material on the use of Potassium Iodide" and understand its contents. To the best of my knowledge, I am not allergic to iodide. I voluntarily consent to receive a dosage of 130 mg/day of KI for the next 10 days, or until it can be determined that I have not ingested significant quantities of radioiodines.

_____ _____
Employee Signature Date

Initial dosage administered:

Lot number _____ Expiration Date _____

Administered by _____ _____ _____
Signature Date Time

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-384

TITLE: ACCESS CONTROL

REVISION 0

APPROVED: T. B. Gibbs
Signature

8/24/84
Date

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 4.5.3, "Public Alerting, Warning, and Notification," Section 4.6.1, "On-site Alerting, Warning, and Notification," and Section 4.8, "Security Measures" of the SHNPP Emergency Plan.

This procedure provides instructions for controlling the movement of site personnel during an evacuation of the site, controlling the movement of members of the general public inside the Exclusion Area during an emergency, controlling ingress and egress to the Exclusion Area, Protected Area and the Emergency Operations Facility during an Emergency.

2.0 REFERENCES

2.1 Emergency Plan References

1. 2.4.5.3, "Emergency Security Team Leader"
2. 2.4.5.4, "Assembly Area Leader"
3. 2.4.6.7, "Personal Protection and Decontamination Team Leader"
4. 4.5.3, "Public Alerting, Warning, and Notification"
5. 4.6.1, "On-site Alerting, Warning, and Notification"
6. 4.8 "Security Measures"

2.2 Referenced Plant Emergency Procedures

1. PEP-208, "Personnel Protection and Decontamination Team Leader"
2. PEP-215, "Assembly Area Leader"
3. PEP-301, "Notification and Communications"
4. PEP-381, "Evacuation"
5. PEP-382, "Personnel Accountability"

2.3 Other References

1. SP-016, "Emergency Plan Support"
2. Code of Federal Regulations, Title 10, Part 100
3. Final Safety Analysis Report, Section 2.1.2.2
4. Final Safety Analysis Report, Section 2.1.2.3

3.0 RESPONSIBILITIES

3.1 Assembly Area Leaders

Assembly Area Leader(s) are responsible for performing accountability functions and additionally directing and controlling personnel in the assembly areas as per PEP-215. In conjunction with Personnel Protection and Decontamination Team members, the Assembly Area Leader(s) are responsible for directing personnel/vehicles to monitoring locations or to decontamination areas if the personnel/vehicles are known or suspected to be contaminated.

3.2 Personnel Protection and Decontamination Team Members

The Personnel Protection and Decontamination Team(s) are responsible for surveying assembly area(s), for monitoring personnel/vehicles at assembly areas (or monitoring areas they establish), for supervising the decontamination of contaminated personnel/vehicles (at decontamination areas) and for controlling the flow of personnel/vehicles at monitoring and decontamination areas as per PEP-208.

3.3 Emergency Security Team Leader

The Emergency Security Team Leader has the responsibility to:

1. Direct members of the security force to control access at the east end of the plant access roads during an Alert or at the Exclusion Area Boundary during a Site or General Emergency.

2. Direct a member of the security force to exclude any rail traffic during a Site or General Emergency except as authorized by the Site Emergency Coordinator.

3. Direct a member of the security force to provide access control at the Emergency Operations Facility if it will be activated.

4. As needed,direct members of the security force to assist the Sheriff's Department in warning members of the public on the Harris Reservoir during a Site or General Emergency.

3.4 Members of the Security Force

Upon direction from the Emergency Security Team Leader,members of the security force will provide warning and access control functions during a Site and General Emergency in addition to their normal security duties as follows:

1. Control access at the east end of the plant access roads during a Site Emergency and at the Exclusion Area Boundary during a General Emergency.

2. Direct any railway vehicles/personnel to depart the site and close the railway barrier during a Site or General Emergency.

3.0 RESPONSIBILITIES

3.4 Members of the Security Force (Cont'd)

3. Warn the public on the Harris Reservoir by using a siren, smoke, and flares at the operations access road causeway and at the auxiliary dam.

4. Provide access control at the Emergency Operations Facility.

5. At declaration of Site Emergency ready the patrol boat for use by a Sheriff's Deputy. If the Deputy has not arrived within 45 minutes after declaration of a Site Emergency, Security will launch the patrol boat on the main reservoir and begin the warning process.

4.0 DEFINITIONS

1. Exclusion Area - An Exclusion Area is an area specified for the purpose of reactor site evaluation in accordance with 10CFR100. It is an area of such size that an individual located at any point on its boundary for two hours immediately following onset of the postulated release would not receive a total radiation dose to the whole body in excess of 25 rem or a total radiation dose of 300 rem to the thyroid from iodine exposure. The exclusion area around the SHNPP is CP&L owned property with a radius of approximately 7000 feet.

2. Protected Area - An area of the plant site encompassed by physical barriers to which access is controlled.

3. Radiologically Controlled Area - An area to which access is controlled for the purpose of limiting radiation exposure or preventing the spread of contamination.

4. Site - The area inside of an approximate 2500 foot radius from the plant center line, inclusive of the area cleared for plant construction, and including all permanent and temporary buildings, the parking lots, and concrete plant.

5.0 GENERAL

When an Alert (or higher emergency classification) is first announced, all personnel in the Protected Area, except for Shift Operating Personnel and on duty security personnel, are directed to assemble in the Fuel Handling Building Auditorium and Lunchroom (or other announced location). All personnel on-site outside the Protected Area assemble at the Construction Warehouse (or other announced area). Assembly Area Leaders, assisted by foremen and supervisors, perform accountability of personnel and direct and control personnel at the assembly areas (see PEP-382).

5.0 GENERAL

After personnel have initially assembled, security can check, via the security computer, whether any personnel other than Shift Operating Personnel are within security zones other than the general Protected Area zone (see SP-016).

If traffic control into the Site is required security closes the gates and/or posts personnel on the entrance roads. If traffic control into the Exclusion Area becomes necessary barriers are placed across state roads and railway spurs at the boundary of the Exclusion Area, telephone company activities are prohibited, and control of public access is maintained by plant security as described in this procedure. Assistance is provided by local agencies in accordance with agreements in the emergency plan (FSAR Section 2.1.2.3).

Signs are posted along both roads (and the rail spur) at the Exclusion Area boundary stating that the area is an Exclusion Area and advising that persons therein are subject to evacuation (FSAR Section 2.1.2.2).

Signs are posted wherever the easement (granted to Southern Bell for telephone lines) intersects the Exclusion Area boundary, stating that the area is an Exclusion Area and advising that anyone therein is subject to evacuation (FSAR Section 2.1.2.2).

Warning signs are also posted at known points of entry on the Exclusion area boundary (land used for public recreation) and buoyed in conspicuous locations within and on the boundary of reservoir waters (used for public recreation) inside the Exclusion Area (FSAR Section 2.1.2.2).

When a Site Emergency is declared a County Sheriff's Department deputy drives around Harris Reservoir and warns the public by stopping at locations near the water using his siren, public address system, flares, and smoke grenades to warn the public. Another deputy proceeds to the plant site and mans the Harris patrol boat while using a siren, public address system, smoke, and flares to warn the public on or near the reservoir. Security uses a siren, flares, and smoke grenades at the operations access road causeway and at the auxiliary dam to assist in the coverage of the reservoir. If the emergency escalates to a General Emergency prior to the arrival of the deputy, a member of the security force will man the patrol boat and commence warning activities as prescribed above.

6.0 INITIATING CONDITIONS

1. An emergency has been declared.

7.0 PRECAUTIONS AND LIMITATIONS

1. Verify that the railway spur barrier at the Exclusion Area Boundary is closed by visual inspection.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Signs posted at all major entry points to the Exclusion Area advising personnel they are subject to evacuation.

2. Signs notifying recreational users of the Harris Reservoir to evacuate the reservoir upon hearing sirens, seeing red flares or red smoke, and tune to an Emergency Broadcast System radio.

3. Patrol boat

4. Traffic cones and signs

5. Megaphones

6. Portable road barriers with warning lights

7. Flares and smoke grenades

9.0 PROCEDURE STEPS

If an emergency classification higher than Unusual Event is initially declared, start at the applicable section.

9.1 Unusual Event

9.1.1 If personnel in the Control Room announce over the public address system that a particular area inside the Protected Area is to be evacuated, security will conduct a computer check of access control records to determine if the area(s) has been properly evacuated.

9.1.2 The senior member of the security force notifies the Emergency Security Team Leader, or if this position is not yet activated, the Site Emergency Coordinator of the results.

9.1.3 The Emergency Security Team Leader notifies the Logistics Support Director or, if this position is not yet activated, the Site Emergency Coordinator of the results, provides recommendations, and advises of actions in progress if the situation is a security emergency.

9.1.4 The Logistics Support Director or Site Emergency Coordinator determines if any personnel still in the area should be there (i.e. they are part of Shift Operating Crew or Radiation Protection staff performing evaluations or taking other corrective actions) and take appropriate action (such as paging them by name or requesting a search and rescue team be sent to locate the person(s)).

9.0 PROCEDURE STEPS

9.2 Alert

9.2.1 The Assembly Area Leaders, in conjunction with foremen and supervisors, perform accountability functions, direct personnel, and control access at the Assembly Area(s) in accordance with PEP-382.

9.2.2 Security personnel check the security computer for those personnel who are in security zones other than the Assembly Area(s) or emergency facility locations (i.e. Control Room, Technical Support Center, Operational Support Center or Auxiliary Shutdown panel area) and notify the Emergency Security Team Leader of the results.

9.2.3 The Emergency Security Team Leader notifies the Logistics Support Director, or if this position is not yet activated, the Site Emergency Coordinator of the results of the computer check.

9.2.4 The Logistics Support Director or Site Emergency Coordinator determines if these people should be there and takes appropriate action.

9.2.5 If the Emergency Security Team Leader (at the advice or direction of the Radiological Control Director) directs Security personnel to temporarily evacuate the Radiologically Controlled Area, the senior member of the security force directs security personnel to accomplish this per SP-016.

9.2.6 If there is a train on site, the senior member of the security force dispatches a member of the security force to escort the train (or engine) and all railroad personnel off-site and close the rail spur barricade unless the Logistics Support Director or Site Emergency Coordinator authorizes them to be on-site.

NOTE: Check with Personnel Protection and Decontamination Team Leader to determine if the train needs to be monitored prior to release.

9.2.7 The senior member of the security force gives instructions for a member of the security force to close the contractor gate and post himself at the normal construction gate. A second member of the security force is instructed to post himself at the CP&L entrance to limit access to emergency vehicles and members of the CP&L staff with company identification cards or those authorized by the Logistics Support Director or Site Emergency Coordinator via the Emergency Security Team Leader.

9.0 PROCEDURE STEPS

9.2 Alert (Cont'd)

9.2.8 The Emergency Security Team Leader checks with the Site Emergency Coordinator to determine if the Emergency Operations Facility is being activated. If so, he directs the senior member of the security force to post a member of the security force at the Shearon Harris Energy and Environmental Center to provide access control for the Emergency Operations Facility.

9.2.9 Members of the security force stop incoming vehicles and check to verify that personnel are local emergency response personnel (police, fire or rescue squad members) or emergency response organization personnel reporting for duty. Proper verification includes:

1. Appropriately marked emergency vehicle with personnel in uniform or with appropriate identification. (If not previously notified that emergency vehicles have been called as per PEP-301, check with the Emergency Security Team Leader or alternate prior to allowing them to enter the area.)

2. Emergency response organization personnel have CP&L marked vehicles and/or CP&L identification cards.

3. Emergency response organization personnel from other organizations (Daniel, Westinghouse, INPO, etc.) have identification and are on a personnel list(published by the Senior Specialist-Emergency Preparedness) or are authorized by the Logistics Support Director or Site Emergency Coordinator via the Emergency Security Team Leader.

9.3 Site Emergency

9.3.1 Perform steps 9.2.1 through 9.2.6.

9.3.2 The senior member of the security force directs one member of the security force to go to the Exclusion Area Boundary on State Route 1134 and another to go to the boundary on State Route 1135 to place a barricade (or cones) across the entry lane to limit access to authorized personnel.

9.3.3 The Emergency Security Team Leader directs the senior member of the security force to post a member of the security force at the Shearon Harris Energy and Environmental Center, to provide access control for the Emergency Operations Facility.

9.0 PROCEDURE STEPS

9.3 Site Emergency (Cont'd)

9.3.4 Security personnel obtain traffic cones with signs (instructing personnel not to leave the parking area until directed to do so), place these cones near the exit from the parking areas, and then proceed to their access control positions.

9.3.5 Security personnel stop and check incoming vehicles as per Step 9.2.8.

9.3.6 One or more members of the security force, as directed by the Emergency Security Team Leader, readies the patrol boat for the Sheriff's deputy, and provides warning on the reservoir by using a siren, flares, and smoke at the operations access road causeway and the auxiliary dam.

9.3.7 If an evacuation of the site is announced, the Emergency Security Team Leader provides instructions to security personnel regarding evacuating personnel.

9.3.8 Personnel Protection and Decontamination Team members check personnel and/or vehicles, if directed, in the parking lot (or other monitoring area) and control personnel movement at the monitoring areas.

9.4 General Emergency

9.4.1 Perform Steps 9.3.1 through 9.3.6

9.4.2 If the Sheriff's deputy has not arrived yet to man the patrol boat, the senior member of the security force notifies the Emergency Security Team Leader and directs a member of the security force to man the patrol boat. The member of the security force uses the siren, public address system, smoke, and flares to warn the public on or near the reservoir until relieved by the Sheriff's deputy.

9.4.3 If an evacuation of the Exclusion Area is announced, the Emergency Security Team Leader provides instructions to security personnel regarding evacuating personnel and vehicles.

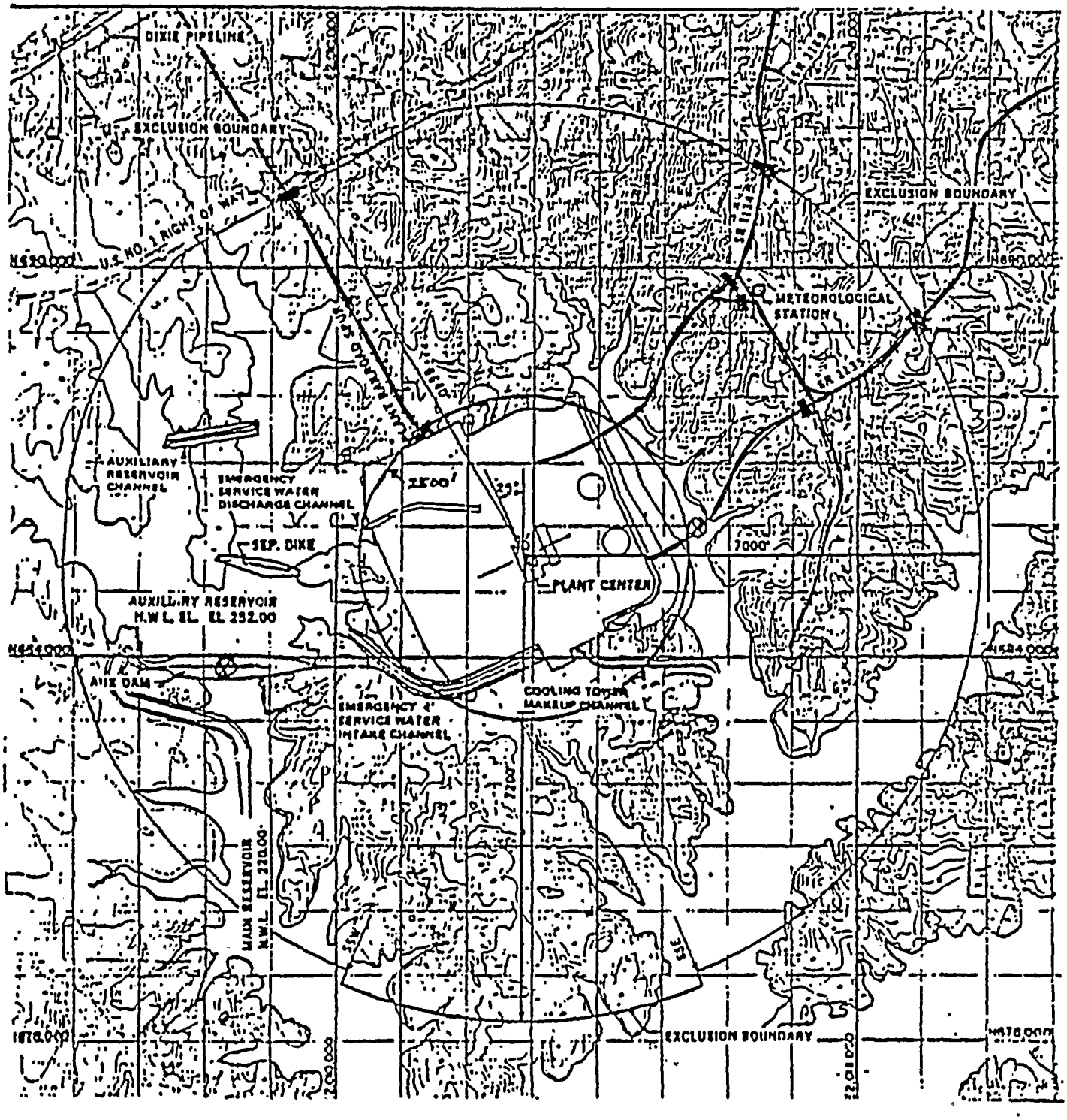
9.4.4 The Emergency Security Team Leader provides instructions, after consulting with the Personnel Protection and Decontamination Team Leader or Radiological Control Director, as to what protective equipment is required and arranges for issuance to security personnel at access control points.

10.0 DIAGRAMS/ATTACHMENTS

1. Access Control Points and Warning Points

ATTACHMENT 1

Access Control Points and Warning Points



CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-391

TITLE: FIRST AID AND MEDICAL CARE

REVISION 0

APPROVED: _____ 8/21/84
Signature Date

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 2.4.3.3, "First Aid Teams" and Section 4.6.3.6, "Decontamination and First Aid" of the SHNPP Emergency Plan.

This procedure provides instructions to plant personnel as to what actions to take in the event a person is injured, or injured and contaminated. It also provides instructions if the injured person must be transported to an off-site medical facility.

This procedure only covers major illnesses or injuries requiring the assistance of the First Aid Team. For minor illnesses or injuries personnel should use local first aid kits and/or report to their supervisors.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4.3.5, "First Aid Teams"
2. Section 4.6.3.6, "Decontamination and First Aid"
3. Section 4.6.3.7, "Medical Treatment"
4. Annex A, "Agreements"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-101, "Initial Emergency Actions"
2. PEP-102, "Site Emergency Coordinator Control Room"
3. PEP-103, "Site Emergency Coordinator - Technical Support Center"
4. PEP-301, "Notifications and Communications"
5. PEP-321, "Notification of Emergency Personnel"
6. PEP-394, "Search and Rescue"

2.3 OTHER REFERENCES

1. Emergency Care, 2nd Edition, Grant, Harvey and Murray, Robert
2. HPP-251, "Personnel Decontamination"
3. Multimedia Standard First Aid, 1978 Revision, American Red Cross

3.0 RESPONSIBILITIES

3.1 SHIFT FOREMAN

The Shift Foreman (Site Emergency Coordinator) or his alternate is responsible for:

1. The health and safety of all personnel on site.

2. For requesting off-site medical assistance or an ambulance per PEP-301.

3.0 RESPONSIBILITIES

3.1 SHIFT FOREMAN (Cont'd)

3. For activating the Emergency Plan and notifying the NRC of an Unusual Event within one hour as in PEP-301 if a radioactively contaminated person is transported to an off-site medical facility for treatment.

4. For notifying emergency personnel (such as the Search & Rescue Team or First Aid Team) as per PEP-321.

3.2 FIRST AID TEAM

The First Aid Team is responsible for:

3.2.1 Assessing injuries and treating injured personnel commensurate with their training and experience.

3.2.2 Assisting off-site rescue squad personnel in preparing injured persons for transportation to off-site medical facilities.

3.2.3 Advising the Shift Foreman as to:

1. Location, number and extent of injuries.
2. Whether there is a need to transport the injured person to an off-site medical facility (such as Rex Hospital).
3. Whether an ambulance is needed (such as Apex Rescue Squad).

3.3 RADIATION CONTROL PERSONNEL

Radiation Control Personnel are responsible for:

1. Monitoring injured patients for radioactive contamination.

2. Assessing radiation exposure of personnel injured in areas where they may have received excessive exposure.

3. Accompanying contaminated, injured personnel to the hospital and providing consultation on contamination control to the medical personnel who will treat the patient.

3.4 AMBULANCE CREW

The Ambulance Crew (normally Apex Rescue Squad) is responsible for transporting the injured patient(s) from SHNPP to the off-site medical facility (normally Rex Hospital) in accordance with the agreement letter in Annex A of the SHNPP Emergency Plan.

3.0 RESPONSIBILITIES

3.5 OFF-SITE MEDICAL FACILITY

The off-site medical facility, Rex Hospital, (Wake Medical Center is the backup facility) will receive and treat injured patients who may also be contaminated or overexposed to radiation in accordance with the agreement letters in Annex A of the SHNPP Emergency Plan.

3.6 AGREEMENT PHYSICIAN(S)

The agreement physicians will treat (on site or at the hospital) injured personnel who may also be contaminated or overexposed to radiation in accordance with the agreement letter in Annex A of the SHNPP Emergency Plan.

4.0 DEFINITIONS

1. Competent Medical Authority - Medically trained personnel in order of preference: 1) Agreement Physician, 2) Nurse, 3) Emergency Medical Technician, 4) Multimedia Trained First Aid Personnel.

2. Radiological Emergency Room - A room, designated on Attachments 3 and 4, used for emergency treatment of contaminated patients.

5.0 GENERAL

In cases of severe injury, life-saving first aid or medical treatment will take precedence over personnel decontamination. In general, the order of medical treatment will be:

1. Care of severe physical injuries;
2. Personnel decontamination;
3. First aid to other injuries;
4. Definitive medical treatment and subsequent therapy as required.

Any injury of contaminated personnel which would not normally require hospitalization should be treated at the plant site. Medical treatment of contaminated personnel should be performed at the plant First Aid Room (when it is reasonable to do so) by medical personnel called to the site.

If emergency medical treatment cannot be handled adequately at the plant site by medical personnel called to the site, or if it appears that the patient's life may be endangered, move the patient to Rex Hospital, Wake Medical Center, or other facility (as may be advised by competent medical authority) under closely controlled conditions without extensive decontamination. If a person must be moved to Rex Hospital (or other facility) for medical treatment, the procedure outlined in Section 9.4 is designed to provide control of

5.0 GENERAL

radioactive contamination and to prevent its spread to other hospital areas, personnel, and patients. Refer to Attachments 3 and 4 for layout of Rex Hospital and Wake Medical Center, respectively.

6.0 INITIATING CONDITIONS

1. Any injury that is major or involves contamination or radiation exposure that has been reported to first aid personnel directly or via the Control Room.

7.0 PRECAUTIONS AND LIMITATIONS

1. Treating a serious injury should take precedence over contamination control until the individual is in a stable condition as determined by competent medical authorities.

2. Try not to increase the severity of an injury by premature or unnecessary movement of the patient. If an injury is severe, radiological conditions are considered secondary to immediate medical treatment unless acute radiation hazard for the injured exceeds the injury hazard. For life saving purposes, a planned dose shall not exceed 75 rem to the whole body.

8.0 SPECIAL TOOLS AND EQUIPMENT

8.1 First Aid kits are located in buildings throughout the site and all emergency facilities.

8.2 Additional first aid supplies are located in First Aid Rooms: (Typical supplies are listed in Attachment 1)

1. On the ground floor (el. 261') of the Turbine Building - Main First Aid Room.
2. On the ground floor of the Administration Building - Auxiliary First Aid Room.

8.3 Ambulance kit located in Security Building.

9.0 PROCEDURE STEPS

NOTE: Not all of the following steps will be performed and some may be performed out of order if it appears to be in the best interest of the injured person.

9.1 FIRST AID AND DECONTAMINATION

9.1.1 Upon notification of an injury, the First Aid Team reports to the scene of the injured.

9.0 PROCEDURE STEPS

9.1 FIRST AID AND DECONTAMINATION (Cont'd)

9.1.2 Upon arriving at the scene, the First Aid Team Leader:

1. Assesses the injury(ies).
2. Requests additional assistance and equipment if needed.
3. Calls for Radiation Control personnel (Personnel Protection & Decontamination Team member, if Emergency Plan is activated) to perform a radiation and contamination survey, if the injured is in the Controlled Area.

9.1.3 If there are three or more injured, the First Aid Team Leader may use Casualty Tags (Attachment 1) so that injured personnel are given first aid and taken to the hospital in the proper order if there are limited resources (personnel and ambulances) immediately available to treat them. Each injured person is treated as his case requires using the following steps.

9.1.4 First Aid personnel normally perform any immediate first aid that may be required consistent with their training. However, if the injured is located in an area that is life threatening due to fire, toxic gas, water, steam or high radiation level, first aid personnel may move him prior to performing immediate first aid.

NOTE: If the radiation exposure received by the injured would exceed 75 rem, this is considered life threatening and is sufficient justification to risk moving the injured prematurely.

9.1.5 If the injured is in a contaminated area, and if conditions permit, First Aid Team or Personnel Protection & Decontamination Team personnel remove the contaminated protective clothing and wrap the injured in a clean sheet (or blanket).

9.1.6 The First Aid Team Leader evaluates the injuries at the earliest opportunity and determines:

1. Whether site personnel can perform any additional first aid and decontamination likely to be needed.
2. Whether consultation with, or on-site assistance from, the agreement physician is needed for treatment.

9.0 PROCEDURE STEPS

9.1 FIRST AID AND DECONTAMINATION (Cont'd)

3. Whether the injured should be sent directly to the hospital without checking for contamination and/or decontaminating.

NOTE: The injured should be monitored for contamination and decontaminated prior to leaving the plant if it is possible to do so without endangering his life or aggravating his injuries.

9.1.7 The First Aid Team Leader notifies the Control Room of his initial evaluation and, if necessary, requests the Shift Foreman notify the agreement physician and/or the ambulance and hospital per PEP-301.

9.1.8 If the injury occurred in the Controlled Area, and if the injured will be sent directly to the hospital, Radiation Control personnel (Personnel Protection & Decontamination Team personnel) should attempt to monitor and decontaminate the injured as per HPP-251, if conditions permit, while waiting for the ambulance. At the direction of the First Aid Team Leader, they should stop decontamination if the injured's condition is being aggravated or when it is necessary to prepare the injured for transport.

NOTE: If a stretcher is brought into a contaminated area, the handles and feet should first be covered with masking tape to protect against contamination and the tape removed when exiting at the contamination control boundary.

9.1.9 At the direction of the First Aid Team Leader, personnel prepare the injured for transportation as follows:

1. Spread an open blanket or sheet over the stretcher.

2. Place the injured on top of the blanket or sheet and wrap the injured in the blanket or sheet.

3. Transport the injured to the First Aid Room located on the ground level of the Turbine Building (or to the Decontamination Room first if the injured is contaminated and the injuries are not life threatening) or directly to the ambulance pickup point (if there is no contamination or the injuries are life threatening).

NOTE: If a contamination control boundary is being crossed, remove the masking tape from the stretcher handles and with clean hands hand the stretcher across the boundary, removing the masking tape from the stretcher legs.

9.0 PROCEDURE STEPS

9.1 FIRST AID AND DECONTAMINATION (Cont'd)

If the injured will receive no other treatment at the plant, go to Section 9.2; otherwise, continue with step 10.

9.1.10 The First Aid Team performs first aid consistent with their training.

9.1.11 If the injury occurred in the Controlled Area, Radiation Control personnel (Personnel Protection & Decontamination Team personnel if the Emergency Plan is activated) monitor the injured for contamination, if possible, and record the results.

9.1.12 If the injured is contaminated, Radiation Control personnel perform decontamination if conditions permit, according to HPP-251 and record the results on Attachment 3 of HPP-251.

9.1.13 Depending upon the injured's condition as determined by the First Aid Team Leader (or the agreement physician), the injured's supervisor is notified and the injured is:

1. Taken home.
2. Taken to see his own physician or specialist.
3. Taken to the hospital for x-rays or other treatment.
4. Given other instructions as may be appropriate.

NOTE: In most cases the individual should be driven for treatment in a CP&L vehicle or in an ambulance.

9.1.14 The First Aid Team Leader notifies the Control Room of the disposition of the injured. If the injured is contaminated and is to be transported to the hospital, the Leader instructs the Shift Foreman to notify the ambulance and the hospital per PEP-301 and inform them if contamination is involved, if this has not been done previously. If the Leader has not requested Radiation Control to have a person assist with dosimetry at the Security Building (if needed) he requests the Shift Foreman obtain that assistance if Radiation Control personnel are available. If an ambulance is to be used, continue with Section 9.2; otherwise, this terminates use of this procedure.

9.2 TRANSPORTING INJURED PERSONNEL

9.2.1 If the injured is contaminated, the Shift Foreman (or Emergency Communicator) notifies the ambulance and the senior member of the security force (or Central Alarm Station operator) at the Security Building so that the

9.0 PROCEDURE STEPS

9.2 TRANSPORTING INJURED PERSONNEL (Cont'd)

ambulance kit stored there can be placed aboard the ambulance.

9.2.2 The ambulance stops at the Security Building where a Security Officer:

1. Notifies the Control Room of the ambulance arrival.
2. Provides security badges to the crew.
3. Provides dosimetry devices if the crew need to enter the Controlled Area (Security may be assisted by Radiation Control personnel).
4. Provides the ambulance kit (if so directed by the Control Room).
5. Provides an escort to and from the pickup point.

NOTE: If the on-site ambulance is used it has an ambulance kit, the personnel have dosimetry devices, and, if cleared, do not require an escort.

9.2.3 If the injured is contaminated, the ambulance crew and/or Radiation Control Technicians use masking tape to install the precut sheets of plastic from the ambulance kit to protect the ambulance.

NOTE: If the contamination on the injured is covered, the technicians may decide this is not necessary.

9.2.4 The First Aid Team Leader reports to the receiving ambulance crew the extent of the injuries, first aid measures taken, whether the person was or is contaminated, and the injured's current status.

9.2.5 The injured is transferred to the ambulance.

9.2.6 If the injured is not contaminated, the Shift Foreman may designate a person to accompany the injured to the hospital either in the ambulance or in a separate vehicle.

9.2.7 If the injured is contaminated, a Radiation Control Technician (Personnel Protection and Decontamination Team member) accompanies the injured in the ambulance bringing any records on the injured, especially those indicating contamination levels.

NOTE: If qualified personnel are available, a second technician and a professional health-physicist should be sent (via a vehicle other than the emergency vehicle) to the medical facility to assist with contamination control and liaison with medical personnel.

9.0 PROCEDURE STEPS

9.2 TRANSPORTING INJURED PERSONNEL (Cont'd)

9.2.8 The First Aid Team Leader reports to the Shift Foreman who is accompanying the injured and their estimated time of arrival at the hospital.

9.2.9 If the injured is contaminated, the Shift Foreman (or Emergency Communicator) notifies the hospital per PEP-301 and requests them to initiate the hospital plan for handling contaminated patients if the injured is contaminated.

9.2.10 If the injured is contaminated, continue with Section 9.3; otherwise, terminate use of this procedure.

9.3 ACTIONS AT THE HOSPITAL

9.3.1 The Personnel Protection and Decontamination Team member (Radiation Control Technician) that accompanies the injured to the hospital performs the following actions upon arrival:

1. Checks that the ambulance personnel go to the proper unloading point for access to the Radiological Emergency Room at the appropriate hospital. (See Attachment 3 for Rex Hospital which is normally used and Attachment 4 for Wake Medical Center which is used as a backup.)

2. Maintains a record of actions taken and personnel involved.

3. Informs the attending physician (with assistance from the ambulance personnel) of the injured's medical and radiological status and any radiological hazards that may be encountered.

4. Requests the ambulance personnel to return to their vehicle and remain with it until cleared by the Personnel Protection & Decontamination Team leader or his designee.

5. Verifies with the attending physician and Emergency Room nurse that the hospital plan to handle contaminated patients is being implemented. He assists them with implementation (without interfering with medical treatment) and ensures that all personnel in the Radiological Emergency Room are dressed in Anti-C's, and/or other protective equipment, if conditions warrant, and wearing dosimetry, if patient radiation levels warrant it.

9.0 PROCEDURE STEPS

9.3 ACTIONS AT THE HOSPITAL (Cont'd)

6. Notifies the Personnel Protection and Decontamination Team Leader of arrival at destination and of any additional requirements (e.g., monitoring and decontamination for ambulance personnel, etc.)

7. Ensures a control point has been established and the controlled area is adequately protected and/or guarded.

8. Ensures waste containers have been properly set up.

9. Provides recommendations and assistance to the attending physician, upon request, with regard to the contamination of the patient and other radiological hazards.

10. As requested, monitors all tissue specimens for residual contamination and records the results on Attachment 5.

11. Assists in decontamination of the patient, as directed by the attending physician (refer to HPP-251, "Personnel Decontamination").

12. Monitors the patient periodically and informs the physician of the success/failure of any decontamination performed.

13. Supervises and regulates protection of personnel in or exiting the Radiological Emergency Room area.

14. Maintains accountability and control of all equipment in or exiting the Radiological Emergency Room area.

9.3.2 When the patient(s) has been adequately decontaminated and removed from the Radiological Emergency Room, the Personnel Protection and Decontamination Team member shall perform the following accountability and decontamination actions:

1. Collects any dosimetry used and applicable records.

2. Collects any and all contaminated materials and waste and arranges for packaging and return to the Shearon Harris plant for laundering and/or disposal.

3. Performs and/or arranges for monitoring and decontamination of hospital equipment "as required."

4. Notifies the Personnel Protection and Decontamination Team Leader when the Radiological Emergency Room is decontaminated and ready to be reopened and requests approval for reopening.

9.0 PROCEDURE STEPS

9.3 ACTIONS AT THE HOSPITAL (Cont'd)

5. When approval from the Personnel Protection and Decontamination Team Leader has been received, opens the Radiological Emergency Room for uncontrolled access.

6. Inventories all Carolina Power & Light emergency kits used at the medical facility and makes arrangements for replacement of used or missing items.

7. Returns all dosimetry devices and applicable records concerning injuries, contamination and exposures to the Personnel Protection and Decontamination Team Leader.

10.0 DIAGRAMS/ATTACHMENTS

1. Emergency Medical Kits
2. Casualty Tag
3. Diagram of Rex Hospital Facilities
4. Diagram of Wake Medical Center Facilities
5. Contaminated Injured Personnel Log

ATTACHMENT 1

TYPICAL EMERGENCY MEDICAL SUPPLIES

The following items are typical of those in a kit:

First Aid kits:

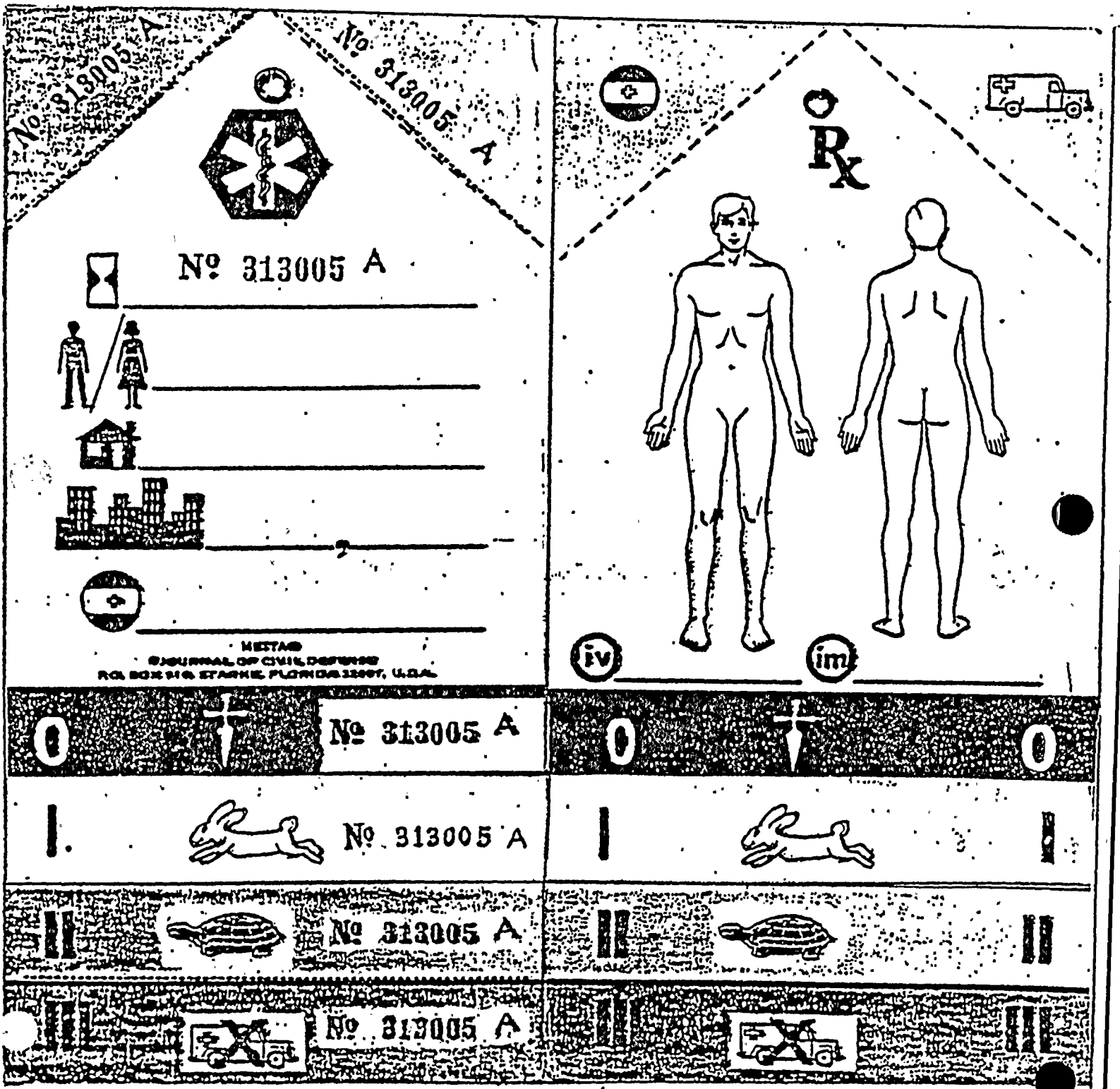
- Simple board splints
- Roller bandages
- Gauze compresses
- Triangular bandages
- Blankets

Additional Items in First Aid Rooms:

- Oxygen resuscitator
- Eye care kit
- Blood pressure cuff and stethoscope
- Obstetrics kit (Administration Building only)
- Air splints
- Ring cutter

ATTACHMENT '2

CASUALTY TAG



ATTACHMENT 3

DIAGRAM OF REX HOSPITAL FACILITIES

(Later)

ATTACHMENT 4

DIAGRAM OF WAKE MEDICAL CENTER FACILITIES

(Later)

ATTACHMENT 5

CONTAMINATED INJURED PERSONNEL LOG

Date: Time:

Injured Person: _____

Transporting person(s): _____
(ambulance driver, CP&L driver, etc.)

Accompanying person(s): _____
(Personnel Protection and Decontamination Team, Environmental Monitoring Team, etc.)

Vehicle number: _____
(License #, CP&L no., etc.)

Persons Involved in Treatment

Name	TLD #	Exposure

The Transportation Vehicle(s) has been monitored, decontaminated (if necessary), and released. _____

Record all recommendations, actions, and other data below.

APRO05

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-394

TITLE: SEARCH AND RESCUE

REVISION 0

APPROVED: C R Gibson (Signature) 8/15/84 (Date)

TITLE: Asst T Genrel Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 4.6.2 of the SHNPP Emergency Plan, "Evacuation and Personnel Accountability."

This procedure provides instructions for search and rescue measures necessary to locate personnel who are unaccounted for following accountability, and/or to rescue personnel who are trapped or disabled.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 4.6.2, "Evacuation and Personnel Accountability"
2. Section 4.6.3, "Radiological Exposure Control"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-301, "Notifications and Communications"
2. PEP-303, "Use of Communications Equipment"
3. PEP-371, "Emergency Response in Radiological Areas"
4. PEP-381, "Evacuation"
5. PEP-382, "Personnel Accountability"
6. PEP-383, "Administration of Potassium Iodide"
7. PEP-391, "First Aid and Medical Care"

2.3 OTHER REFERENCES

1. SP-016, "Emergency Plan Support"
2. HPP-005, "Entry Into Radiological Areas"
3. HPP-251, "Personnel Decontamination"

3.0 RESPONSIBILITIES

1. PLANT OPERATIONS DIRECTOR

   The Plant Operations Director is responsible to the Site Emergency Coordinator for directing search and rescue operations.

2. FIRST AID TEAM LEADER (MEMBER)

   The First Aid Team is responsible for searching for, locating, rescuing, and providing first aid to missing, trapped, and/or injured personnel during an emergency. For the purposes of this procedure, the First Aid Team Leader is the Search and Rescue Team Leader.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

None Applicable

6.0 INITIATING CONDITIONS

1. One or more individuals are missing following accountability efforts (discussed in PEP-382).

2. A report has been received of an individual trapped or disabled within the Plant.

7.0 PRECAUTIONS/LIMITATIONS

7.1 SELECTION OF SEARCH AND RESCUE PERSONNEL

1. The search and rescue team should normally be composed of:

   - A First Aid Team member who is trained to perform the following procedures should be the search and rescue team leader:

     - Search for unaccounted for personnel;
     - Rescue injured and/or trapped personnel;
     - If possible, an individual who is an Emergency Medical Technician should be selected as the Team Leader or sent as a team member.

   - The missing person's supervisor or member of his work group;

   - A member of the security force (if available)...

   - A Personnel Protection & Decontamination Team Member

   They may be augmented by other personnel (such as radiation control, operations, maintenance, etc.) depending upon conditions at the time.

2. Since search and rescue personnel may receive increased exposure, they should be volunteers and be broadly familiar with the consequences of any exposure received under emergency conditions (as discussed in PEP-371).

7.0 PRECAUTIONS/LIMITATIONS (Cont'd)

7.2 CONDUCT OF MISSION

1. Conduct search and rescue missions in accordance with planned routes and actions as directed by the Plant Operations Director.

2. Team personnel should establish and maintain constant communications (via sight or radio, if possible) with the team leader. (See PEP-303 for use of communications equipment.)

3. If an individual is trapped or disabled in a high radiation area, the rescue must be performed as expeditiously as possible to minimize the dose to the victim and the doses to the rescue personnel, and to ensure that first aid can be provided as soon as possible. Refer to PEP-371.

   - In an emergency situation, an exposure of up to 75 rem is appropriate if necessary to save a life.
   - If the situation is not one of life or death, but requires action to minimize the excessive exposure of the victim, rescue personnel may be allowed to receive doses up to 25 rem.
   - If the situation is other than that described in the two steps above, normal Plant radiation exposure guides and regulatory exposure limits apply.

7.3 RESCUE PRIORITIES

1. Rescue of a victim shall take precedence over fire-fighting efforts, unless the fire can be put out quickly with no detrimental effect to the victim, the fire must be suppressed to effect rescue, the fire poses an immediate threat to the lives of others or the fire poses a threat to reactor safety.

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

8.0 SPECIAL TOOLS AND EQUIPMENT

Appropriate equipment from the Operational Support Center for the particular mission will be selected from the following list:

1. Self reading pocket dosimeters - normal and high range (usually 500mR and 10R)
2. Thermoluminescent dosimeters (TLD)
3. Protective clothing (coveralls, hoods, gloves, booties)
4. Respiratory protection equipment (self contained breathing apparatus or respirator with iodine and particulate canister)
5. Normal and high range portable radiation survey equipment
6. First aid bag or kit
7. Stretcher and blanket
8. Searchlights or flashlights
9. Rope
10. Portable radios
11. Other tools in rescue cabinets, machine shop or elsewhere as needed to extricate a trapped person

9.0 PROCEDURE STEPS

9.1 INITIAL ACTIONS

1. As soon as it is recognized that one or more individuals are missing, the Emergency Security Team Leader, Assembly Area Leader or the individual's Supervisor shall attempt to determine the possible location of the missing individual as per PEP-382. If following these efforts the individual is still unaccounted for, the Logistics Support Director (or Site Emergency Coordinator if the Logistics Support Director position is not activated) shall be notified as per PEP-382 and the following information provided:

   - Name(s) and badge numbers of individual(s) missing
   - Summary of efforts performed to locate the individual(s)
   - Last known location(s) of the individual(s)

   The Logistics Support Director in turn notifies the Plant Operations Director who will activate the Search & Rescue Team.

2. If personnel accidentally discover an individual needing rescue and/or medical assistance, the discoverer should:

   - Effect immediate rescue in accordance with the provisions of this procedure, if required and if within the capabilities of the individual(s) finding the victim.

9.0 PROCEDURE STEPS (Cont'd)

9.1 INITIAL ACTIONS (Cont'd)

- Report the discovery of the victim to the Control Room and provide as much of the following information as is readily available:

  - Number of injured personnel and cause.
  - Location of the injured personnel.
  - Nature and severity of injuries.
  - Whether life sustaining actions are needed, whether they are being performed and/or whether the caller is capable of performing them.
  - Approximate radiation level (and contamination level, if known) where the injured are located.
  - Any complications affecting rescue and/or first aid efforts.
  - Name of caller and names of injured (if known).

- Perform immediate life saving first aid if required and if within the capabilities of the individual(s) finding the injured person.

9.2 ACTIVATION OF SEARCH AND RESCUE TEAM

1. Upon receipt of a report that an individual is missing or requires rescue, the Plant Operations Director (Site Emergency Coordinator or Shift Foreman if the Technical Support Center is not activated) will direct the search and rescue effort as follows:

   - Direct an announcement over the PA system:

     *** EXAMPLE MESSAGE ***

     "ATTENTION ALL PLANT PERSONNEL. THE FOLLOWING INDIVIDUAL(S) IS MISSING WITHIN THE PLANT (name individual(s)). PERSONNEL KNOWING THE WHEREABOUTS OF THE INDIVIDUAL(S), PLEASE CONTACT THE CONTROL ROOM."

     or

     "ATTENTION ALL PLANT PERSONNEL. AN INDIVIDUAL(S) (NAME) IS MISSING/TRAPPED/ DISABLED WITHIN (specify location)."

     and

     THE SUPERVISOR OF name of missing individual(s) AND "SEARCH AND RESCUE PERSONNEL ASSEMBLE AT THE OPERATIONAL SUPPORT CENTER (or other specified location)."

9.0 PROCEDURE STEPS (Cont'd)

9.2 ACTIVATION OF SEARCH AND RESCUE TEAM (Cont'd)

- Have the alarm and announcement repeated at least once.

2. The search and rescue team leader will contact the Plant Operations Director (Control Room if Technical Support Center not activated) and be briefed on the situation.

3. The Plant Operations Director (Site Emergency Coordinator or Shift Foreman if Technical Support Center is not activated) will determine from the team leader what personnel are available and will select the personnel that best meet the requirements of Section 7.1 (i.e., volunteers, appropriately trained and knowledgeable about the consequences of emergency radiation exposures).

4. The Plant Operations Director (or Site Emergency Coordinator, depending upon the situation) will provide the available information to the search and rescue team leader. He may use Attachment 1, "Search and Rescue Team Briefing Form" depending upon radiological conditions in the area to be searched. Some of the things that are discussed if known and if appropriate are:

   - Assembly location for the search & rescue team (Preferably in the Operational Support Center unless the Plant Operations Director indicates a more suitable location)

   - General radiation levels of areas to be searched (check area radiation monitoring systems and process radiation monitoring system).

   - Problems with equipment or operations that are likely to drastically affect radiation levels in the search area.

   - Data on the individual:

     - Name and badge number
     - Location, last known location, or likely location if known
     - Physical description of individual

   - Any known complications that might affect the search such as:

     - High radiation levels, airborne activity levels, or contamination levels
     - Fire, smoke, or toxic chemicals
     - Gas, steam, water, or other fluid releases
     - Wreckage

9.0 PROCEDURE STEPS (Cont'd)

9.2 ACTIVATION OF SEARCH AND RESCUE TEAM (Cont'd)

- Suggested search areas or routes
- Suggested rescue equipment

5. If plant radiological conditions are abnormal or unknown, or the team is likely to enter high radiation or contamination areas on their search route, the Personnel Protection and Decontamination Team Leader specifies protective equipment and authorized doses for team personnel.

9.3 CONDUCT OF THE SEARCH AND RESCUE

NOTE: If potassium iodide tablets are used by team members or are administered to victims it should be in accordance with PEP-383, "Administration of Potassium Iodide."

1. The search and rescue team leader will:

- Assemble his team,
- Brief his team,
- Identify necessary protective equipment, rescue equipment and first aid supplies to be taken; and
- Check that his team has the appropriate equipment and preparation for the mission

NOTE: The team may be augmented with other personnel such as security, maintenance, operations, etc., and/or subdivided as necessary.

2. If a search pattern has not been given to the team leader, he will determine a pattern. If the team has to deviate from a predetermined pattern the team leader and the Technical Support Center (or Control Room) will be notified so that the team can be advised if there may be any problems as a result of the change of pattern.

3. If the Technical Support Center (Control Room) receives a report on the location of the missing individual, the Plant Operations Director (or other individual) will contact the team leader via the radio (or PA System) and direct him to the scene.

4. Upon arrival of the team at the scene, the Personnel Protection and Decontamination Team member should enter the area and assess the radiological situation, if conditions permit. Entry into unknown radiation areas in the Controlled Area of the plant should be conducted as described in HPP-005, "Entry Into Radiological Areas".

9.0 PROCEDURE STEPS (Cont'd)

9.3 CONDUCT OF THE SEARCH AND RESCUE (Cont'd)

5. If the missing individual is located and is injured go to step 6. If he is not trapped proceed as follows:

   - Based upon who the individual is (i.e., worker, construction worker, etc.), the conditions of the area(s) where he has other appropriate circumstances, he is directed) to the proper location (Radia access control point, Operational Suppo Security Building, etc.) for dosimetry debriefing, etc.

   - The search and rescue team leader notif Operations Director (or Site Emergency and the Emergency Security Team Leader

     - The name and badge number of the indi where he was found.
     - The location where he is being escort to report.
     - Whether the team is returning to the Support Center (or other location).
     - Whether the team is continuing to sea locations that will be searched.

   - If the search is discontinued, the team

     - Returns to the Operational Support Ce area as directed by the Plant Operat

     - Completes dose information and turns briefing form, if used, to the Plant Director.
     - Discontinues the use of this procedu

   - If the search is continued, return to

6. The team leader if qualified (or medically individual) evaluates:

   - The injuries and physical condition of found,
   - The radiological hazards affecting eac the rescuers
   - Other conditions affecting the rescue

9.0 PROCEDURE STEPS (Cont'd)

9.3 CONDUCT OF THE SEARCH AND RESCUE (Cont'd)

NOTE: IF AN INJURY IS SEVERE, RADIOLOGICAL CONDITIONS ARE CONSIDERED SECONDARY TO IMMEDIATE MEDICAL TREATMENT UNLESS ACUTE RADIATION HAZARD FOR THE CASUALTY EXCEEDS THE INJURY HAZARD. FOR LIFE SAVING PURPOSES, 75 REM IS THE MAXIMUM EXPOSURE ALLOWED TO THE RESCUERS. THE CASUALTY SHOULD BE LIMITED TO 75 REM IF POSSIBLE.

7. After evaluating the situation, the search and rescue team leader specifies the course of action to be taken and directs the team in the completion of the rescue and/or first aid efforts, and/or requests additional support from the Control Room.

8. If a rescue cannot be carried out immediately, life sustaining first aid is given to the individual in the affected area, if necessary, as per PEP-391, "First Aid and Medical Care," to ensure heart beat, breathing, and stoppage of excessive bleeding.

9. The team leader notifies the Technical Support Center (Control Room) that the individual(s) have been located, if not previously done, and provides the following information as soon as possible:

   - Number and location of trapped or injured personnel
   - Name(s) and badge number(s) of trapped or injured personnel
   - Extent of injuries and cause (if known)
   - Dose rates in the area (and contamination or airborne activity conditions, if known)
   - Whether additional support, a doctors assistance or an ambulance is needed and where it should respond. (The Site Emergency Coordinator will obtain medical assistance or an ambulance as discussed in PEP-301, "Notifications and Communications.")

NOTE: If a contaminated, injured person is sent to a hospital it is considered an Unusual Event (and also a Significant Event) and must be reported to the NRC within 1 hour as in PEP-301 "Notifications and Communications."

10. As soon as it is advisable, the team removes the injured person to the closest safe area (or first aid room if conditions permit) and performs any required (or additional) first aid or medical treatment as discussed in PEP-391, "First Aid and Medical Treatment." If the person is likely to be contaminated (if in the Controlled Area assume he is) check for contamination and, if necessary, decontaminate, conditions permitting, prior to the injured leaving the site.

9.0 PROCEDURE STEPS (Cont'd)

9.3 CONDUCT OF THE SEARCH AND RESCUE (Cont'd)

11. If there are other missing personnel, the team leader may assign one or more personnel from the team to care for the injured or may turn the injured over to other medically qualified personnel and may use a portion or all of his team to continue the search as in step 9.3.2.

12. If there are no other missing personnel, the team leader will assist the Plant Operations Director in assuring timely and appropriate treatment of the victim is performed, as per PEP-391.

13. The team leader will close out the incident by:

- Completing the Search and Rescue Briefing form, if used (i.e. dosimeter readings)
- Reporting of events after the victim leaves the site (if he is accompanied to a hospital for treatment)
- Assisting Regulatory Compliance in the Description of events for report to NRC, if required

10.0 DIAGRAMS ATTACHMENTS

1. Attachment 1, Search and Rescue Team Briefing Form

ATTACHMENT 1

SEARCH AND RESCUE TEAM BRIEFING FORM

1. Date: _____ Time: _____ Briefing at: _____ Team ID:_____

2. Briefing by: _____/_____

3. Missing Individual: Name _____ Badge No._____

   Last Location _____

   Description _____

4. Unusual Area/Env. Conditions: _____

   _____

5. Communications Extensions:CR_____ TSC_____ OSC_____

6. Required Equipment: Search light _____ Rope _____

   Other _____

   _____

   _____

   _____

7. Protective Equipment (check applicable):

(1) ____	Self Reading Pocket Dosimeters	(8) ____	Gloves
(2) ____	Thermoluminescent dosimeters	(9) ____	Booties
(3) ____	Respirator	(10) ____	Coveralls
(4) ____	Self Contained Breathing Apparatus	(11) ____	Hood
(5) ____	High Range Survey Equipment	(12) ____	_____
(6) ____	Potassium Iodide	(13) ____	_____
(7) ____	Multigas Detector	(14) ____	_____

8. Team member names and authorized doses (rem):

   Lead _____ Dose _____rem

   Asst.1_____ Dose _____rem

   Asst.2_____ Dose _____rem

9. Team dosimeter readings (Before/After Mission):

   Lead (500 mR Scale) _____/_____; (5R Scale) _____/_____
   Asst.1(500 mR Scale) _____/_____; (5R Scale) _____/_____
   Asst.2(500 mR Scale) _____/_____; (5R Scale) _____/_____

10. Special Instructions: _____

    _____

    _____

    See other side If block checked ☐

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VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-401

TITLE: RECORD KEEPING AND DOCUMENTATION

REVISION 0

APPROVED: _____ 8/2/84
Signature Date

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 6.8, "Recovery Termination and Reporting Requirements," of the SHNPP Emergency Plan.

This procedure discusses the record keeping and documentation requirements for emergency preparedness.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 6.8, "Recovery Termination and Reporting Requirements"
2. Section 5.1.6, "Annual Independent Audit"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-102, "Site Emergency Coordinator - Control Room"
2. PEP-103, "Site Emergency Coordinator - Technical Support Center"
3. PEP-301, "Notification and Communications"
4. PEP-302, "Communication Activities"
5. PEP-321, "Notification of Emergency Personnel"
6. PEP-322, "Mobilization of Outside Organizations"
7. PEP-331, "Emergency Plant Monitoring"
8. PEP-341, "Manual Dose Projection"
9. PEP-342, "Automation of Dose Projection, ERFIS"
10. PEP-343, "Automation of Dose Projection, IBM-PC"
11. PEP-351, "Emergency Environmental Monitoring"
12. PEP-362, "Interpretation of Liquid and Gas Samples"
13. PEP-371, "Emergency Response in Radiological Areas"
14. PEP-383, "Administration of Potassium Iodide"
15. PEP-391, "First Aid and Medical Care"
16. PEP-394, "Search and Rescue"

2.0 REFERENCES

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

17. PEP-402, "Maintaining Readiness of Emergency Facilities"

18. PEP-403, "Performance of Training"

19. PEP-405, "Preparation of Activity Logs"

20. PEP-406, "Performance of Exercises and Drills"

2.3 OTHER REFERENCES

1. OMM-8, "NRC Reporting Requirements"

2. TI-906, "Training Records"

3.0 RESPONSIBILITIES

3.1 RECORD PREPARERS

Functional team leaders, emergency communicators, phone talkers, log keepers, supervisors, managers and directors are responsible for assuring that legible records (checklists, surveys, forms, messages, and logs) of completed actions are prepared and maintained during an emergency. Personnel are responsible for supplying these records to their director or manager.

3.2 SITE EMERGENCY COORDINATOR, EMERGENCY RESPONSE MANAGER, DIRECTORS, AND MANAGERS

The Site Emergency Coordinator, Emergency Response Manager, directors and managers are responsible for seeing that their subordinates maintain appropriate records, for collecting these records, and for supplying these records to the Senior Specialist - Emergency Preparedness when the emergency is terminated.

3.3 SENIOR SPECIALIST - EMERGENCY PREPAREDNESS

The Senior Specialist - Emergency Preparedness is responsible for collecting and maintaining all emergency related records following an emergency. He is also responsible for maintaining all emergency preparedness records not specifically assigned to another group.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

1. Corrections to records shall be made by drawing a single line through and initialing the incorrect entry, and not by erasures or the use of correction fluid.

2. All records shall be made by indelible means, such as ink or typing, and not with pencil or other erasable media.

6.0 INITIATING CONDITIONS

None Applicable

7.0 PRECAUTIONS AND LIMITATIONS

None Applicable

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

9.1 TRAINING RECORDS

1. Records of emergency preparedness training are maintained by the Harris Training Unit in accordance with TI-906.

9.2 DRILL RECORDS

1. Records of practical drills performed as part of initial training are maintained as part of the initial training record by the Harris Training Unit (see PEP-403 and TI-906).

2. Records of test drills performed by subunits as continued training and/or testing are maintained by the subunit with a copy sent to the Harris Training Unit via the Senior Specialist Emergency Preparedness (see PEP-406).

9.3 EXERCISE RECORDS

1. Normal records (required by plant procedures) and emergency records (required by emergency procedures) will be prepared by appropriate personnel (Managers, log keepers, etc.) as required during practical exercises and annual exercises (see PEP-406).

2. The Senior Specialist - Emergency Preparedness will collect and review exercise records and will maintain any considered to be necessary for reference or demonstrating compliance with regulations.

9.0 PROCEDURE STEPS

9.4 AUDIT RECORDS

1. The Corporate Quality Assurance Department will perform an independent audit of the SHNPP Emergency Preparedness Program on an annual basis. The records of these audits will be stored by the QA department as per their procedures with a copy to the Senior Specialist - Emergency Preparedness and other groups as specified in Section 5.1.6 of the SHNPP Emergency Plan.

2. The Senior Specialist - Emergency Preparedness (or others if appropriate) will prepare a response to any findings as necessary for the Plant General Manager, and a copy of the response will be maintained with the copy of the findings for at least 3 years.

9.5 FACILITY AND EQUIPMENT RECORDS

1. Records of facility and equipment checks, replacement of equipment and calibration of equipment, as specified in PEP-402, will be maintained by the Senior Specialist - Emergency Preparedness for a minimum of three (3) years.

9.6 EMERGENCY RECORDS

1. Team members, emergency communicators, phone talkers, log keepers, and other personnel who fill out surveys, radiation work permits, dosimetry records, or other forms as a necessary part of their emergency function will prepare such records in a legible, accurate and timely manner. Such records are forms included in or referenced by PEPs 102, 103, 301, 302, 321, 322, 331, 341, 342, 343, 351, 362, 371, 383, 391, and 394.

2. Log keepers will prepare logs of events, messages, and major decisions in accordance with PEP-405 for the manager or director for whom they are keeping the log.

3. Directors, managers, and supervisors who do not have a log keeper should keep a log of major events, messages, and major decisions in accordance with PEP-405.

4. After the emergency, personnel are responsible for supplying these records (or a legible copy) to their manager or director who in turn will give the records to the Senior Specialist - Emergency Preparedness.

5. The Senior Specialist Emergency Preparedness will maintain the records generated during the emergency for five (5) years.

9.0 PROCEDURE STEPS

9.7 EMERGENCY REPORTS

1. The Plant General Manager will verify with the Director Regulatory Compliance that any required reports to the Nuclear Regulatory Commission are prepared and transmitted in a timely manner according to OMM-8, "Nuclear Regulatory Commission Reporting Requirements."

2. The Director - Emergency Preparedness will conduct an independent evaluation of the effectiveness of the Plant Emergency Preparedness Program within thirty (30) days of the termination of the emergency. The evaluation report will be provided to the Plant General Manager.

3. The Senior Specialist - Emergency Preparedness will maintain copies of the above reports for five (5) years.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

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VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-403

TITLE: PERFORMANCE OF TRAINING

REVISION 0

APPROVED: C R Gibson 9/17/84
Signature Date

TITLE: Asst to Gen Mgr

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1.0 PURPOSE

The purpose of this procedure is to implement Section 5.2, "Emergency Plan Training Program," of the SHNPP Emergency Plan.

This procedure describes the Emergency Plan Training Program for SHNPP including the related training responsibilities of employees of SHNPP.

This procedure also discusses the training of non-company personnel who may be called on to assist in an emergency at SHNPP.

Training of corporate personnel who man the Corporate Emergency Operations Center (CEOC), of CP&L media personnel, and of the news media is addressed in the Corporate Emergency Plan Implementing Procedure CEPIP-19,"Emergency Plan Training Program."

Emergency response exercises and drills which are used to provide hands on training and to perform an evaluation of the success of the training are discussed in PEP-406, "Performance of Exercises and Drills" and CEPIP-18, "Emergency Response Exercises and Drills" for SHNPP and corporate personnel, respectively.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 5.2, "Emergency Plan Training Program"
2. Section 5.1.2, "Emergency Plan and Plant Emergency Procedures Update and Changes"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-406, "Performance of Exercises and Drills"
2. PEP-404, "Public Education and Information"

2.3 CORPORATE EMERGENCY PLAN AND IMPLEMENTATION PROCEDURES REFERENCES

1. Section 12.0, "Maintaining Emergency Preparedness"
2. CEPIP-18, "Emergency Response Exercises and Drills"
3. CEPIP-19, "Emergency Plan Training Program"
4. Harris Energy and Environmental Center, Radiological and Chemical Support Section Emergency Instructions

2.4 OTHER REFERENCES

1. Title 10, Code of Federal Regulations, Part 50, Section 50.47, "Emergency Plans."

2.0 REFERENCES

2.4 OTHER REFERENCES (Cont'd)

2. Title 10, Code of Federal Regulations, Part 50, Section 50.54(q), "Conditions of License."

3. Title 10, Code of Federal Regulations, Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

4. NUREG-0654, FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

5. SHNPP Technical Specifications.

6. SHNPP Security Personnel Training and Qualification Plan.

7. TI-105, "Fire Protection Training."

8. TI-302, "Emergency Plan Training."

3.0 RESPONSIBILITIES

3.1 PLANT GENERAL MANAGER

The Plant General Manager ensures that plant emergency plan training and retraining is performed in a complete and timely manner. He also provides for corrections of deficiencies noted as a result of tests, drills, exercises, and actual response during emergency situations.

3.2 ASSISTANT TO THE PLANT GENERAL MANAGER

The Assistant to the Plant General Manager is the SHNPP Emergency Planning Coordinator. He is responsible for coordinating on-site and selected off-site radiological emergency response planning. He is also responsible for identifying off-site training needs of state and local emergency support personnel, and arranging for training to meet the identified needs.

3.3 DIRECTOR - TRAINING (HARRIS TRAINING UNIT)

The Director-Training is responsible for the conduct of the emergency plan training program of plant personnel and for off-site support personnel who must assist the plant in an emergency.

3.4 SENIOR SPECIALIST - EMERGENCY PREPAREDNESS

The Senior Specialist - Emergency Preparedness assists the Director-Training in the conduct of the emergency plan training program by:

3.0 RESPONSIBILITIES

3.4 SENIOR SPECIALISTS-EMERGENCY PREPAREDNESS (Cont'd)

1. Preparing and updating selected lists of personnel to be trained.

2. Determining and/or reviewing training needs, reviewing lesson plans, study guides, tests and training schedules to assure that they meet emergency planning commitments.

3. Evaluating emergency plan training, drills, and exercises.

4. Performing follow-up on action items resulting from exercises and other training functions.

3.5 OTHER PLANT PERSONNEL

The following specialists, supervisors and managers assist the Director-Training in the conduct of the emergency training program by providing input in areas related to their normal and/or emergency functions:

- Senior Specialist-Fire Protection
- Senior Specialist-Security
- Manager - E&RC
- Manager - Technical Support
- Manager - Maintenance
- Manager - Operations

3.6 CORPORATE PERSONNEL

Corporate personnel provide assistance in emergency plan training as discussed below:

- Director Emergency Preparedness, OT & TSD
  - Training of offsite officials
  - Training of hospital and medical personnel
  - Training of offsite first aid and rescue personnel
  - Training of Corporate Emergency Support personnel
- Vice President - Corporate Communications
  - Training of media personnel
  - Training of CP&L media personnel
- Corporate Quality Assurance
  - Audit training program

4.0 DEFINITIONS

1. Annual - once every 366 days
2. Badged - badged by security for unescorted access to the Protected Area

5.0 GENERAL

5.1 TRAINING REQUIREMENTS

The training requirements for emergency plan training are specified in references 2.4.1 through 2.4.5. The training requirements for specific functions that may also be emergency related (i.e., security and fire protection) are discussed in references 2.4.6 through 2.4.8.

5.2 TRAINING OBJECTIVES

The primary objectives of the training program are to:

- Familiarize appropriate individuals with the Emergency Plan and the procedures that implement the Plan.
- Instruct individuals and their alternates in their duties and responsibilities.
- Periodically present significant changes in the scope or contents of the Plan or procedures which implement the Plan.
- Provide annual refresher training to ensure that personnel are familiar with their duties and responsibilities assigned by the Plan and procedures which implement the Plan.

5.3 TRAINING FUNCTIONS

The Emergency Plan Training Program provides for the performance of the following training functions:

1. Identification of training needs (From Section 5.2 of the Emergency Plan).
2. Development of course content/lesson plans and study guides.
3. Scheduling training.
4. Conducting training and retraining.
5. Testing of students and evaluation of training.
6. Documentation of training activities.
7. Preparation and conduct of training drills performed as a part of the training courses.
8. Modification of lesson plans, study guides, and quizzes as a result of student performance on training course tests, drills, and/or exercises.

5.0 GENERAL

5.3 TRAINING FUNCTIONS (Cont'd)

9. Maintenance of current (updated) lists of personnel who require emergency response training.

5.4 PERSONNEL TO BE TRAINED

1. All personnel who are allowed unescorted access to the Protected Area receive minimal training as part of the General Employee Training (GET) on evacuation alarms and personnel accountability measures used at SHNPP in the event of an evacuation.

2. Personnel who have emergency assignments are trained for their specific job functions in accordance with the requirements identified in Section 5.2 of the Emergency Plan. Specific courses are developed around the needs of the identified job functions. This training is discussed in references 2.4.6 through 2.4.8. Personnel, by title, who fill the various emergency positions are shown in Attachment 1.

3. Personnel who man the Emergency Operations Facility, Corporate Emergency Operations Facility, Media Center and provide environmental sampling are provided training as discussed in reference 2.3.3.

4. Local off-site support personnel are trained as discussed in reference 2.4.8.

5.5 FREQUENCY OF TRAINING

1. Initial training relating to evacuation is provided for all personnel prior to the first full scale exercise. Initial training for personnel with emergency assignments is provided to personnel who participate as players in the first full exercise. Initial training for all personnel with emergency assignments is provided prior to receipt of the Operating License.

2. New employees receive General Employee Training prior to being given unescorted access to the Protected Area and specialized training prior to their becoming part of the emergency organization.

3. Non-badged site personnel receive training prior to receipt of the Operating License.

4. Retraining of all personnel is conducted annually.

5. Training drills are conducted as needed or in conjunction with training courses. The frequency of test drills and exercises is discussed in reference 2.2.1.

5.0 GENERAL

5.6 TYPES OF TRAINING COURSES

1. To provide the required emergency plan training the general and specialized courses listed in Attachment 1 are conducted under the direction of the SHNPP Training Unit. The details of these courses are described in Training Instruction TI-302, "Emergency Plan Training."

2. Emergency plan training for corporate functions are performed under the direction of the Manager Nuclear Training, Director of Emergency Preparedness, and Corporate Communications Department. These courses include:

   - Media Personnel
   - CP&L Media Personnel
   - Corporate Emergency Support Personnel
   - Public Officials

   More information on corporate level training is provided in CEPIP-19.

3. CP&L corporate public information staff, in conjunction with state and local government staffs, prepares programs to inform the news media and the public. These programs are conducted on an annual basis.

5.7 TRAINING AUDITS

An audit of the SHNPP Emergency Plan Training Program is conducted at least annually by the Emergency Planning Specialist . Corrective actions deemed necessary from the audit(s) will be implemented in accordance with Section 5.1.2 of the SHNPP Emergency Plan.

6.0 INITIATING CONDITIONS

None Applicable

7.0 PRECAUTIONS AND LIMITATIONS

None Applicable

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

None Applicable

10.0 DIAGRAMS/ATTACHMENTS

1. Emergency Response Organization Assignments and Training Courses

ATTACHMENT 1

Emergency Response Organization Assignments and Training Courses

	Position	Training Course	Assigned Personnel
1.	Site Emergency Coordinator - TSC	Site Emergency Coordinator	Plant General Manager Manager-Plant Operations Manager-Operations Manager-Maintenance
2.	Site Emergency Coordinator - Control Room Operations Leader	Senior Reactor Operators Emergency Procedures Training	Senior Control Operators Shift Foreman, Shift Technical Advisors
3.	Plant Operations Director Emergency Repair Director Logistics Support Director Radiological Control Director Representative to SERT Evacuation Assembly Area Leaders, Operational Support Center Leader, Emergency Security Team Leader, Emergency Communicators	TSC Directors and Staff	Manager - Technical Support Manager - E&RC Assistant to the Plant General Manager Director-Regulatory Compliance Operating Supervisor Maintenance Supervisors Maintenance Project Specialists Designated Maintenance Engineers Administrative Supervisor Office Services Superv. Material Control Superv. Stores Foreman E&RC Supervisors and Project Specialists Designated Communications Technicians Director-Planning & Sched. Regulatory Compliance Specialists Planning & Sched. Engineers & Specialists Emergency Preparedness Spec. Designated Security Personnel
4.	Emergency Communicator Phone Talkers Status Board Plotters ERFIS Console Operators Log Keepers	Emergency Communicator and Staff	Auxiliary Operators Director-Reg. Compliance Reg. Compl. Specialists Reg. Compl. Technicians Designated Clerks Designated Secretaries Designated Eng. Technicians Designated Draftsmen

ATTACHMENT 1 (CONT'D)

Emergency Response Organization Assignments and Training Courses

Position	Training Course	Assigned Personnel
5. Radiological Emergency Teams		
a. Dose Projection	Dose Projection	Proj. Spec. - RC RC Specialists ALARA Specialists
b. Environmental Monitoring	Environmental Monitoring	Supervisor - E&C E&C Foreman E&C Technicians
c. Personnel Protection & Decontamination Team	Personnel Protection & Decontamination Team	Supervisor - RC RC Foreman RC Technicians
d. Plant Monitoring	Plant Monitoring	Proj. Spec. - E&C Specialist Chemistry Specialist ALARA Designated RC Technicians Designated Chemistry Technicians
6. Damage Control Team	Damage Control Team	Maintenance Supervisors Maintenance Specialists Designated Operators Designated RC Technicians Designated Maintenance Personnel
7. Fire Brigade	Fire Brigade Training	Designated Personnel (Per TI-105)
8. Emergency Security Team	Security Force Training	Designated Security Personnel (Per SHNPP Security Force T&Q Plan)
9. First Aid Team	First Aid Multi-Media	Designated Personnel
10. Accident Assessment Team	Accident Assessment Team Training	Shift Technical Advisors Principal Eng.-Operations Project Engineer-NSSS Project Engineer-Perf. Designated Engineering Personnel

Emergency Response Organization Assignments and Training Courses

	Position	Training Course	Assigned Personnel
11.	Emergency Response Manager & Staff	EOF Personnel	VP-Harris Nuclear Project Designated HNP Personnel Designated On-Site Nuclear Safety Personnel Designated HTU personnel Designated HE&EC personnel
12.	Badged Site Personnel	GET Level I	All Badged Site Personnel
13.	Non-Badged Site Personnel	Non-Badged Site Personnel	All non-badged personnel assigned to the Project Site.
14.	Off-site Organizations	Per CEPIP-19	Off-site Emergency Response Organization Personnel (Per CEPIP-19)
15.	All On-site Emergency Response Personnel	Respiratory Training	All assigned personnel in positions 1 through 10 above.

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PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-405

TITLE: PREPARATION OF ACTIVITY LOGS

REVISION 0

APPROVED: C R Gibson
Signature

8/15/84
Date

TITLE: Asst to Gen Mgr

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1.0 PURPOSE

The purpose of this procedure is to implement Section 2.4, "Assignment of Responsibilities" of the SHNPP Emergency Plan.

This procedure provides guidance on preparing activity logs during emergencies.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 2.4, "Assignment of Responsibilities"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-401, "Record Keeping and Documentation"

3.0 RESPONSIBILITIES

1. LOG KEEPERS

   Log Keepers for the Site Emergency Coordinator-Technical Support Center and Emergency Response Manager will prepare logs during emergencies.

2. DIRECTORS, MANAGERS, AND LEADERS

   Directors, Managers and Team Leaders who do not have Log Keepers assigned to them should maintain logs of their major activities.

   Directors and Managers will transmit their logs and the logs of personnel who report to them to the Senior Specialist - Emergency Preparedness immediately following the termination of the exercise or emergency.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

None Applicable

6.0 INITIATING CONDITIONS

1. Upon initiation of any emergency class.

7.0 PRECAUTIONS AND LIMITATIONS

None Applicable

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

1. Initiate Attachment 1, "Emergency Log" as follows:

   - ORGANIZATION: Enter the name of the emergency position or organization for which the log is being kept (i.e., Site Emergency Coordinator, Accident Assessment Team, Emergency Communicator - Technical Support Center, etc.).
   - LOCATION: Enter the location of the individual or organization (i.e., Control Room, Technical Support Center, Operational Support Center, Emergency Operations Facility, etc.).
   - PAGE NUMBER: Enter "1" on the first page and sequential numbers (2,3,4, etc.) on the following pages as they are used.
   - PERIOD COVERED: FROM: Enter the time the log is initiated using the 24 hour clock system (i.e., 1pm is 1300 hours) and the date (i.e., 3 Aug 84).

2. Enter chronologically those events that are pertinent to the particular individual or organizations:

   - ITEM No.: Enter 1 for the first incident, message, action, etc. and sequential numbers (2,3,4,etc.) for the following ones.
   - TIME:
     IN: Record the time (using the 24 hour clock) that a message or information was received
     OUT: Record the time that a message, information or order was transmitted.
   - INCIDENTS, MESSAGES, ORDERS, ETC.: Briefly record the incident, message or order received or transmitted. Indicate the time of the incident, etc. For messages, reference message number.
   - ACTION TAKEN: Record actions taken, such as: notified Emergency Response Manager, requested Accident Assessment Team to evaluate, ordered Operational Support Center to dispatch First Aid Team, etc.

3. Upon relief from the position or termination of the emergency complete the log as follows:

   - NO. OF PAGES: Enter the total number of pages on each log page.
   - PERIOD COVERED: TO: Enter the time and date the log is closed out.

9.0 PROCEDURE STEPS

- NAME AND TITLE: Enter your name and emergency title. If you are preparing the log for someone else such as the Site Emergency Coordinator or Emergency Response Manager enter his name and emergency title below yours.
- SIGNATURE: Sign your name (across from your name and title). If prepared for another person, have the other person sign next to his name and emergency title.

4. The person relieving the position will initiate a new log as per step 1 and maintain the new logs and any previously prepared logs to allow for continuity of the position.

5. Upon termination of the emergency provide all completed logs to your director or manager who in turn will supply them to the Senior Specialist - Emergency Preparedness (as per PEP-401).

10.0 DIAGRAMS/ATTACHMENTS

1. "Emergency Log"

ATTACHMENT 1

EMERGENCY LOG

EMERGENCY LOG

PAGE NO.	NO. OF PAGES

ORGANIZATION	LOCATION	PERIOD COVERED			
		FROM		TO	
		HOUR	DATE	HOUR	DATE

ITEM NO.	TIME IN	TIME OUT	INCIDENTS, MESSAGES, ORDERS, ETC.	ACTION TAKEN

NAME AND TITLE

SIGNATURE

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-406

TITLE: PERFORMANCE OF EXERCISES AND DRILLS

REVISION 0

APPROVED: C R Gibson
Signature

8/21/84
Date

TITLE: Asst to General Manager

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1.0 PURPOSE

The purpose of this procedure is to implement Section 5.3, "Drills and Exercises," of the SHNPP Emergency Plan.

This procedure describes the types of drills and exercises and the policy and procedures related to conducting the drills.

This procedure is mainly concerned with test drills. Practical drills, which are used as part of the emergency preparedness training process, may be incorporated in or attached to the Harris Training Unit lesson plans. Plant wide practice exercises, and annual exercises are covered by CEPIP-18.

2.0 REFERENCES

2.1 EMERGENCY PLAN REFERENCES

1. Section 5.3, "Drills and Exercises"

2.2 REFERENCED PLANT EMERGENCY PROCEDURES

1. PEP-302, " Communications Activities"
2. PEP-403, "Performance of Training"
3. PEP-404, "Public Education and Information"

2.3 CORPORATE EMERGENCY PLAN AND IMPLEMENTATION PROCEDURES REFERENCES

1. Section 12.0, "Maintaining Emergency Preparedness"
2. CEPIP-18, "Emergency Response Exercises and Drills"
3. CEPIP-19, "Emergency Plan Training Program"
4. Harris Energy and Environmental Center, Radiological and Chemical Support Section Emergency Instructions

2.4 OTHER REFERENCES

1. Title 10, Code of Federal Regulations, Part 50, Section 50.47, "Emergency Plans."
2. Title 10, Code of Federal Regulations, Part 50, Section 50.54(q), "Conditions of License."
3. Title 10, Code of Federal Regulations, Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."
4. NUREG-0654, FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response

2.0 REFERENCES

2.4 OTHER REFERENCES (Cont'd)

Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

5. SHNPP Technical Specifications.

6. SHNPP Security Personnel Training and Qualification Plan.

7. TI-105, "Fire Protection Training."

8. TI-302, "Emergency Plan Training."

3.0 RESPONSIBILITIES

3.1 DIRECTOR - EMERGENCY PREPAREDNESS, Operations Training and Technical Services Department

1. Coordinates the scheduling and conduct of annual exercises including preparation of exercise plans in coordination with the Nuclear Project Managers, Plant General Managers, Manager Nuclear Training, Federal Emergency Management Agency, state and local officials, and others as appropriate.

2. Coordinates the preparation of scenarios for the annual exercises.

3.2 MANAGER NUCLEAR TRAINING, OPERATIONS TRAINING AND TECHNICAL SERVICES DEPARTMENT

1. Assists in the preparation of scenarios for annual exercises by providing appropriate personnel with as much reactor operation expertise as needed to the Director - Emergency Preparedness.

3.3 MANAGER-RADIOLOGICAL AND CHEMICAL SUPPORT SECTION,OPERATIONS TRAINING AND TECHNICAL SERVICES DEPARTMENT

1. Plans, schedules, and conducts both practical and test drills in his area of responsibility as indicated in TI-302 Attachment 5.1.

3.4 PLANT GENERAL MANAGER

1. Provides for correction of deficiencies noted as a result of test drills, exercises, and actual responses during emergency situations.

3.0 RESPONSIBILITIES

3.5 ASSISTANT TO THE PLANT GENERAL MANAGER

1. Plans, schedules, and conducts in coordination with the Director - Emergency Preparedness, the annual exercise and provides for the correction of discrepancies in performance, procedures, facilities, or equipment.

3.6 SENIOR SPECIALIST - EMERGENCY PREPAREDNESS

The Senior Specialist- Emergency Preparedness reports to the Assistant to the Plant General Manager and may be delegated his Emergency Preparedness duties. In addition, the Senior Specialist:

1. Prepares, schedules, and conducts plant-wide test drills.

2. Ensures that all affected external organizations receive advance notification of test drills and practice exercises as appropriate.

3. Performs follow up on action items resulting from exercises, test drills, and other training functions, as described in Chapter 6 of the SHNPP Emergency Plan.

3. Maintains documentation on test drills.

3.7 DIRECTOR-HARRIS TRAINING UNIT

1. Prepares, schedules, and conducts practical drills in his area of responsibility as indicated in TI-302 Attachment 5.1.

2. Maintains documentation of practical drills.

3.8 MANAGER-ENVIRONMENTAL AND RADIATION CONTROL

1. Prepares, schedules, and conducts practical drills in his area of responsibility as indicated in TI-302 Attachment 5.1.

2. Provides evaluators, and/or controllers for test drills, practice exercises, and critiques.

3.9 SENIOR FIRE PROTECTION SPECIALIST

1. Prepares, schedules, and conducts practical drills in his area of responsibility as indicated in TI-302 Attachment 5.1.

3.10 SENIOR SPECIALIST-SECURITY

1. Prepares, schedules, and conducts practical drills in his area of responsibility as indicated in TI-302 Attachment 5.1.

4.0 DEFINITIONS

1. Monthly - means at least once per 31 days

2. Quarterly - means at least once per 92 days

3. Semiannually - means at least once per 184 days

4. Annually - means at least once per 366 days

5. Scenario - A SCENARIO is a description of a hypothetical situation from start to finish which serves as the theme or basis upon which the action or play of the exercise or drill unfolds. The scenario may include exercise messages/drill cards and/or System Parameter Data and Status (SPDS) sheets.

6. Practical Drills

   Provide practical application and hands-on experience. Students work through assigned problems. These drills are useful for training radiological teams, emergency communicators, the first aid team, and other personnel who work primarily with equipment. Practical drills are part of training.

7. Test Drills

   Are of limited scope and can include tabletop experience. These drills are geared primarily toward developing supervisory skills and emphasize training in special areas of concern. For example, these drills are useful for the Technical Support Center, Emergency Operations Facility, communications, and radiological teams.

8. Practice Exercises

   Integrate the components of the Emergency Response Organization using realistic scenarios. Practice exercises are used to prepare for the annual exercise.

9. Annual Exercises

   Demonstrate the overall effectiveness of the emergency preparedness program as required by regulations.

4.0 DEFINITIONS (Cont'd)

10. Table Top Exercise - a TABLE TOP EXERCISE is a practical or test drill at which selected participants will work their way through a scenario by role playing and/or discussion around a table or in a conference, or at predetermined exercise stations (usually the latter).

    Prewritten messages and System Parameter Data and Status sheets based on the scenario are used to initiate player response and keep the exercise action moving according to established objectives. A table top exercise may be used as a rehearsal for an annual exercise.

5.0 GENERAL

5.1 EXERCISE/DRILL REQUIREMENTS

The purpose of exercises and test drills is to periodically evaluate major portions of emergency response capabilities and other elements of plant radiological emergency response plans, corporate emergency plans, and state and local emergency plans in accordance with the provisions of Nuclear Regulatory Commission Regulation 10CFR50.47(b)(14). Procedures for the conduct of emergency response exercises are contained in Corporate Emergency Plan Implementing Procedure CEPIP-18.

5.2 OBJECTIVES OF EXERCISES/DRILLS

1. Exercise at least annually the emergency plan and implementing procedures.

2. Test the adequacy of timing and content of implementing procedures and methods.

3. Test emergency response facilities, equipment, and communications networks.

4. Test the public alerting and notification system. (Not necessary during the annual exercise.)

5. Ensure that emergency organization personnel are familiar with assignments and proficient in performing their duties.

6. Demonstrate proficiency in recognizing, assessing, and classifying the emergency condition, and in employing corrective measures.

7. Demonstrate adequacy of protective measures considered and used to protect people, both plant and public.

8. Meet SHNPP emergency plan training objectives.

5.0 GENERAL

5.2 OBJECTIVES OF EXERCISES/DRILLS (Cont'd)

9. Demonstrate adequacy of interfaces between implementing procedures and other operating procedures (fire, security, etc.).

5.3 TYPES OF EXERCISES

1. SHNPP in cooperation with Corporate Emergency Support Personnel shall conduct an annual exercise as required by 10CFR50, App. E.IV.F.

2. Full-scale or small-scale practice exercises will be conducted as required in accordance with a plan prepared for each exercise. These exercises will have the characteristics described in Section 3.1 through 3.4 of CEPIP-18.

5.4 TYPES OF DRILLS

5.4.1 General - Test drills in addition to the annual exercise will be conducted at the frequencies indicated for various types of test drills described below. Emphasis will be on the effectiveness of procedures and actual use of emergency equipment.

5.4.2. Communication Test Drills

1. Communication from the plant to the state and local government warning points and within the plume exposure pathway Emergency Planning Zone shall be tested MONTHLY.

2. Communications with federal emergency response organizations and states within the ingestion pathway shall be tested QUARTERLY.

3. Communications between SHNPP, state, and local emergency operations centers, and environmental monitoring teams shall be tested ANNUALLY.

4. Communication between the Control Room, the Technical Support Center, and the Emergency Operations Facility shall be tested ANNUALLY.

5. Communications from the Control Room, Technical Support Center, and the Emergency Operations Facility to the NRC headquarters Operations Center and Region II Incident Response Center shall be tested MONTHLY.

6. Communication test drills shall be conducted in accordance with the plant technical specifications and fire protection manual.

7. Communication test drills shall also include the aspect of understanding the content of messages.

5.0 GENERAL

5.4 TYPES OF DRILLS (Cont'd)

5.4.3 Fire Test Drills - Fire test drills shall be conducted in accordance with the Plant Technical Specifications and Fire Protection Manual.

5.4.4 Medical Emergency Test Drills - A medical emergency test drill involving a simulated contaminated individual with provision for participation by the local support services agencies (i.e., ambulance, and off-site medical treatment facility) shall be conducted ANNUALLY. The off-site portions of the medical drill may be performed as part of the required annual exercise.

5.4.5 Radiological Monitoring Test Drills - Plant environs and radiological monitoring test drills (on-site and off-site) shall be conducted ANNUALLY. These drills shall include collection and analysis of all sample media, and provisions for communications and record keeping.

5.4.6 Health Physics/Radiation Protection Test Drills

1. Health Physics test drills shall be conducted SEMIANNUALLY which involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment.

2. Analysis of in-plant liquid samples with actual elevated radiation levels including use of the post-accident sampling system shall be included in Health Physics test drills ANNUALLY.

5.5 EXERCISE/DRILL FACILITIES

One or more of the following emergency facilities may be activated when required by the test drill or exercise scenario and operated in accordance with corporate and plant emergency plans and procedures:

1. Control Room
2. Technical Support Center
3. Operational Support Center
4. Emergency Operations Facility
5. Plant Media Center
6. Corporate Emergency Operations Center
7. Corporate Headquarters Media Center

State and local Emergency Operating Centers operate according to state and local government emergency preparedness plans. They may be activated by the state or local government when they participate in exercises.

5.0 GENERAL

5.6 COMMAND AND CONTROL

5.6.1 For Exercises

The command and control organization for annual exercises will consist of individuals with duties as discussed in Section 5.0 of CEPIP-18. For practice exercises the organization may be modified as appropriate.

5.6.2 For Drills

The command and control organization for drills may be one (or more) instructors or Controller - Evaluators who are running the drill as a hands on instructional period and/or as a test of personnel, equipment, and procedures.

5.7 EXERCISE/DRILL PLANS

Exercises and test drills not addressed elsewhere (e.g., Fire Drills) shall have a plan for the exercise or drill. Exercise plans should be prepared in accordance with CEPIP-18.

If repeated test drills of the same scope are to be conducted, a standardized drill plan may be used with variations in drill scenarios.

Test drill plans should contain the following:

1. The basic objective(s) of each drill.

2. The date(s), time period, place(s) and participants. (This can be covered by a separate memorandum when a standard drill plan is used.)

3. Location(s) where test drills will take place including activation of any emergency facilities.

4. Events to be simulated.

5. Whether any off-site individual or organization will be contacted as part of the drill.

6. A narrative summary describing the conduct of the drill.

7. Time schedule of initiating events, real and simulated. (This can be part of the appendix.)

8. Procedures that are applicable to the drill.

9. Criteria to be used for evaluation.

5.0 GENERAL

5.7 EXERCISE/DRILL PLANS (Cont'd)

10. Individual(s) who will evaluate the drill, other than the participants who will perform a self critique. (This can be addressed in a separate memo.)

11. Exercise messages, drill cards, and/or System Parameter Data and Status (SPDS) forms to be used should be attached as an appendix. (More than one set can be prepared for a particular type of drill when the drill is used to train the same group repeatedly.)

5.8 SCENARIOS

Scenarios are prepared for exercises and for test drills in most cases. The scenarios for test drills are usually relatively simple. The scenarios are prepared by a Scenario Team selected by the Plant General Manager. The team normally consists of an individual from each of the following departments:

1. Emergency Preparedness
2. Operations
3. Environmental and Radiation Control
4. Technical Support

5.9 EVALUATION AND CRITIQUES

5.9.1 The facilities and the organizations listed below may be evaluated in addition to the Plant Emergency Plan and Procedures.

1. Control Room
2. Technical Support Center
3. Operational Support Center
4. Emergency Operations Facility
5. Plant Media Center
6. Corporate Emergency Operations Center
7. Corporate Headquarters Media Center

5.9.2 The following activities may be evaluated:

1. Accident recognition, classification, and assessment
2. Assessment and monitoring of on-site and off-site radiological consequences
3. Alerting, notification, and mobilization activities
4. In-plant corrective actions
5. Activation and use of emergency facilities and equipment
6. Public warning and notification
7. Use of communications equipment and procedures
8. Preparation of reports, messages, and records
9. Protective actions - Evacuation, Decontamination, etc.
10. Public information and public relations
11. First Aid measures, rescue, handling contaminated accident cases

5.0 GENERAL

5.9 EVALUATION AND CRITIQUES

5.9.2 The following activities may be evaluated: (Cont'd)

12. Security control, site access, personnel accountability
13. Fire fighting
14 Recovery and re-entry

5.9.3 Each test drill shall provide for critiques by controllers and participants at the conclusion of the drill. The time and place of the critique meeting shall be specified in the plan for each drill.

5.9.4 Any weakness in the emergency plan, facilities, training, etc., that are identified through the critique process shall be documented and corrected by the organizations and individuals who have responsibility for the areas identified. A copy of this documentation will be sent to the Senior Specialist - Emergency Preparedness.

5.10 EVALUATION STANDARDS

5.10.1 The appropriate parts of the Corporate and Plant Emergency Plans and their Implementing Procedures that apply to the function, activity, facilities, and personnel will be used as standards for evaluation.

5.10.2 Guidance given in pre-drill meetings, notations in the "Actions Expected" portion of the Exercise Message/Drill Cards, and the drill objectives as enumerated in the drill plan will be used also as evaluation standards.

5.10.3 Evaluation standards for exercises will be those discussed in CEPEP-18.

5.11 TEST DRILL GRADING

The drill critique report will contain a grading or rating for each drill area evaluated as follows:

5.11.1 Excellent: Personnel and equipment always functioned without error the first time, every time. There were no problems encountered and all personnel and equipment functioned as specified by the Exercise Plan, and the Corporate and Plant Emergency Plans and their implementing procedures.

5.11.2 Satisfactory: Personnel and/or equipment performed according to expectations, with some minor exceptions. Any errors noted were not severe, would not reduce the effectiveness of the plant emergency response capability, and could be corrected without undue labor and/or expense.

5.11.3 Unsatisfactory: Personnel and/or equipment generally performed below expectations and/or there were several significant

5.0 GENERAL

5.11 TEST DRILL GRADING (Cont'd)

deficiencies noted. The ability of personnel and/or equipment to carry out assigned mission was diminished. Performance of facility was not in accordance with the Corporate or Plant Emergency Plans and their implementing procedures.

Exercise critique reports will contain a grade or rating as discussed in CEPIP-18.

6.0 INITIATING CONDITIONS

None Applicable

7.0 PRECAUTIONS AND LIMITATIONS

1. Verify that any emergency notification messages to off-site authorities used during drills or exercises begin and end with "This is an exercise message" and that scenario message sheets contain the same statement.

8.0 SPECIAL TOOLS AND EQUIPMENT

None Applicable

9.0 PROCEDURE STEPS

9.1 PLANT-WIDE TEST DRILLS

1. Prepare a scenario for a test drill and have it approved by the scenario committee or request the scenario committee to prepare a scenario.

2. Prepare the appropriate Exercise Message/Drill Cards (Attachment to CEPIP-18) and System Parameter Data and Status (SPDS) sheets if appropriate (See Attachment to PEP-302).

3. Schedule the test drills after coordinating with the unit supervisor and Senior Specialist- Emergency Preparedness.

4. The Senior Specialist - Emergency Preparedness obtains final approval for plant-wide drill schedules from the Plant Manager.

5. Notify drill participants of date, time, and place to assemble (usually well in advance unless this is an unannounced drill being used as a test).

6. Notify affected non-participants (Institute for Nuclear Power Operations, Distribution Engineering, contractors, etc.) of the drill schedule.

9.0 PROCEDURE STEPS

9.1 PLANT-WIDE TEST DRILLS (Cont'd)

7. Conduct the drill.

8. Have the participants perform a self-critique.

9. Evaluate the drill orally for the participants and prepare a written critique (the form in CEPIP-18 can be used or other appropriate form).

10. Send a copy of the drill plan, scenario, and evaluation form to the Director - Harris Training Unit and to the Senior Specialist - Engineering Preparedness.

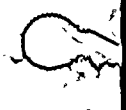
11. The Director - Harris Training Unit will update the training records in accordance with Training Procedures by indicating drill participation.

9.2 EXERCISES

1. Perform exercises as discussed in CEPIP-18.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable



APRO11

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

PLANT OPERATING MANUAL

VOLUME 2

PART 5

PROCEDURE TYPE: PLANT EMERGENCY PROCEDURE (PEP)

NUMBER: PEP-331

TITLE: EMERGENCY PLANT MONITORING

REVISION 3

APPROVED: J. L. Klemm by direction
Signature

10-14-85
Date

TITLE: A PGM

Superseded per revision 1 EPP dtd 12/8/86 Enclosure 50-400

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1.0 PURPOSE

The purpose of this procedure is to implement Section 4.4.2, "Plant Radiological Monitoring" of the SHNPP Emergency Plan, which is a regulatory commitment. It also implements corrective action in response to NRC Emergency Preparedness Appraisal Insepction Report Number 50-400/85-09. It specifies the methods to be used for conducting radiological surveys at the plant site, including outdoor surveys inside the Protected Area, and for sampling and analyzing plant systems during an emergency. It is not applicable for outdoor surveys outside of the Protected Area, which are performed in accordance with PEP-351, "Emergency Environmental Monitoring."

2.0 REFERENCES

2.1 Emergency Plan References

1. Section 4.4.2, "Plant Radiological Monitoring"
2. Section 2.4.6, "Radiological Control Director"
3. Section 2.4.6.5, "Chemistry Coordinator"
4. Section 2.4.6.7, "Radiological Control Coordinator"

2.2 Referenced Plant Emergency Procedures

1. PEP-207, "Chemistry Coordinator"
2. PEP-208, "Radiological Control Coordinator"

2.3 Other References

1. CRC-250, "Plant Vent Sampling"
2. CRC-820, "PASS Preoperational Test and System Calibration"
3. CRC-821, "PASS RCS/RHR Pump Discharge Dilute Liquid Sampling During Accident Conditions"
4. CRC-822, "PASS RCS/RHR Pump Discharge Undiluted Liquid Sampling During Accident Conditions"
5. CRC-823, "PASS Containment Air Sampling"
6. CRC-824, "PASS RCS Stripped Gas Sampling and Analysis"
7. CRC-825, "PASS In-Line pH and Dissolved Oxygen Analyses of RCS/RHR Pump Discharge Sampling During Accident Conditions"
8. CRC-826, "PASS Sample Chloride Analysis"
9. CRC-827, "Post Accident Sample Boron Analysis by Fluoroborate Specific Ion Electrode"
10. CRC-828, "Isotopic Analyses for Core Damage Evaluation"
11. CRC-829, "PASS Sample Accountability, Storage, and Disposal"
12. ERC-106, "Confined Space Monitoring Program"
13. ERC-117, "Operation of the RM-23, RM-23P, and RM-23L"
14. HPP-005, "Scheduling Routine Activities"
15. HPP-060, "Performance of Radiation and Contamination Surveys"
16. HPP-066, "Preparation and Analysis of Air Samples"
17. HPP-067, "Collection of Particulate/Iodine Air Samples"

2.3 Other References (cont'd)

18. HPP-069, "Collection and Analysis of Noble Gas Samples"
19. HPP-075, "Vehicle Survey"
20. HPP-503, "Operation of the Protechtor Portable Gas Alarm"
21. HPP-504, "Operation of the Gastechtor Portable Gas Alarm"
22. HPP-505, "Operation of the Draeger Multigas Detector"
23. RCP-660, "Sample Preparation for Determination of Radioactivity"
24. RCP-701, "Operation of the Canberra Series 90 Gamma Spectrometry System"
25. Regulatory Guide 1.97, " Instrumentation for Light-Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and After an Accident"
26. Nuclear Regulatory Commission Inspection Report Number 50-400/85-009.

3.0 RESPONSIBILITIES

3.1 Chemistry Coordinator

The Chemistry Coordinator is responsible for assigning members of the Chemistry Team to:

1. Operate the Post Accident Sampling System
2. Obtain and analyze other plant samples
3. Operate the Radiation Monitoring System to collect grab samples from the plant vent stack.

3.2 Radiological Control Coordinator

The Radiological Control Coordinator is responsible for assigning members of the Radiological Control Team to:

1. Perform in-plant radiological surveys.
2. Perform field interrogations of the Radiation Monitoring System to evaluate the radiological consequences of the accident.
3. Perform airborne hazardous chemical surveys and/or confined space monitoring.

4.0 DEFINITIONS

None Applicable

5.0 GENERAL

The Chemistry Team collects and analyzes chemistry samples to provide data to assist the Radiological Control Director, Plant Operations Director, and others in assessing core damage and

5.0 GENERAL (cont'd)

possible release source terms. Where normal procedures referenced in this procedure specify actions to be performed by E&C Technicians, they shall be performed by the Chemistry Team. Where they specify actions to be performed by an E&C Foreman or E&C Supervisor, those actions shall be performed by the Chemistry Coordinator.

The Radiological Control Team performs radiation, contamination, and airborne activity and hazardous chemical surveys to determine the habitability conditions of areas for the protection of personnel who may need to enter these areas during the emergency. Where normal procedures referenced in this procedure specify actions to be performed by RC Technicians, they shall be performed by the Radiological Control Team. Where they specify actions to be performed by an RC Foreman or Supervisor, those actions shall be performed by the Radiological Control Coordinator.

6.0 INITIATING CONDITIONS

1. An emergency has been declared and in-plant radiological or airborne hazardous chemical surveys or plant samples are required.

7.0 PRECAUTIONS AND LIMITATIONS

1. Comply with personnel protection requirements established by the Radiological Control Coordinator

2. PASS samples should be taken and analyzed in 3 hours or less from the time the decision is made to sample, except for chloride which should be analyzed within 96 hours, as stated in NRC Regulatory Guide 1.97. Sampling during an emergency is not an automatic action, and shall be performed only after the Site Emergency Coordinator has decided that it is necessary.

8.0 SPECIAL TOOLS AND EQUIPMENT

1. Post Accident Sampling System
2. Air Samplers
3. Protechtor Portable Gas Alarm
4. Draeger Multigas Detector
5. RM-23P Portable Command and Readout Device for the Radiation Monitoring System
6. Gamma Spectrometer

9.0 PROCEDURE STEPS

NOTE: These steps may be performed in any order.

1. The Radiological Control Team will perform and document radiation and contamination surveys in accordance with HPP-060.

9.0 PROCEDURE STEPS (cont'd)

2. The Radiological Control Team will collect and document air samples in accordance with HPP-067 and/or HPP-069 as appropriate except that the volume of sample collected for particulate and iodine samples will be fifteen cubic feet unless specified otherwise by the Radiological Control Coordinator. They will analyze particulate and Iodine air samples in accordance with HPP-066, and deliver all iodine collection cartridges, regardless of the gross activity of the particulate sample, to the Chemistry Team for gamma isotopic analysis in accordance with RCP-660 and RCP-701.

3. The Chemistry Team will prepare the Post Accident Sampling System for use in accordance with CRC-820.

4. The Radiological Control Team will perform surveys for airborne toxic/flammable gases or chemicals in accordance with HPP-503, "Operation of the Protechtor Portable Gas Alarm," HPP-504, "Operation of the Gastechtor Portable Gas Alarm," and/or HPP-505, "Operation of the Draeger Multigas Detector." Surveys shall be documented on Appendix A to ERC-106, "Confined Space Monitoring Program."

5. The Chemistry Team will collect containment air samples in accordance with CRC-823 or, if activity levels permit, in accordance with normal plant procedures.

6. The Chemistry Team will collect Reactor Coolant or containment sump samples in accordance with CRC-821 for dilute samples and/or CRC-822 for undiluted samples, or if activity levels permit, in accordance with normal plant procedures.

7. The Chemistry Team will collect and analyze Reactor Coolant samples for dissolved gases in accordance with CRC-824, or if activity levels permit, in accordance with normal plant procedures.

8. The Chemistry Team will collect and analyze Reactor Coolant or containment sump samples for pH, and/or dissolved oxygen in accordance with CRC-825 or, if activity levels permit, in accordance with normal plant procedures.

9. The Chemistry Team will collect and analyze Reactor Coolant or containment sump samples for chloride, boron, and/or isotopic mixture in accordance with CRC-826, CRC-827, and/or CRC-828, respectively, or, if activity levels permit, in accordance with normal plant procedures.

10. The Chemistry Team will collect Plant Vent samples in accordance with CRC-250.

9.0 PROCEDURE STEPS (cont'd)

11. The Chemistry Team will prepare and analyze air and plant vent samples for isotopic content in accordance with RCP-660 and RCP-701, respectively.

12. The Chemistry Team will document all sample analysis on appropriate data sheets in accordance with the respective individual procedures.

13. The Radiological Control Team will obtain Radiation Monitoring System data from local RM-80 panels using the RM-23P in accordance with ERC-117 if individual monitors are operational but the RM-11 consoles are not.

14. The Radiological Control Team will conduct surveys outdoors within the Protected Area in accordance with methods specified in previous steps of this procedure as appropriate to the type of survey, and when directed to do so by the Radiological Control Coordinator. Predetermined survey locations for each of the 16 major compass directions are shown in HPP-005.

15. If area radiation levels and expected sample source terms permit, the Chemistry Team may collect and analyze additional plant system samples using normal plant procedures.

16. The Chemistry Coordinator will monitor chemistry data of the recirculation sump. If addition of sodium hydroxide solution is required, he will take appropriate actions to add the chemical.

17. The Chemistry Team and the Radiological Control Team will control all samples collected in accordance with CRC-829.

18. The Radiological Control Team will conduct surveys of all vehicles exiting the Protected Area in accordance with HPP-075, except for ambulances that are transporting injured personnel, which will be surveyed after arrival at the hospital.

Note: The Radiological Control Manager may exempt any vehicle exiting the Protected Area from a survey upon recommendation by the Radiological Control Coordinator.

10.0 DIAGRAMS/ATTACHMENTS

None Applicable

SELECT DISTRIBUTION

DATE MAY 21 1986

Procedure Title: MANUAL DOSE CALCULATION

Procedure Number: 2-5 PEP-341

__ Revision _____

__ Temporary Change _____

X Advance Change 2/1

INSTRUCTIONS FOR UPDATING DOCUMENTATION

DELETE:

__ Revision _____

X The pages on the List Of Effective Pages denoted by A/C 2/1.

__ Other: _____

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__ The attached procedure to Volume ___, Part ____ in sequential order.

X The attached pages in their place; put the Advance Change form in front of the procedure.

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__ Other: _____

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OS1

ADVANCE CHANGE FORM

(1) Proc. No PEP-341 Rev. 2 Change # AC-2/1

(2) Title Manual Dose Calculation

(3) Reason for the Change Correct technical errors

(4) Description of the Change Revised the table of Dose Conversion

(5) Additional pages Attached # of Pages 3

(6) Prepared by R C Lowry / Staff HP (NMS) Date 5-15-86
Name / Title

(7) Recommended for approval:

Albert L Cearnal - Senior Specialist Emergency Preparedness Date 5-15-86
1st Technical Reviewer Signature Title

Robert Kilcrease EP TECH Date 5-15-86
2nd Technical Reviewer Signature Title

(8) SAFETY REVIEW

Two qualified safety reviews are required prior to Final Approval. Attach Nuclear Safety Review Checklist in Accordance with AP-011.

(9) ALARA concurrence if applicable
Signature Harry Barnes Date 5-15-86

(10) Fire Protection concurrence if applicable
Signature N/A Date

(11) QA CONCURRENCE if applicable
Signature N/A Date

(12) FINAL APPROVAL

Approved by J. L. WILLIS, PLANT GENERAL MANAGER Date 5/19/86

Remarks

(Form AP-07-4-3)

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LIST OF EFFECTIVE PAGES

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1 through 2	2
3	2/1
4 through 6	2
7	2/1
8 through 18	2
19	2/1
20 through 21	2
3, 10, 14 & 16	2/2

AC 2/1 5-15-86
RAT
6-9-86
AC 2/2

AC 2/1
5-15-86
RAT

SAMPLE MANUAL DOSE PROJECTION RECORD SHEET

Attachment 1
Sheet 1 of 2

Form PEP-341-1-3 — MANUAL DOSE PROJECTION RECORD SHEET — Sheet 1 of 2

1. DATE_____ TIME_____ PERFORMED BY_____

	STEAM PRESSURE	cc/gm	STEAM PRESSURE	cc/gm	STEAM PRESSURE	cc/gm
2.	< 150	277	450 - 549	64.4	950 - 949	33.3
	150 - 249	188	550 - 649	52.9	950 - 1049	29.4
	250 - 349	115	650 - 749	44.3	1050 - 1149	26.3
	350 - 449	82.8	750 - 849	38.0	1149	23.7

		Q WHOLE BODY	Q CHILD THYROID
	MAIN STEAM LINE A		
3.	mR/Hr (RMS) x uCi/cc gm (Block 2) x cc gm (Form PEP-341-5) x uCi/gm x 1.0E-6 Ci/uCi x Mlbm Hr (Form PEP-341-5) x gm/sec 1.26E+5Mlbm/Hr =	Ci/sec x 0.176 =	Ci/sec
	MAIN STEAM LINE B		
4.	mR/Hr (RMS) x uCi/cc gm (Block 2) x cc gm (Form PEP-341-5) x uCi/gm x 1.0E-6 Ci/uCi x Mlbm Hr (Form PEP-341-5) x gm/sec 1.26E+5Mlbm/Hr =	Ci/sec x 0.176 =	Ci/sec
	MAIN STEAM LINE C		
5.	mR/Hr (RMS) x uCi/cc gm (Block 2) x cc gm (Form PEP-341-5) x uCi/gm x 1.0E-6 Ci/uCi x Mlbm Hr (Form PEP-341-5) x gm/sec 1.26E+5Mlbm/Hr =	Ci/sec x 0.176 =	Ci/sec
	PLANT VENT STACK #1 (design:390,000)		
6.	NOBLE GAS uCi/cc x cc/sec CFM x 472 CFM (Form PEP-341-5 Line 20) = uCi/sec x 1.0E-6 Ci/uCi =	Ci/sec x 0.176 =	Ci/sec
	WPB VENT STACK #5 (Design:207,000)		
7.	NOBLE GAS uCi/cc x cc/sec CFM x 472 CFM (Form PEP-341-5 Line 20) = uCi/sec x 1.0E-6 Ci/uCi =	Ci/sec x 0.176 =	Ci/sec
	WPB VENT STACK #5A (design:103,600)		
8.	NOBLE GAS uCi/cc x cc/sec CFM x 472 CFM (Form PEP-341-5 Line 20) = uCi/sec x 1.0E-6 Ci/uCi =	Ci/sec x 0.176 =	Ci/sec
	CONTAINMENT LEAKAGE		
9.	R/Hr (RMS) x 9.43E-4 uCi/cc = R/hr (Form PEP-341-5) uCi/cc x 1.0E-6 Ci/uCi x (368) or (736) cc/sec (>24hr) (<24hr) =	Ci/sec x 0.176 =	Ci/sec
10.	TOTAL RELEASE RATE--ADD LINES 3 THROUGH 9	Ci/sec x 0.176 =	Ci/sec

PREPARED SHEET

AC 2/2 6-9-86 BPJ

SAMPLE MANUAL DOSE PROJECTION RECORD SHEET

Form PEP-341-1-2 MANUAL DOSE PROJECTION RECORD SHEET Sheet 2 of 2

11. WIND SPEED _____ mph WIND DIRECTION (FROM) _____ degrees

12. ATMOSPHERIC DISPERSION FACTOR (X/Q) _____ $\frac{sec}{m^3}$
(From Attachment 2 and Stability Class below)

13. STABILITY CLASS _____ (From ERFIS, Corp. Weather Center, NWS or table below)

13a. SOURCE OF METEOROLOGICAL DATA: ___ ERFIS ___ WC ___ NWS ___ YO

WIND		CLEAR DAY	CLOUDY DAY	CLEAR NIGHT	CLOUDY NIGHT	RAINING
Light or Calm	<9 mph	B	C	F	E	D
Moderate or Strong	≥9 mph	C	D	D	D	D

WHOLE BODY

0.47 MILES

14. _____ $\frac{Ci}{sec}$ x _____ $\frac{sec}{m^3}$ x _____ $\frac{rem/Hr}{Ci/m^3}$ = _____ $\frac{rem}{hr}$ x _____ Hrs = _____ rem
(Line 10) (Line 12) (Attach. 3) (Duration)

EXCLUSION AREA (SITE) BOUNDARY (1.3 MILES)

15. Extrapolation Factor: _____ (Attachment 4) _____ $\frac{rem}{hr}$ _____ rem

2 MILES

16. Extrapolation Factor: _____ (Attachment 4) _____ $\frac{rem}{hr}$ _____ rem

5 MILES

17. Extrapolation Factor: _____ (Attachment 4) _____ $\frac{rem}{hr}$ _____ rem

10 MILES

18. Extrapolation Factor: _____ (Attachment 4) _____ $\frac{rem}{hr}$ _____ rem

CHILD THYROID

0.47 MILES

19. _____ $\frac{Ci}{sec}$ x _____ $\frac{sec}{m^3}$ x _____ $\frac{rem/Hr}{Ci/m^3}$ = _____ $\frac{rem}{hr}$ x _____ Hrs = _____ rem
(Line 10) (Line 12) (Attach. 3) (Duration)

EXCLUSION AREA (SITE) BOUNDARY (1.3 MILES)

20. Extrapolation Factor: _____ (Attachment 4) _____ $\frac{rem}{hr}$ _____ rem

2 MILES

21. Extrapolation Factor: _____ (Attachment 4) _____ $\frac{rem}{hr}$ _____ rem

5 MILES

22. Extrapolation Factor: _____ (Attachment 4) _____ $\frac{rem}{hr}$ _____ rem

10 MILES

23. Extrapolation Factor: _____ (Attachment 4) _____ $\frac{rem}{hr}$ _____ rem

Performed by _____ (Signature) _____ (Date) _____ (Time)

SELECT DISTRIBUTION

DATE JUN 03 1986

Procedure Title: Automation of Dose Projection IBM-PC

Procedure Number: 2-5 PEP-343

__ Revision _____

__ Temporary Change _____

X Advance Change 3/1

INSTRUCTIONS FOR UPDATING DOCUMENTATION

DELETE:

__ Revision _____

X The pages on the List Of Effective Pages denoted by A/C 3/1 .

__ Other: _____

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__ Place the Temporary Change in front of the procedure.

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ADVANCE CHANGE FORM

(1) Proc. No PEP-343 Rev. 3 Change # 3/1

(2) Title Automation of Dose Projection - IBM PC

(3) Reason for the Change Implement PCR-000156

(4) Description of the Change Changed examples of output, references, and version date to agree with new software

(5) Additional pages Attached # of Pages 8

(6) Prepared by R.C. Lewis/Staff HP(NUS) Date 5-27-86
Name/Title

(7) Recommended for approval:

[signature] EP TECH Date 5-27-86
1st Technical Reviewer Signature Title

[signature] Sr. Specialist Emergency Preparedness Date 5-27-86
2nd Technical Reviewer Signature Title

(8) SAFETY REVIEW

Two qualified safety reviews are required prior to Final Approval. Attach Nuclear Safety Review Checklist in Accordance with AP-011.

(9) ALARA concurrence if applicable
Signature [signature] Date 5/27/86

(10) Fire Protection concurrence if applicable
Signature N/A Date

(11) QA CONCURRENCE if applicable
Signature N/A Date

(12) FINAL APPROVAL

Approved by [signature] Date 5/28/86
J. L. WILLIS, PLANT GENERAL MANAGER
Name/Title

Remarks

(Form AP-07-4-3)

LIST OF EFFECTIVE PAGES

Page	Revision
land 2	3
3 and 4	3/1
5	3
6	3/1
7 and 8	3
9 through 13	3/1
14 and 15	3

AC 3/1
5-27-86
RL

8.0 SPECIAL TOOLS AND EQUIPMENT (Continued)

NOTE: Other hardware configurations may be used after verifying that the programs will run properly. The programs are written such that hardware incompatibility will only prevent the programs from running, not produce errors in output.

2. Program diskette, SHNPP Emergency Dose Projections, Version 1.1, 5/19/86

AC3/1 5-27-86 RJ

9.0 PROCEDURE STEPS

CAUTION

When obtained from the Emergency Response Facilities Information System (ERFIS), Main Steam Line flow is in units of thousand pounds mass per hour (KPPH) instead of million pounds mass per hour (MPPH), Steam flow in KPPH must be converted to MPPH by dividing by 1000. Additionally, ERFIS displays stability class as a numeric integer (1, 2, 3, etc.) instead of an alpha character (A, B, C, etc.). ERFIS stability class 1 = A, 2 = B, 3 = C, 4 = D, 5 = E, 6 = F, and 7 = G.

1. Obtain the necessary data required for input to the program using Form PEP-343-2 as guidance. All of the necessary information except for hours since reactor shutdown can be obtained from ERFIS group data display 3DOSE or 4DOSEHEL.

AC3/1 5-27-86 RJ

2. Load the Dose Projection Disk into the disk drive 'A' and close the disk drive door. While simultaneously holding down the ALT and CTRL keys, press the DEL key. This will reset the computer, load the dose projection program, and start the program.

3. After a short pause, the screen will clear and the introduction to the dose projection program will be displayed. The displayed version and revision date shall be compared to that listed in Section 8 of this procedure, and if they are not the same, the program disk shall not be used to perform dose projections. As instructed, press any key to continue.

4. Follow the computer prompts and answer each question as it is asked.

NOTE: "Reference Time/Date" on printouts and displays is the time and date at which the dose projection was performed.

NOTE: When a Yes or No answer is required, Y and N should be used.

ATTACHMENT 1

EXAMPLE DOSE PROJECTION

Summary of Inputs to Release Rate Analysis :
Time since reactor shutdown = 4 Hours. Time until release begins = 0 Hours.
Time since accident began = 4 Hours.

I. Steam Lines	Flow (MLbm/Hr)	Monitor (mR/Hr)	Pressure (PSI)	Grab Sample
A	.4	200	1100	N
B	.3	250	1100	N
C	?	NA	NA	NA

II. Plant Stacks		Rad Monitor (uCi/sec)	Grab Sample
1	270000 CFM	?	Y
5		5.15e7	N
5A		?	N

III. Containment	Hrs. Since Accident	Rad Monitor (R/Hr)	Grab Sample
	4	1e8	N

Results of Release Rate Analysis:

Release Pathway	Whole Body (Ci/sec)	Thyroid (Ci/sec)
Main Steam Line A	2.549E+00	4.499E-01
Main Steam Line B	2.390E+00	4.218E-01
Main Steam Line C	0.000E+00	0.000E+00
Vent Stack 1 {Aux. Bldg.}	5.977E+00	5.779E-02
Vent Stack 5 {WPB Filtered}	5.150E+01	9.088E+00
Vent Stack 5A {WPB Unfiltered}	0.000E+00	0.000E+00
Containment Leakage	6.940E+01	1.225E+01

Grand Total Release Rate - All Pathways: 1.318E+02 2.227E+01

Total Thyroid DCF = 1.108E+06 Total Whole Body DCF = 1.488E+02
... both at point of release.

Reference Time/Date: 07:54:17 / 05-27-1986

Summary of Inputs to Release Rate Analysis :
Time since reactor shutdown = 4 Hours. Time until release begins = 0 Hours.
Time since accident began = 4 Hours.

I. Steam Lines	Flow (MLbm/Hr)	Monitor (mR/Hr)	Pressure (PSI)	Grab Sample
A	.4	200	1100	N
B	.3	250	1100	N
C	?	NA	NA	NA

II. Plant Stacks		Rad Monitor (uCi/sec)	Grab Sample
1	270000 CFM	?	Y
5		5.15e7	N
5A		?	N

III. Containment	Hrs. Since Accident	Rad Monitor (R/Hr)	Grab Sample
	4	1e7	N

AC 3/1 5-27-86

ATTACHMENT 1

EXAMPLE DOSE PROJECTION

Results of Release Rate Analysis:

Release Pathway	Whole Body (Ci/sec)	Thyroid (Ci/sec)
Main Steam Line A	2.549E+00	4.499E-01
Main Steam Line B	2.390E+00	4.218E-01
Main Steam Line C	0.000E+00	0.000E+00
Vent Stack 1 {Aux. Bldg.}	5.977E+00	5.779E-02
Vent Stack 5 {WPB Filtered}	5.150E+01	9.088E+00
Vent Stack 5A {WPB Unfiltered}	0.000E+00	0.000E+00
Containment Leakage	6.940E+00	1.225E+00

Grand Total Release Rate - All Pathways: 6.936E+01 1.124E+01

Total Thyroid DCF = 1.108E+06 Total Whole Body DCF = 1.488E+02
... both at point of release.

Reference Time/Date: 07:54:17 / 05-27-1986

Summary of relevant Meteorological Data:

Meteorological data obtained from ERFIS.
Pasquill Stability Class : C

Lower Wind Speed : 5.0 MPH

Lower Wind Direction : 215 Degrees (Blowing From)

Reference Time/Date : 08:09:57 / 05-27-1986

Summary Dose Projection:

Estimated Duration of Release: 2 Hours

AC 3/1 5-27-86 #2

ATTACHMENT 1

EXAMPLE DOSE PROJECTION

Distance (Km/Mi)	W. B. Dose (Rem)	Thyroid Dose (Rem)	W. B. Dose Rate (Rem/Hr)	Thyroid Dose Rate (Rem/Hr)	DCFs (Rem/Hr)/(Ci/m^3) W. B.	DCFs (Rem/Hr)/(Ci/m^3) Thyroid	Chi/Q (Sec/m^3)
1.6/ 1.00	0.1935	233.5855	0.0968	116.7928	1.49E+02	1.11E+06	9.38E-06
3.2/ 2.00	0.0550	66.4274	0.0275	33.2137	1.49E+02	1.11E+06	2.67E-06
4.8/ 3.00	0.0264	31.8346	0.0132	15.9173	1.49E+02	1.11E+06	1.28E-06
6.4/ 4.00	0.0157	18.8907	0.0078	9.4454	1.49E+02	1.11E+06	7.58E-07
8.0/ 5.00	0.0104	12.6021	0.0052	6.3011	1.49E+02	1.11E+06	5.06E-07
9.6/ 6.00	0.0075	9.0532	0.0038	4.5266	1.49E+02	1.11E+06	3.63E-07
11.3/ 7.00	0.0057	6.8447	0.0028	3.4223	1.49E+02	1.11E+06	2.75E-07
12.9/ 8.00	0.0045	5.3722	0.0022	2.6861	1.49E+02	1.11E+06	2.16E-07
14.5/ 9.00	0.0036	4.3387	0.0018	2.1693	1.49E+02	1.11E+06	1.74E-07
16.1/10.00	0.0030	3.5838	0.0015	1.7919	1.49E+02	1.11E+06	1.44E-07

5 REM THYROID ISOPLETH COORDINATES (+/- METERS)

X	Y
1608	404
3216	586
4824	661
6432	636
8040	469

.00057 REM WHOLE BODY ISOPLETH COORDINATES (+/- METERS)

X	Y
1608	516
3216	839
4824	1090
6432	1290
8040	1452
9648	1578
11256	1674
12864	1740
14472	1777
16080	1785

AC 3/1 5-27-86 ##

SELECT DISTRIBUTION

DATE MAY 2 1 1986

Procedure Title: Remote Monitoring and Decontamination Area Cape Fear Plant

Procedure Number: 2-5 PEP-372

X Revision 0

__ Temporary Change _____

__ Advance Change _____

INSTRUCTIONS FOR UPDATING DOCUMENTATION

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PROCEDURES

ZONE 1

LIST OF EFFECTIVE PAGES

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1 through 10	0

1.0 PURPOSE

The purpose of this procedure is to partially implement section 4.6.2 (c) "Evacuation & Personnel Accountability" of the SHNPP Emergency Plan which is a regulatory commitment.

This procedure describes the use of the Cape Fear plant facilities as a remote area for monitoring and decontamination of evacuated SHNPP site personnel.

2.0 REFERENCES

2.1 Emergency Plan References

1. Section 4.6.2, "Evacuation and Personnel Accountability"

2.2 Other References

1. HPP-035, "Posting and Barricading of Radiological Areas"
2. HPP-060, "Performance of Radiation and Contamination Surveys"
3. HPP-075, "Vehicle Survey"
4. HPP-251, "Personnel Decontamination"
5. HPP-252, "Tool and Personal Belongings Decontamination"
6. HPP-253, "Area Decontamination"

3.0 RESPONSIBILITIES

3.1 Radiological Control Coordinator

The Radiological Control Coordinator is responsible for dispatching a radiological control team with decontamination personnel to the Cape Fear Plant in the event that the facility is determined to be a remote monitoring/decontamination area. The Radiological Control Coordinator shall determine if decontamination of any affected Cape Fear facilities and grounds is complete for unrestricted public use.

3.2 Radiological Control Team

The Radiological Control Team is responsible for monitoring all affected personnel, vehicles, facilities and grounds for contamination and shall direct decontamination as necessary. The Radiological Control Team shall control access and egress as necessary at the monitoring/decontamination area to ensure control of contamination.

9.2 Monitoring/Decontamination Operations (continued)

2. The Radiological Control Team will survey arriving evacuated personnel for contamination in accordance with HPP-251 prior to releasing them from the Restricted Area.

3. The Radiological Control Team will survey evacuated vehicles in accordance with HPP-075 prior to release of the vehicles from the Restricted Area.

4. The Radiological Control Team will maintain a record of personnel names and vehicle license plates surveyed for historical record.

5. Contaminated personnel and/or vehicles drive to the decontamination station set up adjacent to the employees parking lot.

6. Decontamination personnel on the Radiological Control Team decontaminate vehicles at the decontamination station in accordance with HPP-252. Contaminated personnel will be decontaminated in accordance with HPP-251. The men and women's shower facility inside the Cape Fear Plant may be used for personnel decontamination.

NOTE: If the showers are used, wastewater from the showers drains to the septic system. Sampling would be difficult, but possible. The septic system consists of a septic tank and leaching field. Contact the Environmental Supervisor if this is done.

7. Areas contaminated by the evacuated personnel and/or vehicles will be surveyed and decontaminated as necessary in accordance with HPP-253.

8. Coveralls will be provided to decontaminated evacuees to replace contaminated clothing. The Radiological Control Director may request the coveralls from the Radiological Control Manager which are supplied out of the Emergency Reserve Health Physics equipment inventory.

9. The Environmental Supervisor will arrange for the radionuclide sampling and analysis of water from decontamination efforts.

10. The Environmental Supervisor will recommend the appropriate disposal of the decontamination water.

SELECT DISTRIBUTION

DATE 5-21-86

Procedure Title: Remote Monitoring And Decontamination Area Harris Energy and Environmental Ctr.

Procedure Number: 2-5 PEP-373

X Revision 0

__ Temporary Change _____

__ Advance Change _____

INSTRUCTIONS FOR UPDATING DOCUMENTATION

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X The attached procedure to Volume 2, Part 5 in sequential order.

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__ Other: _____

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PROCEDURES

ZONE 1

LIST OF EFFECTIVE PAGES

Page	Revision
1 through 9	0

1.0 PURPOSE

The purpose of this procedure is to partially implement Section 4.6.2(c) "Evacuation and Personnel Accountability" of the SHNPP Emergency Plant which is a regulatory commitment.

This procedure describes the use of the Harris Energy & Environmental Center facilities as a remote area for monitoring and decontamination of evacuated SHNPP site personnel.

2.0 REFERENCES

2.1 Emergency Plan References

1. Section 4.6.2, "Evacuation and Personnel Accountability"

2.2 Other References

1. HPP-035, "Posting and Barricading of Radiological Areas"
2. HPP-060, "Performance of Radiation and Contamination Surveys"
3. HPP-075, "Vehicle Survey"
4. HPP-251, "Personnel Decontamination
5. HPP-252, "Tool and Personal Belongings Decontamination"
6. HPP-253, "Area Decontamination"

3.0 RESPONSIBILITIES

3.1 Radiological Control Coordinator

The Radiological Control Coordinator is responsible for dispatching a Radiological Control Team with decontamination personnel to the Harris Energy & Environmental Center in the event that the facility is determined to be a remote monitoring/decontamination area. The Radiological Control Coordinator shall determine if decontamination of any affected Harris Energy & Environmental Center facilities and grounds is complete for unrestricted public use.

3.2 Radiological Control Team

The Radiological Control Team is responsible for monitoring all affected personnel, vehicles, facilities and grounds for contamination and shall decontaminate as necessary. The Radiological Control Team shall control access and egress as necessary at the monitoring/decontamination area to ensure control of contamination.

9.1 Activation of the Harris Energy & Environmental Center Monitoring/Decontamination Area (continued)

NOTE: The Environmental Monitoring Radio channel is heavily used in an emergency. Any radio traffic between the Radiological Control Coordinator and his team is secondary to, and must yield to, Environmental Monitoring Radio traffic.

3. The Radiological Control Teams establish roped areas and traffic lanes at the intersection with State Road 1127 for controlling traffic and monitoring vehicles and personnel. Any potentially contaminated areas, such as the grassy area west of State Road 1127, should be posted in accordance with HPP-035. (See Attachment 1.)

4. Assembly Area Leaders instruct evacuating personnel to evacuate to the Harris Energy & Environmental Center to be monitored for contamination.

9.2 Monitoring/Decontamination Operations

1. Evacuees arriving at the intersection with State Road 1127 park in place along State Road 1135 and wait for a monitoring team person to survey them and their vehicles. The assembly area leaders assist in directing traffic and controlling personnel.

2. The Radiological Control Team will survey arriving evacuated personnel for contamination in accordance with HPP-251 prior to releasing them from the Restricted Area.

3. The Radiological Control Team will survey evacuated vehicles in accordance with HPP-075 prior to release of the vehicles from the Restricted Area.

NOTE: If a large number of evacuees are present and require monitoring, request through the Radiological Control Director that the Logistics Support Director obtain tents and portable lighting and heaters as necessary for an enclosed, dry area for monitoring.

4. The Radiological Control Team will maintain a record of personnel names and vehicle license plates surveyed for historical record.

5. Contaminated vehicles are to be driven and parked over the grassy area adjacent to State Road 1127 between State Road 1135 and and the Center. These vehicles will remain in place until they have been decontaminated and determined to be free of contamination in accordance with HPP-075.

6. Contaminated evacuees are led to the Craft Training Building behind the Harris Energy & Environmental Center and are decontaminated in accordance with HPP-251. The men and women's shower facility inside the Craft Training Building may be used for personnel decontamination.

LIST OF EFFECTIVE PAGES

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RPJ 1-15-86 AC 2/1

RPJ 1-15-86 AC 2/1

2.3 Other References

1. Title 10, Code of Federal Regulations, Part 50, Section 50.47, "Emergency Plans"

2. Title 10, Code of Federal Regulations, Part 50, Section 50.54(q), "Conditions of License"

3. Title 10, Code of Federal Regulations, Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities"

4. NUREG-0654, FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980

5. SHNPP Technical Specifications

6. SHNPP Security Personnel Training and Qualification Plan

7. TI-105, "Fire Protection Training"

8. TI-302, "Emergency Plan Training"

9. CCEIP-10, "Training and Retraining"

3.0 RESPONSIBILITIES

3.1 Plant General Manager

The Plant General Manager ensures that SHNPP Emergency Plan Training and Retraining is performed in a complete and timely manner. He also provides for corrections of deficiencies noted as a result of training-related functions, and approves all lesson plans.

3.2 Assistant to the Plant General Manager

The Assistant to the Plant General Manager is the SHNPP Emergency Planning Coordinator. He is responsible for identifying off-site training needs of state and local emergency support personnel and arranging for training to meet the identified needs, and for other training-related functions as shown on Attachment 1.

3.3 Director - Training (Harris Training Unit)

The Director - Training is responsible for developing plans, procedures and instructional material as required to fulfill the responsibilities listed in Attachment 1, and in the references listed above. TI-302, "Emergency Plan Training," further delineates the duties and functions of the Director-Training (Harris Training Unit).

ATTACHMENT 1

EMERGENCY PLAN TRAINING COURSE RESPONSIBILITIES

RAJ 1-15-86 AC 2/1

Persons Responsible for Training:

1. Manager - Emergency Preparedness, OTD
2. Assistant to the Plant General Manager, SHNPP/Senior Specialist-Emergency Preparedness, SHNPP
3. Director - Training, Harris Training Unit
4. Senior Fire Protection Specialist, SHNPP
5. Senior Security Specialist, SHNPP
6. News Coordinator, Corporate Communications Department

RAJ 1-15-86 AC 2/1

NOTE: In the columns under the heading RESPONSIBILITY AREA, Sheet 1, the numbers in the matrix refer to the above listing of persons responsible for training. Where two numbers are listed the first individual shown in the column has lead responsiblity.

RAJ 1-15-86 AC 2/1

ATTACHMENT 20

FORM 1: ISOTOPE RELEASE WORKSHEET

	SAMPLE	PRECURSOR	t - TIME AFTER SID (1)	λ_B - ISOTOPE DECAY CONST. (2)	λ_A PRECURSOR DECAY CONST. (3)	$e^{-\lambda B t}$ (4)	$e^{-\lambda A t}$ (5)	K - BRANCHING RATIO (6)	Q^O_A - PRECURSOR SOURCE TERM (100% RTP EOL) (7)	Q^O_B - ISOTOPE SOURCE TERM (100% RTP EOL) (8)	Q^t_B - ISOTOPE ACTIVITY AT TIME t (9)	Fr - FRACTIONAL ACTIVITY (10)	SAMPLE ACTIVITY μ c/g OR μCi/cc (11)	$M^O{}'_B$ - DECAY CORRECTED ACTIVITY (12)	CF - TEMP/PRESS CORRECTION (13)	M^O_B - TEMP/ PRESS. CORRECTED ACTIVITY (14)	SAMPLE MASS OR VOLUME (15)	ISOTOPE ACTIVITY AT SHUTDOWN (16)	100% EOL SOURCE TERM (17)	PCF - POWER HISTORY FACTOR (18)	SOURCE TERM (19)	RELEASE % (20)	GAP RATIO (21)
Kr-85m	R			.158								1.0							$1.7x10^7$				
	S			.158								1.0							$1.7x10^7$				
	A			.158								1.0							$1.7x10^7$				
																					TOTAL		
Kr-87	R			.547								1.0							$3.2x10^7$				
	S			.547								1.0							$3.2x10^7$				
	A			.547								1.0							$3.2x10^7$				
																					TOTAL		
Kr-88	R			.248								1.0							$4.4x10^7$				
	S			.248								1.0							$4.4x10^7$				
	A			.248								1.0							$4.4x10^7$				
																					TOTAL		
Xe-131m	R	I-131		.00245	.00359			.008	$7.7x10^7$	$4.9x10^5$									$4.9x10^5$				
	S	I-131		.00245	.00359			.008	$7.7x10^7$	$4.9x10^5$									$4.9x10^5$				
	A	I-131		.00245	.00359			.008	$7.7x10^7$	$4.9x10^5$									$4.9x10^5$				
																					TOTAL		
Xe-133	R	I-133		.00548	.0341			.976	$1.5x10^8$	$1.5x10^8$									$1.5x10^8$				
		Xe-133m		.00548	.0128			1.0	$2.2x10^7$	$1.5x10^8$													
	S	I-133		.00548	.0341			.976	$1.5x10^8$	$1.5x10^8$									$1.5x10^8$				
		Xe-133m		.00548	.0128			1.0	$2.2x10^7$	$1.5x10^8$													
	A	I-133		.00548	.0341			.976	$1.5x10^8$	$1.5x10^8$									$1.5x10^8$				
		Xe-133m		.00548	.0128			1.0	$2.2x10^7$	$1.5x10^8$													
																					TOTAL		
Xe-133m	R	I-133		.0128	.0341			.024	$1.5x10^8$	$2.2x10^7$									$2.2x10^7$				
	S	I-133		.0128	.0341			.024	$1.5x10^8$	$2.2x10^7$									$2.2x10^7$				
	A	I-133		.0128	.0341			.024	$1.5x10^8$	$2.2x10^7$									$2.2x10^7$				
																					TOTAL		
Xe-135	R	Xe-135m		.0728	2.67			1.0	$3.3x10^7$	$2.9x10^7$									$2.9x10^7$				
		I-135		.0728	.104			.70	$1.3x10^8$	$2.9x10^7$													
	S	Xe-135m		.0728	2.67			1.0	$3.3x10^7$	$2.9x10^7$									$2.9x10^7$				
		I-135		.0728	.104			.70	$1.3x10^8$	$2.9x10^7$													
	A	Xe-135m		.0728	2.67			1.0	$3.3x10^7$	$2.9x10^7$									$2.9x10^7$				
		I-135		.0728	.104			.70	$1.3x10^8$	$2.9x10^7$													
																					TOTAL		
I-131	R			.00359								1.0							$7.7x10^7$				
	S			.00359								1.0							$7.7x10^7$				
	A			.00359								1.0							$7.7x10^7$				
																					TOTAL		
I-132	R	Te-132		.307	.00892			1.0	$1.1x10^8$	$1.1x10^8$									$1.1x10^8$				
	S	Te-132		.307	.00892			1.0	$1.1x10^8$	$1.1x10^8$									$1.1x10^8$				
	A	Te-132		.307	.00892			1.0	$1.1x10^8$	$1.1x10^8$									$1.1x10^8$				
																					TOTAL		
I-133	R			.0341								1.0							$1.5x10^8$				
	S			.0341								1.0							$1.5x10^8$				
	A			.0341								1.0							$1.5x10^8$				
																					TOTAL		
I-135	R			.104								1.0							$1.3x10^8$				
	S			.104								1.0							$1.3x10^8$				
	A			.104								1.0							$1.3x10^8$				
																					TOTAL		
Rb-88	R	Kr-88		2.34	.248			1.0	$4.4x10^7$	$4.5x10^7$									$4.5x10^7$				
	S	Kr-88		2.34	.248			1.0	$4.4x10^7$	$4.5x10^7$									$4.5x10^7$				
	A	Kr-88		2.34	.248			1.0	$4.4x10^7$	$4.5x10^7$									$4.5x10^7$				
																					TOTAL		
Cs-134	R			$3.96x10^{-5}$								1.0							$1.8x10^7$				
	S			$3.96x10^{-5}$								1.0							$1.8x10^7$				
	A			$3.96x10^{-5}$								1.0							$1.8x10^7$				
																					TOTAL		
Cs-137	R			$2.64x10^{-6}$								1.0							$8.3x10^6$				
	S			$2.64x10^{-6}$								1.0							$8.3x10^6$				
	A			$2.64x10^{-6}$								1.0							$8.3x10^6$				
																					TOTAL		
Te-129	R	Sb-129		.605	.161			.827	$2.5x10^7$	$2.6x10^7$									$2.6x10^7$				
		Te-129m		.605	$8.47x10^{-4}$			.680	$6.2x10^6$	$2.6x10^7$													
	S	Sb-129		.605	.161			.827	$2.5x10^7$	$2.6x10^7$									$2.6x10^7$				
		Te-129m		.605	$8.47x10^{-4}$			.680	$6.2x10^6$	$2.6x10^7$													
	A	Sb-129		.605	.161			.827	$2.5x10^7$	$2.6x10^7$									$2.6x10^7$				
		Te-129m		.605	$8.47x10^{-4}$			.680	$6.2x10^6$	$2.6x10^7$													
																					TOTAL		
Te-132	R			.00892								1.0							$1.1x10^8$				
	S			.00892								1.0							$1.1x10^8$				
	A			.00892								1.0							$1.1x10^8$				
																					TOTAL		
Sr-89	R			$5.48x10^{-4}$								1.0							$6.1x10^7$				
	S			$5.48x10^{-4}$								1.0							$6.1x10^7$				
	A			$5.48x10^{-4}$								1.0							$6.1x10^7$				
																					TOTAL		
Sr-90	R			$2.83x10^{-6}$								1.0							$5.6x10^6$				
	S			$2.83x10^{-6}$								1.0							$5.6x10^6$				
	A			$2.83x10^{-6}$								1.0							$5.6x10^6$				
																					TOTAL		
Ba-140	R			.00226								1.0							$1.3x10^8$				
	S			.00226								1.0							$1.3x10^8$				
	A			.00226								1.0							$1.3x10^8$				
																					TOTAL		
La-140	R	Ba-140		.0172	.00226			1.0	$1.3x10^8$	$1.3x10^8$									$1.3x10^8$				
	S	Ba-140		.0172	.00226			1.0	$1.3x10^8$	$1.3x10^8$									$1.3x10^8$				
	A	Ba-140		.0172	.00226			1.0	$1.3x10^8$	$1.3x10^8$									$1.3x10^8$				
																					TOTAL		
La-142	R	Ba-142		.450	3.78			1.0	$1.2x10^8$	$1.1x10^8$									$1.1x10^8$				
	S	Ba-142		.450	3.78			1.0	$1.2x10^8$	10^8									$1.1x10^8$				
	A	Ba-142		.450	3.78			1.0	$1.2x10^8$	$1.1x10^8$									$1.1x10^8$				
																					TOTAL		
Pr-144	R	Ce-144		2.41	$1.02x10^{-4}$			1.0	$8.3x10^7$	$9.6x10^7$									$9.6x10^7$				
	S	Ce-144		2.41	$1.02x10^{-4}$			1.0	$8.3x10^7$	$9.6x10^7$									$9.6x10^7$				
	A	Ce-144		2.41	$1.02x10^{-4}$			1.0	$8.3x10^7$	$9.6x10^7$									$9.6x10^7$				
																					TOTAL		