Calvert Cliffs Nuclear Power Plant

1650 Calvert Cliffs Parkway
Lusby, Maryland 20657

CENG
a joint venture of
Constellation Energy · EDF

CALVERT CLIFFS
NUCLEAR POWER PLANT

January 11, 2013

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Independent Spent Fuel Storage Installation Docket No. 72-8
Changes to the Emergency Response Plan

As required by 10 CFR 50.54(q), 10 CFR Part 50 Appendix E.V, and 10 CFR 72.44(f), changes to the Emergency Response Plan are enclosed. A summary of the analysis of the changes and a description of the staffing study changes are attached. These changes do not decrease the effectiveness of the Emergency Response Plan.

Should you have questions regarding this matter, please contact me at (410) 495-5216 or Mr. Douglas E. Lauver at (410) 495-5219.

Very truly yours,

Michael J. Fick

Michael J. Fick
Director-Emergency Preparedness

MJF/PSF/bjd

Attachment: (1) Summary of Changes - 10 CFR 50.54(q)
(2) Description of Staffing Study Changes
Enclosure: ERP, 04500

cc: W. M. Dean, NRC
Resident Inspector, NRC
C. Haney, NMSS

(Without Enclosure)
N. S. Morgan, NRC
S. Gray, DNR

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NRR
NMSS

ATTACHMENT (1)

SUMMARY OF CHANGES - 10 CFR 50.54(q)

ATTACHMENT (1)

SUMMARY OF CHANGES – 10 CFR 50.54(q)

Document ID	ERP	Revision Number	45
Document Title	Emergency Response Plan		
50.54(q) Evaluation #	2012-74 and 2012-82		
Change Description	Section 3, Organization - Updated the management organization charts. Section 4, Emergency Measures - changed "classification" to "declaration". This was an oversight in the last revision. Section 7, References – Added reference to On-Shift Staffing Analysis Report Appendix D – Updated Letters of Agreement Appendix E – Updated references per NUREG-0654/FEMA-REP-1 Rev 1 Addenda		
Analysis Summary	All changes made were editorial in nature and do not change intent or modify function or timeliness of actions taken.		

Document ID	ERP	Revision Number	45
Document Title	Emergency Response Plan		
50.54(q) Evaluation #	2012-74		
Change Description	Section 2, Emergency Conditions - aligned with the new EALS and Chapter 14 of the UFSAR.		
Analysis Summary	These changes conform to the UFSAR and SER.		

Document ID	ERP	Revision Number	45
Document Title	Emergency Response Plan		
50.54(q) Evaluation #	2012-74 and 2012-82		
Change Description	Section 3, Organization - incorporated change to on-shift staffing based on NRC regulations. Appendix F – Added new appendix for On-Shift Staffing based on NRC regulations.		
Analysis Summary	Incorporate the Calvert Cliffs Nuclear Power Plant On-Shift Staffing Analysis Report (prepared for Constellation Energy by EP Consulting, LLC) into the Emergency Response Plan in accordance with 10 CFR Part 50, Appendix E, IV.A.9 and NSIR/DPR-ISG-01, Interim Staff Guidance: Emergency Planning for Nuclear Power Plants. This change does not result in a degradation or loss of the capability to perform a function or perform a function in a timely manner and does not result in a reduction in effectiveness of an emergency preparedness requirement. The applicable guidance continues to be met.		

ATTACHMENT (2)

DESCRIPTION OF STAFFING STUDY CHANGES

Calvert Cliffs Nuclear Power Plant, LLC
January 11, 2013

ATTACHMENT (2)

DESCRIPTION OF STAFFING STUDY CHANGES

Incorporate the Calvert Cliffs Nuclear Power Plant On-Shift Staffing Analysis Report (prepared for Constellation Energy by EP Consulting, LLC) into the Emergency Response Plan in accordance with 10 CFR Part 50, Appendix E, IV.A.9 and NSIR/DPR-ISG-01, Interim Staff Guidance: Emergency Planning for Nuclear Power Plants. This change does not result in a degradation or loss of the capability to perform a function or perform a function in a timely manner and does not result in a reduction in effectiveness of an emergency preparedness requirement. The applicable guidance continues to be met. A detailed description of the changes is below.

Change Description and Evaluation:

Change #1: Table of Contents

- Added Appendix F – On-Shift Staffing Analysis

  This change was made to include the new Appendix F for the On-Shift Staffing Analysis in the Emergency Response Plan's Table of Contents. This change has no impact on any EP function or timing.

Changes #2 through #8 was made to the ERP, Attachment 3-2 as a result of the completed On-Shift Staffing Analysis Report. The changes were required to ensure the on-shift staff is capable of taking all required emergency actions to safely shutdown the reactor(s), mitigate accident consequences, notify the augmented ERO staff and OROs, determine PARs for site personnel and the public, perform firefighting, and provide medical assistance, if needed. These changes were also evaluated against NUREG-0654, Table B-1, which specifies major functional areas to ensure the on-shift staff was not assigned responsibilities that could detract from the performance of their primary Emergency Response Plan functions.

Copies of Attachment 3-2 (Revision 44 and Revision 45) are provided for reference.

Change #2: Attachment 3-2; Major Functional Area – Plant operations and assessment of operational aspects

- Revised the Position, Title, or Expertise from "Shift crew personnel" to "Senior Reactor Operators, Reactor Operators, Auxiliary Operators, Shift Technical Advisor, Operations Technical Assistant"
- Revised the On Shift requirement from "per Technical Specifications" to:

Senior Reactor Operators	2
Reactor Operators	4
Auxiliary Operators	5
Shift Technical Advisor	1
Operations Technical Assistant	per UFSAR

Based on the CCNPP Technical Specifications for Operations staffing, this revision changes the Operations on-shift compliment as follows:

- Senior Reactor Operators remains as 2
- Reactor Operators increase from 3 to 4
- Auxiliary Operators increase from 3 to 5

- Shift Technical Advisor remains as 1, but no longer may be collaterally assigned as the Shift Manager
- Operations Technical Assistant increases from 0 to 1

The revised Operations staffing is more representative of the administrative staffing level that the site maintains and was determined to be the required level to meet many of the scenarios in the Staffing Analysis. The Shift Technical Advisor position is now identified as a stand-alone position that no longer may be provided as a collateral function of the Shift Manager, based on the Staffing Analysis which indicated the need to have these positions independently staffed. The Operations Technical Assistant was not previously captured in the Emergency Response Plan and was added based on the current UFSAR requirement to have a licensed operator respond with the Fire Brigade to provide technical assistance to the Fire Brigade Leader regarding safe shutdown equipment functions.

Change #3: Attachment 3-2; Major Functional Area – Emergency Direction and Control [(C)]

- Revised the Position, Title, or Expertise from "Shift Manager or Shift Technical Advisor" to "Shift Manager"
- Removed the footnote allowing for the position to be "Provided by shift personnel assigned other functions" from the On Shift requirement

This change reflects the results of the Staffing Analysis which identified scenarios where the Shift Manager and the Shift Technical Advisor have to be independently staffed. In addition to the elimination of the footnote allowing for the collateral duty, the Shift Technical Advisor position was moved to the Plant operations and assessment of operational aspects Major Functional Area along with the other Operations on-shift staffing.

Change #4: Attachment 3-2; Major Function Area – Notification/Communication

- Revised the Position, Title, or Expertise from being blank to "Emergency Communicator"
- Removed the footnote allowing for the position to be "provided by shift personnel assigned other functions" from the On Shift requirement

This change reflects the results of the Staffing Analysis which identified the need to have the on-shift Emergency Communicator independently staffed and not a collateral function of another on-shift position (e.g., Fire Brigade Member).

Change #5: Attachment 3-2; Major Function Area – Protective actions (in/plant) operational aspects

- Edited the Major Function Area title from "Protective actions (in/plant) operational aspects" to "Protective actions (in-plant) operational aspects.

This change is editorial in nature and does not alter the original intent or technical content of the CCNPP Emergency Response Plan.

Change #6: Attachment 3-2; Major Function Area – Protective actions (in-plant) operational aspects

- Removed the footnote allowing for the position to be "provided by shift personnel assigned other functions" from the On Shift requirement

This change reflects the results of the Staffing Analysis which identified the need to have a second Radiation Protection Technician added to the on-shift staffing in order to ensure that all emergency response functions and procedural tasks could be completed in a timely function. Previously, a single Radiation Protection Technician had been tasked with fulfilling the responsibilities of the radiological accident assessment and protective actions (in-plant) operational aspects Major Functional Areas.

Change #7: Attachment 3-2; Major Function Area – Rescue operations and first aid

- Removed the footnote allowing for the position to be "provided by shift personnel assigned other functions" from the On Shift requirement
- Added the new footnote, (e), which specifically states that the First Aid Team personnel are collateral duties of the Fire Brigade.

This change was made to more clearly identify that the First Aid Team are specifically collateral duties of the Fire Brigade. Having the First Aid Team as a collateral duty of the Fire Brigade is acceptable based on the following passage from NSIR/DPR-ISG-01:

> *"The events used in the staffing analysis may not specify the performance of some major functions or tasks listed in NUREG-0654, Table B-1. Examples include the major task of "Repair and Corrective Actions" and the major functional area of "Rescue Operations and First-Aid." In these cases, the licensee's staffing analysis should specify the resources available to perform these functions and tasks, if needed. They may be assigned as a collateral duty to a designated on-shift responder."*

The Staffing Analysis identified no on-shift staffing conflicts with this collateral function.

Change #8: Attachment 3-2; List of Footnotes

- Added the following footnote:

> (e) Rescue operations and first aid is a collateral duty of the designated Fire Brigade (Fire & Safety Watch and Fire & Safety Responder)

This change was made to support the clarification of the First Aid Team being collateral duties of the Fire Brigade as deemed acceptable by NSIR/DPR-ISG-01:

> *"The events used in the staffing analysis may not specify the performance of some major functions or tasks listed in NUREG-0654, Table B-1. Examples include the major task of "Repair and Corrective Actions" and the major functional area of "Rescue Operations and First-Aid." In these cases, the licensee's staffing analysis should specify the resources available to perform these functions and tasks, if needed. They may be assigned as a collateral duty to a designated on-shift responder."*

The Staffing Analysis identified no on-shift staffing conflicts with this collateral function.

Change #9: Appendix F – On-Shift Staffing Analysis

- New appendix added to the CCNPP Emergency Response Plan to capture the Calvert Cliffs Nuclear Power Plant On-Shift Staffing Analysis Report

This change was made to meet the NSIR/DPR-ISG-01 stipulation that the site-specific on-shift staffing analysis be implemented as a required part of the site's emergency plan. The Staffing Analysis in this appendix established the technical basis for the required ERO minimum on-shift staffing, as required by the Emergency Preparedness Rule published on November 23, 2011.

Reduction in Effectiveness (RIE) Evaluation:

Planning Standard 10 CFR 50.47(b)(2) requires that on-shift facility licensee responsibilities for emergency response are unambiguously defined and that adequate staffing to provide initial facility accident response in key functional areas is maintained at all times. Appendix E, Section IV.A, requires licensees to have a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan. The Staffing Analysis supports the requirements of the Planning Standard and Appendix E by documenting the technical basis for the required on-shift minimum staffing by applying the NRC-endorsed methodology of NEI 10-05. Based on the following excerpts from NSIR/DPR-ISG-01 that are applicable to CCNPP, this change to the CCNPP Emergency Response Plan does not constitute a RIE:

- *Adding the staffing analysis to the licensee's emergency plan per the new requirement of 10 CFR Part 50, Appendix E, Section IV.A.9 would not, by itself, reduce the effectiveness of the licensee's emergency plan and as such would not require prior NRC approval.*

  The Calvert Cliffs Nuclear Power Plant On-Shift Staffing Analysis Report, Rev. 0, has been added to the CCNPP Emergency Response Plan as Appendix F.

- *When a licensee performs a change evaluation to their emergency plan to incorporate the staffing analysis, the licensee would identify that there was, in fact, no prior staffing analysis mentioned in the licensing basis and, therefore, the licensee would have satisfied the guidance in RG 1.219 of considering "the basis for the staff's approval of the original plan." As such, the licensee would be able to conclude that the inclusion of a staffing analysis, by itself, does not result in a reduction in effectiveness and the change can be made without prior NRC approval.*

  Prior to the conduct and completion of the Calvert Cliffs Nuclear Power Plant On-Shift Staffing Analysis Report, Rev. 0, in accordance with the NRC-endorsed NEI 10-05, Rev. 0, CCNPP did not have an on-shift staffing analysis as part of the site's Emergency Response Plan or any other licensing basis document.

- *Adding the staffing analysis to a licensee's emergency plan does not change the licensing basis because the analysis is a process to determine the adequate on-shift staffing level. The results of the analysis will either validate the licensee's current licensing basis and that the licensee meets, or exceeds, the requirement to have an adequate on-shift staffing level, or that the licensee must increase its on-shift staffing or reassign tasks to meet the requirement (the latter of this statement applies to CCNPP). Any reduction in effectiveness can only be associated with a change to the emergency plan that modifies current on-shift staffing levels or task assignments. The licensee would need to consider this licensing basis, per the guidance in RG 1.219, in performing a change evaluation if modifying current staffing levels or task assignments based upon the results of the staffing analysis.*

  The addition of on-shift ERO staffing along with the elimination of some previously allowed collateral responsibilities/functions ensures that all required emergency response functions and tasks will be performed in a complete and timely manner.

Conclusion:

The site remains in compliance with Planning Standard 10 CFR 50.47(b)(2) and meets the new requirement of 10 CFR Part 50 Appendix E, Section IV.A.

Previous Revision

ATTACHMENT 3-2

MINIMUM ON-SITE STAFFING REQUIREMENTS

Page 1 of 2

MAJOR FUNCTIONAL AREA	MAJOR TASKS	POSITION, TITLE, OR EXPERTISE	ON SHIFT	WITHIN [a] APPROX. 60 MINUTES
Plant operations and assessment of operational aspects		Shift crew personnel	per Technical Specifications	--
Emergency direction and control [c]		Shift Manager or Shift Technical Advisor	1(b)	--
Notification/ communication	Notify licensee, Federal, State, and local personnel and maintain communications		1(b)	3
Support of operational accident assessment	Site emergency coordination	Manager	--	1
Radiological accident assessment	a. Off-site dose assessment	Senior Health Physics (HP) expertise	--	1
	b. Off-site surveys	Survey Team	--	4
	c. On-site surveys	Survey Team	--	2
	d. In-plant surveys	Survey Team	1	2
	e. Chemistry/radio-chemistry	Chemistry Technicians	1	1
Plant System Engineering, repair and corrective actions	Technical support	Rx Core Engineer	--	2
		Electrical Engineer	--	1
		Mechanical Engineer	--	1
	Repair and corrective actions	Mechanical maintenance	--	3
		Rad Waste Operator	1(b)	--
		Electrical maintenance	--	2
		Instrument and Control (I&C) Technician	--	2
Protective actions (in/plant) operational aspects	Radiation protection: a. Access control b. HP coverage for repair, corrective actions, search and rescue first-aid and firefighting c. Personnel monitoring d. Dosimetry	Survey Team	1(b)	6
Firefighting		Fire Brigade personnel	per UFSAR	Local Support (d)
Rescue operations and first aid		First Aid Team personnel	2(b)	Local Support (d)
Site access control and personnel accountability	Security, communications, personnel accountability	Security personnel	per Security Plan	--

Previous Revision

ATTACHMENT 3-2

MINIMUM ON-SITE STAFFING REQUIREMENTS

Page 2 of 2

(a) Additions required for Alert, Site Area Emergency and General Emergency.

(b) Provided by shift personnel assigned other functions.

(c) Overall direction of facility response to be assumed by person(s) assigned Emergency Director/Recovery Manager position as primary responsibility when all centers are fully manned. Direction of minute-to-minute facility operations remains with the Technical Support Center Manager in the Technical Support Center.

(d) Additions within approximately 30 minutes.

Current Revision

ATTACHMENT 3-2

MINIMUM ON-SITE STAFFING REQUIREMENTS

Page 1 of 2

MAJOR FUNCTIONAL AREA	MAJOR TASKS	POSITION, TITLE, OR EXPERTISE	ON SHIFT	WITHIN [a] APPROX. 60 MINUTES
Plant operations and assessment of operational aspects		Senior Reactor Operators Reactor Operators Auxiliary Operators Shift Technical Advisor Operations Technical Assistant	2 4 5 1 Per UFSAR	--
Emergency direction and control [c]		Shift Manager	1	--
Notification/ communication	Notify licensee, Federal, State, and local personnel and maintain communications	Emergency Communicator	1	3
Support of operational accident assessment	Site emergency coordination	Manager	--	1
Radiological accident assessment	a. Off-site dose assessment	Senior Health Physics (HP) expertise	--	1
	b. Off-site surveys	Survey Team	--	4
	c. On-site surveys	Survey Team	--	2
	d. In-plant surveys	Survey Team	1	2
	e. Chemistry/radio-chemistry	Chemistry Technicians	1	1
Plant System Engineering, repair and corrective actions	Technical support	Rx Core Engineer	--	2
		Electrical Engineer	--	1
		Mechanical Engineer	--	1
	Repair and corrective actions	Mechanical maintenance	--	3
		Rad Waste Operator	1(b)	--
		Electrical maintenance	--	2
		Instrument and Control (I&C) Technician	--	2
Protective actions (in-plant) operational aspects	Radiation protection: a. Access control b. HP coverage for repair, corrective actions, search and rescue first-aid and firefighting c. Personnel monitoring d. Dosimetry	Survey Team	1	6
Firefighting		Fire Brigade personnel	per UFSAR	Local Support (d)
Rescue operations and first aid		First Aid Team personnel	2(e)	Local Support (d)
Site access control and personnel accountability	Security, communications, personnel accountability	Security personnel	per Security Plan	--

Current Revision

ATTACHMENT 3-2

MINIMUM ON-SITE STAFFING REQUIREMENTS

Page 2 of 2

(a) Additions required for Alert, Site Area Emergency and General Emergency.

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(d) Additions within approximately 30 minutes.

(e) Rescue operations and first aid is a collateral duty of the designated Fire Brigade (Fire & Safety Watch and Fire & Safety Responder)

CALVERT CLIFFS NUCLEAR POWER PLANT

Emergency Response Plan

REVISION 45

Effective Date: 12/20/12

Writer:	Angie Hooks (Angie Hooks)	12.5.12
	Printed Name and Signature	Date
Reviewer:	Michele Jones (Michele Jones)	12/7/12
	Printed Name and Signature	Date
Director –EP:	Michael Fick (Michael J. Fick)	12/7/12
	Printed Name and Signature	Date
PORC Mtg. #:	12-040	12-12-12
	(Signature indicate procedure was reviewed according to CNG-OP-1.01-1004)	Date
Approved:	Mark Flaherty (Mark J. Flaherty)	12/13/12
	Plant General Manager	Date

SUMMARY OF ALTERATIONS

Revision	Summary of Revision or Change
45	Throughout the plan – Changed onsite and offsite to on-site and off-site Section 2 – Updated Section 2 to align with Chapter 14 of the UFSAR Section 2 – Attachment 2-1 – Updated to align with the new EALs and Chapter 14 of the UFSAR Section 3 – Attachment 3-1 - Updated Management Organization charts Section 3- Attachment 3-2 – Incorporated change to on-shift staffing based on NRC Rulemaking Section 4 – III.A – Changed "classification" to "declaration" Section 7 – Added reference to On-shift Staffing Analysis Report Appendix D – Updated the Letters of Agreement Appendix E – Updated references per NUREG-0654/FEMA-REP-1 Rev 1 Addenda Appendix F – Added new appendix for on-shift staffing based on NRC Rulemaking

CALVERT CLIFFS NUCLEAR POWER PLANT
EMERGENCY RESPONSE PLAN

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CALVERT CLIFFS NUCLEAR POWER PLANT
EMERGENCY RESPONSE PLAN
INTRODUCTION

I. SITE DESCRIPTION

Calvert Cliffs Nuclear Power Plant is a fixed nuclear facility located in Lusby, Maryland. It is owned and operated by Constellation Energy Nuclear Group, LLC (CENG). The site consists of two units. Each unit includes a two loop pressurized water reactor. The reactors are designed for a gross electrical output of approximately 910 MWE. Cooling water is supplied by the Chesapeake Bay. The site contains an Independent Spent Fuel Storage Installation (ISFSI). The ISFSI is a life-of-plant storage facility for spent nuclear fuel assemblies discharged from Calvert Cliffs Units 1 and 2.

II. PURPOSE

The Emergency Preparedness program for the Calvert Cliffs Nuclear Power Plant consists of the Emergency Response Plan, off-site radiological emergency plans, and procedures for protection of plant personnel and the general public. This program helps provide dose savings for a spectrum of accidents. Some of these accidents could produce offsite dose in excess of the Environmental Protection Agency's Protective Action Guides. The Calvert Cliffs Emergency Response Plan and Maryland State Radiological Emergency Plan ensure the following are achieved:

A. Effective coordination of activities among response organizations.

B. Early warning and instructions for the population-at-risk.

C. Continuous assessment of on-site and off-site actual or potential consequences.

D. Effective emergency measures implementation.

E. Continuous emergency preparedness maintenance.

III. CONCEPT

A. Calvert Cliffs Nuclear Power Plant Emergency Response Plan has been developed to protect the general public and site personnel from possible consequences of emergency conditions. Combined with its implementation procedures and radiological emergency plans of the State and local agencies, the Emergency Response Plan allows for:

1. Early emergency condition recognition and classification.
2. Prompt notification of agencies via reliable communication channels and personnel to augment the normal operating personnel.
3. Prompt pre-planned protective actions for protecting the population-at-risk.

B. Calvert Cliffs Nuclear Power Plant is staffed with personnel trained to respond to emergencies. Additionally, written agreements are maintained with federal agencies, private contractors, and State and local agencies that are required by law to provide assistance to ensure resources can be readily available in as short a time as possible to cope with emergencies and to protect the population-at-risk. The agencies and resources provided are described in:

1. Calvert Cliffs Nuclear Power Plant Emergency Response Plan
2. Maryland Core Emergency Operations Plan – Fixed Nuclear Facilities (FNF) Appendix (Formerly Annex Q) to Radiological Incident Annex
3. Calvert County, Dorchester County, and St. Mary's County Radiological Emergency Plans and Standard Operating Procedures
4. Virginia, Radiological Emergency Response Plan
5. Delaware, Radiological Emergency Plan
6. District of Columbia, District Response Plan.

Maryland Core Emergency Operations Plan, describes State and local agency roles and interfaces for carrying out protective and parallel actions in a 10-mile-radius plume zone and 50-mile-radius ingestion zone from Calvert Cliffs Nuclear Power Plant. Attachment 1-1, Emergency Planning Zone, and Attachment 1-2, 10-Mile Emergency

III. **CONCEPT** (Continued)

Planning Zone Boundary, shows the geographical area within the plume and ingestion zones.

C. Documents used in developing the Emergency Response Plan and implementation procedures are listed in Section 7, Calvert Cliffs Nuclear Power Plant Emergency Response Plan References.

IV. EMERGENCY RESPONSE DOCUMENTS

A. Emergency Response Plan

The Emergency Response Plan ensures that emergency situations, including those involving radiation or radioactive material, are handled properly and efficiently. The Emergency Response Plan covers a spectrum of emergencies from minor localized emergencies to major emergencies involving off-site emergency response. The Emergency Response Plan provides for advance planning required to develop implementation methods. The Emergency Response Plan describes:

1. An emergency classification system used at the plant and emergency measures to be taken that are compatible with those used by Federal, State and County emergency response agencies and organizations.

2. Organizational control of emergencies by on-site, off-site, and augmentation organizations, including identification of normal and emergency operating organizations.

3. Identification of Federal, State, and County authorities and agencies and other outside organizations that are available for assistance, including plans and agreements pertaining to participating offsite organizations and agencies.

4. Requirements for ensuring a high degree of emergency preparedness and operational readiness such as through training, drills, reviews, and audits.

IV. EMERGENCY RESPONSE DOCUMENTS (Continued)

5. Information pertaining to on-site and off-site emergency facilities and equipment such as the Emergency Operations Facility, Technical Support Center, Operational Support Center, and Joint Information Center.

6. Figures and tables that display information and data such as organizations, maps, and population distributions.

B. Emergency Response Plan Implementation Procedures

Emergency Response Plan Implementation Procedures are used in conjunction with plant operating, chemistry, radiological control, security, and other technical procedures, as appropriate, to respond to emergency conditions and mitigate accident consequences. These documents are made available to those individuals, facilities, and organizations where immediate use of such instructions would be required during an emergency. These documents provide:

1. Specific criteria called Emergency Action Levels to assess, classify, upgrade and downgrade emergency situations should the severity increase or decrease.

2. Specific instructions for emergency organizations including responsibilities, facilities, equipment, emergency classification, and seeking emergency assistance used to implement the Emergency Response Plan and support implementation of the State Radiological Emergency Response Plan.

3. Specific authorities and responsibilities for emergency response personnel responsible for assessing emergency conditions and providing steps to be taken to mitigate the consequences of an accident.

4. Specific instructions to ensure prompt actions, notifications, and communications.

5. A record of completed actions.

6. A mechanism for maintaining emergency preparedness.

IV. EMERGENCY RESPONSE DOCUMENTS (Continued)

Emergency Response Plan Implementation Procedures are developed to respond to a variety of accident scenarios. These include minor events up to core melt situations with unplanned radioactive material release to the environment. While the emergency level(s) listed in the procedures is sufficient to cause their implementation, it is not necessary to implement all Emergency Response Plan Implementation Procedures under these conditions. Specific procedures may not be used if the actual emergency does not call for their use. For example: a security threat may not result in plant damage and an unplanned release; therefore, radiological monitoring procedures may not be used.

V. DEFINITIONS

A. **Emergency** - situation that may result in undue risk to public/site personnel health and safety, or significant damage to plant equipment. Emergency phases:

1. Occurrence - actual physical event with associated alarms, warning signals, and immediate protective actions provided within the facility.

2. Emergency - actions taken to protect lives and property. These actions are taken by on-site personnel at the time of event. Only equipment and resources immediately available are of value in this phase.

3. Recovery/Restoration - actions are planned, organized, and directed towards recovery from the results of the event. Actions include restoring equipment and condition to original, or acceptable intermediate state. Off-site equipment and personnel may be used. When situation control is established, restoration efforts are abandoned.

B. **Emergency Operations Center** (EOC) - designated State and local facilities designed and equipped for agency emergency operations coordination and control.

V. **DEFINITIONS** (Continued)

C. **Emergency Planning Zones** (EPZs)

1. Plume EPZ area, about 10 miles in radius from Calvert Cliffs Nuclear Power Plant centerpoint, for which plume exposure emergency planning considerations have been given to protect people and property.

2. Ingestion EPZ area, about 50 miles in radius from Calvert Cliffs Nuclear Power Plant centerpoint, for which ingestion exposure emergency planning consideration has been given to protect people and property.

D. **Exclusion Boundary** - That area of CCNPP site within 1150 meter radius of either containment as defined in Section 100.3(a) of 10 CFR 100.

E. **Ingestion Exposure Pathway** - Pathway where principal exposure would be from ingestion of contaminated water or food (e.g., milk, fresh vegetables). Potential exposure time could range from hours to months.

F. **Off-site** - area outside Calvert Cliffs property boundary.

G. **On-site** - area within Calvert Cliffs property boundary.

H. **Plume Exposure Pathway** - Pathway where principal exposure source is from:

1. Plume and deposited materials for whole body external gamma radiation exposure.

2. Passing radioactive plume for inhalation exposure. Exposure time could range from hours to days.

I. **Projected Dose** - calculated or estimated radiological dose that the affected population could receive if no protective actions are taken.

V. **DEFINITIONS** (Continued)

J. **Projected Dose Commitment** - calculated or estimated future dose commitment which could be received by population-at-risk individual(s) from inhalation or ingestion of radioactive material if no protective actions are taken.

K. **Property Boundary** - outer limits Calvert Cliffs Nuclear Power Plant property.

L. **Protected Area** - the site specific area which normally encompasses all controlled area within the security Protected Area fence (does not include ISFSI).

M. **Protective Actions** - measures taken to prevent or minimize a projected dose.

N. **Protective Action Guides** - projected total effective dose equivalent to individuals in the general population that warrants protective action as described in the Environmental Protection Agency's Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, October 1991 (EPA-400-R-92-001).

O. **Protective Action Recommendations** (PAR) - protective actions recommended by Calvert Cliffs Nuclear Power Plant to State and County decision makers to prevent or minimize a projected total effective dose equivalent to individuals in the general population.

P. **Radiation Incident** - unexpected event, occurrence, or circumstance involving radiation exposure or radioactive contamination requiring a report pursuant to 10CFR20.2203.

Q. **Radiologically Controlled Area (RCA) [Restricted Area]** – Any plant area(s) where radiation levels are equal to or greater than 2.0 mrem in one hour, **OR** where a person could receive a Total Effecting Dose Equivalent (TEDE) of 100 mrem in a year, **OR** removable radioactive contamination exists at levels detectable above background, **OR** any room which contains radioactive materials in excess of 10 times the quantity of material specified in 10 CFR 20, Appendix C.

R. **Recovery Actions** - actions taken after an emergency to restore the plant as nearly as possible to pre-emergency condition.

VI. ABBREVIATIONS & ACRONYMS

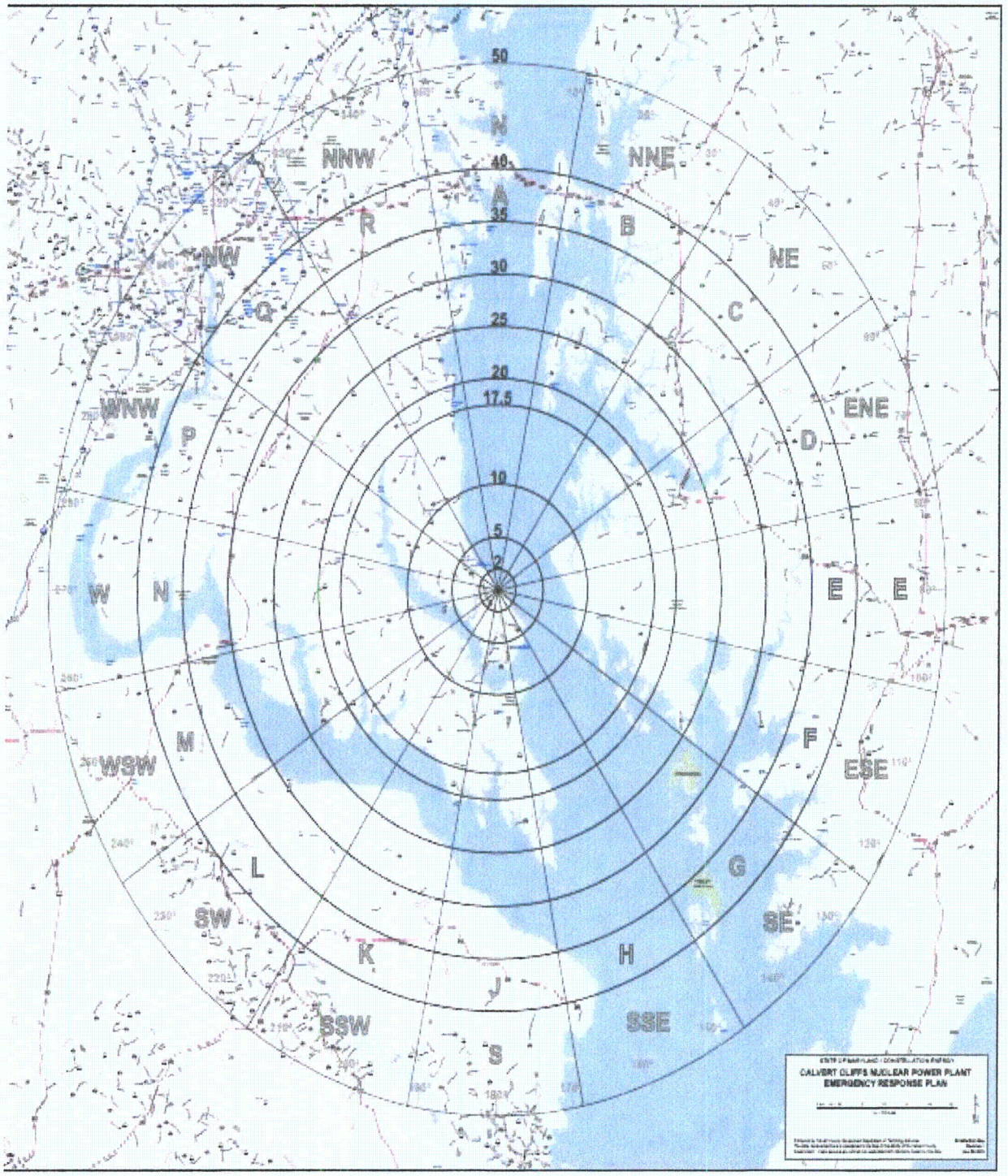
ALARA	As Low As Reasonably Achievable
ANSI	American National Standards Institute
AOP	Abnormal Operating Procedures
CCNPP	Calvert Cliffs Nuclear Power Plant
CENG	Constellation Energy Nuclear Group
CFR	Code of Federal Regulations
DHS	Department of Homeland Security
DOE	Department of Energy
DOT	Department of Transportation
EAL	Emergency Action Level
EDRM	Emergency Director/Recovery Manager
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOP	Emergency Operating Procedures
EPA	Environmental Protection Agency
EPU	Emergency Preparedness Unit
EPZ	Emergency Planning Zone
ERP	Emergency Response Plan
ERPIP	Emergency Response Plan Implementation Procedure
EWP	Emergency Work Permit
FEMA	Federal Emergency Management Agency
FRMAP	Federal Radiological Monitoring and Assessment Program
HEW	Health Education and Welfare
HP	Health Physics
HSM	Horizontal Storage Module
I & E	Inspection & Enforcement (Branch of NRC)
INPO	Institute of Nuclear Power Operations

VI. ABBREVIATIONS & ACRONYMS (Continued)

ISFSI	Independent Spent Fuel Storage Installation
JIC	Joint Information Center
LNG	Liquefied Natural Gas
LOCA	Loss of Coolant Accident
MDE	Maryland Department of the Environment
MEMA	Maryland Emergency Management Agency
NFPA	National Fire Prevention Association
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation (Branch of NRC)
NSRB	Nuclear Safety Review Board
OI	Operating Instructions
OP	Operating Procedures
OSC	Operational Support Center
PAG	Protective Action Guidelines
PAR	Protective Action Recommendation
PAXNAS	Patuxent River Naval Air Station
PORC	Plant Operation Review Committee
PPRP	Power Plant Research Program
RAD	Radiological Assessment Director
REAC/TS	Radiation Emergency Assistance Center/Training Site
RMS	Radiation Monitoring System
RPD	Radiation Protection Director
SCBA	Self-Contained Breathing Apparatus
TSC	Technical Support Center
U-1	Unit 1
U-2	Unit 2
USCG	United States Coast Guard
UFSAR	Updated Final Safety Analysis Report

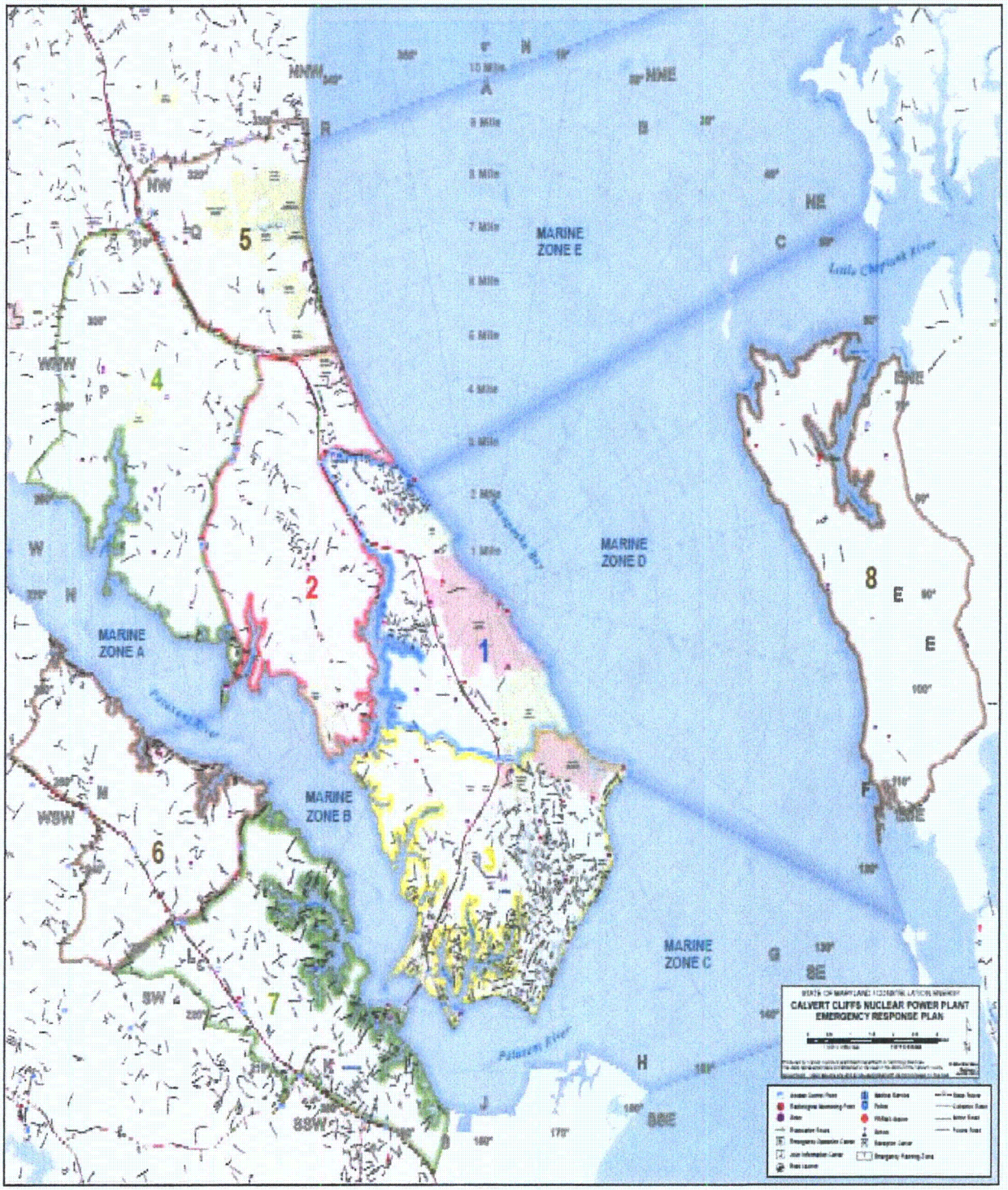
ATTACHMENT 1-1

EMERGENCY PLANNING ZONE



ATTACHMENT 1-2

10-MILE EMERGENCY PLANNING ZONE BOUNDARY



CALVERT CLIFFS NUCLEAR POWER PLANT

EMERGENCY RESPONSE PLAN

EMERGENCY CONDITIONS

I. CLASSIFICATION SYSTEM

Emergency classifications are:

1. Unusual Event
2. Alert
3. Site Area Emergency
4. General Emergency

Each classification requires immediate action to classify the accident, notify off-site agencies and support groups, and mobilize emergency organizations as required to cope with the emergency. Accidents are classified and reclassified (more and less severe) as situations warrant.

Unusual Event and Alert classifications provide early notification of minor events and ensure timely response for more severe emergencies. Assembly of Calvert Cliffs Emergency Response Organization is initiated for an Alert classification. Full mobilization of emergency personnel and organizations is initiated for Site Area and General Emergency.

Each emergency classification is characterized by Emergency Action Levels consisting of specific plant parameters or conditions. The Emergency Action Level scheme is consistent with R.G. 1.101, Emergency Planning and Preparedness for Nuclear Power Reactors, Revision 4, July, 2003, as modified by CCNPP, Inc., submittals to the NRC. Satisfying Emergency Action Level criteria other than a General Emergency does not necessitate immediate protective action implementation; it ensures time is available to confirm in-plant readings by implementing assessment measures on-site and off-site.

Classification philosophy is to declare the highest class emergency for Emergency Action Levels met or exceeded. For example, a Site Area Emergency would be declared immediately, if the Emergency Action Level is met or exceeded, lower classes will not be declared first.

II. UNUSUAL EVENT

A. Description

Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

B. Emergency Action Levels

Initiating conditions established as Emergency Action Levels for determining an Unusual Event classification are listed in the Emergency Response Plan Implementation Procedures. An Unusual Event is declared any time that respective Emergency Action Levels are met or exceeded. All minor events are analyzed in light of their potential for degrading the level of plant safety.

III. ALERT

A. Description

Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of hostile action. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

Alert classification ensures personnel are available to:

1. Respond to worsening situations.
2. Perform confirmatory radiation monitoring.
3. Provide off-site authorities with information.

B. Emergency Action Levels

Initiating conditions established as Emergency Action Levels for determining an Alert emergency classification are listed in the Emergency Response Plan Implementation Procedures.

III. **ALERT** (Continued)

B. Emergency Action Levels (Continued)

An Alert is declared any time that respective Emergency Action Levels are met or exceeded.

IV. **SITE AREA EMERGENCY**

A. Description

Events are in process or have occurred which involve an actual or likely major failures of plant functions needed for protection of the public or hostile action that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary.

Site Area Emergency classification ensures:

1. Response centers are manned.
2. Survey teams are dispatched.
3. Personnel required for near site evacuation are at their duty stations.
4. The public is updated through off-site authorities.

B. Emergency Action Levels

Initiating conditions established as Emergency Action Levels for determining Site Area Emergency classification are listed in the Emergency Response Plan Implementation Procedures.

A Site Area Emergency is declared any time that respective Emergency Action Levels are met or exceeded.

V. GENERAL EMERGENCY

A. Description

Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or hostile action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.

General Emergency classification ensures:

1. Initiation of predetermined warning and protective actions for the public.
2. Continuous plant information and off-site measurement assessment.
3. Initiation of additional measures as indicated by actual or potential releases.
4. Consultation with off-site authorities.
5. Public updates through off-site authorities.

B. Emergency Action Levels

Initiating conditions established as Emergency Action Levels for determining General Emergency are listed in Emergency Response Plan Implementation Procedures. A General Emergency is declared any time that a respective Emergency Action Level is met or exceeded.

VI. SPECTRUM OF POSTULATED ACCIDENTS

The Emergency Response Plan considers emergency consequences ranging from minor emergencies involving small portions of the plant to extremely unlikely events having potential for radioactivity release affecting the general public. Emergencies not unique to nuclear power plants are considered. Provisions must be made for dealing with these emergencies as they could become complicated by radiological considerations.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

Accidents hypothesized for Calvert Cliffs Nuclear Power Plant are encompassed by the emergency classifications.

"On-site," for this section only, is that area of Calvert Cliffs Nuclear Power Plant site within an 1150 meter radius of either Containment; defined in UFSAR Section 1.2.1 (Reference 55) as the exclusion area.

A. Consequences of Postulated Accidents

1. Radioactive Contamination

Personnel

Radiation safety procedures and controls are established to ensure radioactive contamination levels within plant radiologically controlled areas are maintained as low as practical and contamination is not spread beyond radiologically controlled area boundaries.

To preclude contamination spread, personnel leaving radiologically controlled areas must remove anti-contamination clothing and be monitored for radioactive contamination. Radiological control and monitoring systems are designed to prevent people from leaving site with detectable radioactive contamination.

During emergencies personnel monitoring takes place at controlled area exits. Back-up monitoring may be performed at points such as the Nuclear Security Facility and/or perimeter control points.

2. Airborne Radioactivity

Incidents involving potential airborne radioactivity range from small incidents affecting localized in-plant areas (such as a laboratory sample spill of gaseous or volatile radioactivity), to major radiological incidents resulting in airborne radioactive material releases greater than Technical Specification limits. The latter may affect the general public.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

2. Airborne Radioactivity (Continued)

Off-site consequence expected from a small release outside Containment (laboratory spills; continuous uncontrolled leakage from pump seals or valve stems; releases due to credible size piping failures) is within the Offsite Dose Calculation Manual limits. In-plant consequences of such incidents may involve implementation of radiological controls to protect personnel from airborne and surface radioactive contamination. Radiation safety procedures are followed to ensure contamination does not spread to other plant areas. When warranted, contamination control measures are implemented for drinking water and food.

The Radiation Monitoring System, a comprehensive process and area radiation monitoring system, detects Containment structure and Auxiliary Building high airborne activity releases and alarms in the Control Room. Shift personnel investigate high radiation alarms and take action to control the radioactivity source and its environmental release pathway.

3. Radiation Monitoring (External Radiation)

Areas where external radiation hazards can adversely affect on-site or off-site individuals are monitored by Radiation Monitoring System area monitors or by portable detection equipment through routine plant surveillance.

Unexplained radiation level indications initiate investigations to determine the radiation source. Established radiation safety practices protect in-plant personnel from high radiation fields.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

4. Radioactive Waste Containment or Transportation Disposal Incidents

a. Solid Radioactive Wastes and Materials

Solid radioactive wastes and materials are packaged and shipped according to Department of Transportation regulations. Shipments are classified:

1) Low specific activity (LSA)/surface contaminated objects (SCO) material.

2) Type A quantities (e.g., typical dry active waste (DAW), resins).

3) Type B items such as higher radioactivity concentrations on filters and higher activity dewatered ion exchange resins.

4) Highway Route Controlled (e.g., in-core instrumentation detectors).

Solid waste is packaged and stored inside controlled areas which are designed to handle radioactive material.

The most serious solid radioactive waste handling incident on-site is a Spent Resin Metering Tank rupture. This tank is located in a shielded room in the solid waste handling area. Resin released from a tank rupture will not affect on-site personnel except during clean-up operations. Radiation safety procedures would be used to control radiation exposures during clean-up phases.

No off-site consequences will result from this or other in-plant solid radioactive waste incidents.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

a. Solid Radioactive Wastes and Materials (Continued)

Radioactive waste and material is packaged in containers that meet Department of Transportation Requirements (49 CFR), and if required, the packages are approved by the NRC (10 CFR 71). The containers minimize consequences of off-site vehicle accidents involving solid radioactive waste.

b. Liquid Radioactive Wastes

Liquid radioactive waste handling, processing, and storage components are located within the Auxiliary Building. Liquids spilled from leaks in Waste Processing System components are collected in Auxiliary Building drains and are routed to the Miscellaneous Waste Processing System receiver tank.

The most serious liquid waste incident having environmental consequences is inadvertent Reactor Coolant Liquid Waste Receiver Tank discharge. Waste Processing System design prevents this by automatic closure of redundant isolation valves. Radiation monitors upstream of the discharge valves monitor for radioactivity in excess of allowable limits. Monitor alarms actuate isolation valves closure to stop waste discharge to the environment.

The liquid waste discharge radiation monitor setpoint is established so that the concentration of radioactive material release to unrestricted areas in liquid effluents does not exceed the limits of the Offsite Dose Calculation Manual. The setpoint is established as described in the Offsite Dose Calculation Manual. Radioactivity released from this incident before isolation valves closure or from releases just below the monitor setpoint will not result in significant environmental consequences.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

b. Liquid Radioactive Wastes (Continued)

No radiological consequences affecting on-site personnel from inadvertent liquid waste tank discharge are expected. Other in-plant liquid radioactive waste incidents (pipe leaks, spills) are detected by the Radiation Monitoring System or by routine plant surveillance. These incidents would create local contamination problems. Radiation Safety Procedures would control radiation exposures during clean-up and repair.

c. Gaseous Radioactive Waste

Gaseous radioactive waste collection, handling, and storage components are located within the Auxiliary Building. Waste Gas System leakage enters the Auxiliary Building ventilation system past a gaseous radiation monitor and is discharged to the plant vent. This plant vent also has a radiation monitor. Any significant Waste Gas System leakage is detectable by the Radiation Monitoring System.

The most serious gaseous waste incident affecting the offsite environment is unexpected, uncontrolled, release of radioactive xenon and krypton fission gases release from a Waste Gas decay tank rupture.

Reference 55, UFSAR Section 14.22.3, specifies that using conservative assumptions (quantity of gas and meteorology) whole body immersion dose at the nearest exclusion zone boundary is 0.182 rem. This incident does not represent a severe public health and safety hazard.

On-site personnel are protected from radiological consequences of Waste Gas decay tank rupture or small Waste Gas system leaks by the Auxiliary Building design (including ventilation system) and by plant radiation safety practices and procedures.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

5. Fuel Handling Incidents

a. Inside Containment Building

Fuel Assembly damage from mishandling is minimized by equipment design, detailed operating procedures, and operator training. Should a fuel assembly be dropped or otherwise damaged during handling, a Containment radioactive release could occur. The air in the Containment area is monitored. Monitor indication and alarms for increased activity level cause the affected area to be evacuated.

Release of activity through the containment purge system would be prevented by automatic closure of the containment isolation dampers. With the exception of the personnel airlock doors, the equipment hatch opening, and penetration flow paths providing direct access from the containment to the environment unisolated but under administrative control, automatic containment closure capability is required during movement of irradiated fuel within the containment. Both doors of the containment personnel air lock may be open during fuel movement if at least one door is operable and capable of being closed by a designated individual stationed immediately outside of the airlock. The equipment hatch may be open during fuel movement if the containment outage door is operable and capable of being closed within 30 minutes by a designated individual stationed near the door. Penetration flow paths providing direct access from the containment atmosphere to the environment may be unisolated under administrative controls. These controls minimize the potential for release of activity to the environment during the time it takes to evacuate the containment structure.

Spent fuel handling is done under water. A significant portion of radioactivity released from ruptured fuel rods would be retained in the refueling water rather than being released as airborne radioactivity. Refueling machine safety features and off-site consequences of a postulated incident involving rupture of 176 fuel rods in one fuel assembly (contained within Containment structures) due to dropping are presented in Reference 55, Section 14.18.3.1.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

5.a Fuel Handling Incidents (Continued)

Analysis indicates that because both doors of the containment personnel air lock, equipment hatch opening, and penetration flow paths providing direct access from the containment to the environment may be open, all activity released is assumed to be unfiltered. The containment air volume is assumed to be released over a two hour time period. The 0-2 hour dose at the exclusion boundary will not exceed 0.6958 Rem TEDE is presented in Reference 55, Table 14.18-2. Although the failure of 176 fuel rods upon dropping a fuel assembly has been assumed, it is expected that no fuel rods would fail.

b. Outside Containment Building

1) **AUXILIARY BUILDING** - In the spent fuel pool the fuel assemblies are stored within the racks at the bottom of the spent fuel pool. Reconstitution or inspection of a fuel assembly occurs in the rack with the spent fuel assemblies placed on rack spacers and with their upper end fittings removed.. In such a configuration, the structural integrity of the fuel assemblies is reduced and the fuel rods protrude above the racks. Thus fuel damage could occur if a heavy object is dropped on an assembly seated on a rack spacer with its upper end fitting removed. In this scenario, all 176 fuel rods in an assembly may be damaged as in the inside containment scenario; however, due to the reduced water coverage over the damaged assembly, more of the iodine is released from the pool. The spent fuel pool ventilation system draws air across the spent fuel pool area and discharges it to the environment through the plant vent. The SFPEVS filtration system is not credited. Radioactivity released from the rupture of 176 fuel rods of a damaged fuel assembly outside Containment is calculated to give 0-2 hour doses to individuals located at the exclusion boundary of 1.1136 Rem TEDE as presented in Reference 55, Table 14.18-2.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

1) **AUXILIARY BUILDING** (Continued)

Reference 55, Section 14.18, discusses fuel handling incidents within the Auxiliary Building. Plant safety analysis uses conservative assumptions for activity released from damaged fuel rods, the decontamination achieved by spent fuel water, and the atmospheric dispersion factor. The most severe incident analyzed is the release of activity from a complete fuel assembly (176 damaged fuel rods). This conservative approach results in a calculated 0-2 hour dose at the exclusion boundary of 1.1136 Rem TEDE.

On-site consequences of postulated fuel handling incidents inside or outside Containment require immediate evacuation of affected plant areas. The incident clean-up phase requires decontamination of surfaces and fuel pool water. This is accomplished according to established plant radiation safety practices.

2) **DRY FUEL STORAGE** - Radioactivity release from fuel assembly damage associated with the Independent Spent Fuel Storage Installation is minimized by design factors described in Reference 50, Updated Safety Analysis Report for the Independent Spent Fuel Storage Installation.

The Independent Spent Fuel Storage Installation system consists of a Dry Shielded Canister, containing up to 32 fuel assemblies. The Dry Shielded Canister is transported inside a special shielded Transfer Cask to a concrete Horizontal Storage Module. The Horizontal Storage Module is located at the Independent Spent Fuel Storage Installation protected area. During fuel loading the Transfer Cask and Dry Shielded Canister are placed into the Spent Fuel Pool. Fuel damage during loading would be consistent with Section VI.A.5.b.1 of the Emergency Response Plan. After the fuel is loaded a shield plug is installed and the Transfer Cask assembly is moved to the Cask Washdown Pit.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

2) **DRY FUEL STORAGE** (Continued)

There it is dewatered, backfilled with helium and double seal welded. Once seal welded, there are no credible accidents which will breach a Dry Shielded Canister to allow a possible leakage path. The Transfer Cask is placed on a trailer or on the self-propelled horizontal cask transporter and transported to the Independent Spent Fuel Storage Installation to be positioned in a Horizontal Storage Module.

The Horizontal Storage Module has passive cooling components and is surrounded by a protected area. The Independent Spent Fuel Storage Installation protected area is monitored by dosimetry around the fence. During fuel transfer operations from the Spent Fuel Pool to the Horizontal Storage Module, the maximum expected fuel assembly temperature will be 732°F. Maximum allowable is 1,058°F. During storage in the Horizontal Storage Module, maximum fuel temperature will be 618°F or less. These temperature maximums ensure no fuel cladding damage. Reference 50, Section 8, describes the accident analysis for all conditions. No offsite doses will occur under any credible accident with the exception of Dry Shielded Canister leakage. Reference 50, SAR for ISFSI, Section 8.2.8, assumes that for an accident involving a NUHOMS-24P Dry Shielded Canister all fuel rods are ruptured in all 24 fuel assemblies, with concurrent Dry Shielded Canister leakage. Reference 50, Section 12.8.2.8, assumes that for an accident involving a NUHOMS-32P Dry Shielded all fuel rods are ruptured in all 32 fuel assemblies with concurrent Dry Shielded Canister leakage.

A total and instantaneous leak of a single NUHOMS-32P DSC is postulated resulting in a release fraction of 9.13 % and an off-site total body dose of 0.65 mrem and an off-site skin dose of 109.5 mrem.

6. Waterborne Radioactive Release Incidents

In-plant incidents other than liquid radioactive waste could result in radioactive material release to the Chesapeake Bay. The most serious incident of this type is an uncontrolled water loss from a 420,000 gallon Refueling Water Tank. Unit 2 Refueling Water Tank leakage drains directly to the shore through storm drains. Undiluted leakage could douse an individual standing in the outfall.

Assuming a maximum 0.1 uCi/cm^3 activity in the Refueling Water Tank and a 1,000 gal/min., leak rate, radioactive concentration in the water discharge would be 0.1 uCi/cm^3. An individual deluged directly in this concentration for one hour will receive a skin dose of <130 mrem. It is concluded this release incident would require exclusion of swimmers and boat operators from the area of the discharge. Operators are alerted to Refueling Water Tank leakage by level alarms on the tank.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

7. Fires

Fire resistant materials are used in plant design and construction to the fullest extent practicable. An extensive fire detection and protection system is provided (described in Reference 55, Section 1.2.9.8) to minimize the extent of in-plant fires.

In-plant fires are combated by Operations personnel with assistance as necessary from others. Fires occurring within radiologically controlled areas involve immediate efforts to prevent airborne contamination spread. Other than the potential for radiation contamination or exposure, fire consequences at Calvert Cliffs Nuclear Power Plant are the same as any power plant (e.g., smoke, heat, equipment damage). Immediate and follow-up measures are taken to protect firefighting personnel according to Reference 37. These measures include use of protective clothing, respiratory protective devices, and engineering controls (e.g., ventilation control).

Radiation Monitoring System and in-plant portable radiation monitors alert plant staff to the presence of airborne radioactivity that could present a hazard to firefighting personnel or personnel outside the site boundary. Indication of high activity causes dispatch of survey teams in areas downwind of the fire. Protective measures are implemented based on monitoring results.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

8. Explosions

a. Outside Radiologically Controlled Areas

Explosion potential outside radiologically controlled areas is associated with equipment containing volatile liquids or gases. In-plant consequences of explosions outside radiologically controlled areas could be severe regarding equipment damage and personnel injury. It is unlikely there would be off-site consequences for such incidents because explosions are generally localized. Seismic and missile protection design criteria used for controlled areas minimizes the risk to systems capable of producing radioactive releases.

b. Inside Radiologically Controlled Areas

Explosion potential inside radiologically controlled areas is primarily associated with hydrogen gas for Reactor Coolant System chemistry control. Hydrogen gas is present in chemical and volume control equipment vapor spaces and in liquid and gaseous Radioactive Waste Processing systems.

Explosion possibility is minimized by design by preventing accumulation of explosive air-hydrogen mixtures and by continuous monitoring of vessel gas composition. The most severe off-site consequences are those associated with waste gas decay tank rupture.

9. Toxic Atmosphere Release Incident

No toxic gases (i.e., chlorine gas) are stored or used at CCNPP.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

10. Major Uncontrolled Steam Release

Uncontrolled steam release incidents are analyzed for core safety analysis in Reference 55, Section 14.14. The analysis concludes that little or no core damage will occur (conservative assumptions used). A major steam line rupture with no previous primary to secondary leakage will not have on-site or off-site radiological consequences. The most severe Steam Line Break is the outside containment 2.0 ft^2 break with a pre-trip power excursion. This break size is limiting since it results in the most adverse conditions for DNBR (Departure from Nucleate Boiling Ratio) and PLHR (Peak Linear Heat Rate); however, neither limit is exceeded during this event. The resultant radioactivity release to atmosphere assuming 0.8% failed fuel results in doses to individuals at the site boundary of 0.2180 Rem TEDE. (Reference 55, Section 14.14). Major steam line breaks inside Containment will produce essentially no off-site consequences. Steam and associated radioactivity will be retained within the structure.

On-site personnel are protected from radiological consequences by following plant radiation safety procedures.

11. Personnel Injury

Personnel injury involving radioactive contamination is initially treated in the controlled area First Aid Room located in the Auxiliary Building. Prompt attention is given to life endangering injuries in preference to decontamination. All reasonable efforts are made to decontaminate injuries to no detectable activity above background. If decontamination is impossible, the patient is covered (unless contraindicated, i.e., causing injury insult), to avoid contamination spread until medical aid is obtained or the patient is hospitalized.

VI. SPECTRUM OF POSTULATED ACCIDENTS (Continued)

11. Personnel Injury (Continued)

Medical treatment beyond first aid, (physician services or hospitalization) are determined by the extent and nature of injuries in consultation with practicing physicians.

12. Natural Disasters

Natural phenomena are discussed in detail in Reference 55, Section 2.3 and 2.6.

B. Hypothetical Accident Classification

Events hypothesized in Calvert Cliffs Nuclear Power Plant Updated Final Safety Analysis Report, Reference 55, Chapter 14, fall into one of the four emergency classifications. Attachment 2-1, UFSAR Chapter 14 Safety Analysis: Accident/Incident Classification lists these and other events and their likely emergency classification. Some accidents may not result in as high a class as noted in Attachment 2-1. Equipment assumed to be operable in the Chapter 14 analysis are assumed to operate for this evaluation.

The Updated Safety Analysis Report for the Independent Spent Fuel Storage Installation (Reference 50) lists hypothesized events associated with ISFSI fuel handling events. No non-security related event will result in an emergency classification higher than Unusual Event.

ATTACHMENT 2-1
UPDATED FINAL SAFETY ANALYSIS REPORT (UFSAR) CHAPTER 14 SAFETY ANALYSIS: ACCIDENT/INCIDENT CLASSIFICATION

Page 1 of 5

UFSAR CHAPTER 14 BASED ACCIDENT	OFF-SITE DOSE CONSEQUENCES (0-2 Hours)	ADDRESSED BY	PROBABLE EAL INITIATING CONDITION REACHED	COMMENT(S)
ANTICIPATED OPERATIONAL OCCURRENCES				
14.2 CONTROL ELEMENT WITHDRAWAL EVENT	Negligible	10 CFR 50.72	N/A	Unplanned reactor trip
14.3 BORON DILUTION EVENT	None Shown	System Malfunction	SU3.1 Inadvertent Criticality	The operator has sufficient time to mitigate the incident prior to going critical.
14.4 EXCESS LOAD EVENT	None Shown	Fission Barrier	FA1.1 Any loss or potential loss of fuel cladding or RCS	Declaration is based on uncontrolled RCS cooldown and exceeding P-T limit.
14.5 LOSS OF LOAD EVENT	Negligible	System Malfunction	SA3.1 Failure of reactor protection system instrumentation to complete or initiate an automatic reactor scram once a Reactor Protection System setpoint has been exceeded and manual scram was successful	At worst case, failure of automatic trip requires manual trip based on EOP-0.
14.6 LOSS OF FEEDWATER EVENT	Negligible	10 CFR 50.72	N/A	Unplanned reactor trip.
14.7 EXCESS FEEDWATER HEAT REMOVAL EVENT	Negligible	10 CFR 50.72	N/A	Unplanned reactor trip.
14.8 RCS DEPRESSURIZATION	Negligible	Fission Barrier	FA1.1 Any loss or potential loss of fuel cladding or RCS	Small break LOCA which is addressed by Coolant Leakage EALs for loss or potential loss of RCS barrier.
14.9 LOSS OF COOLANT FLOW EVENT	Negligible	System Malfunction	SU1.1 Loss of all offsite power to vital buses for greater than 15 minutes	This incident stems from loss of off-site power.
14.10 LOSS OF NON-EMERGENCY AC POWER	0.04 rem thyroid 0.0006 rem whole body	System Malfunction	SU1.1 Loss of all offsite power to vital buses for greater than 15 minutes	

ATTACHMENT 2-1

UPDATED FINAL SAFETY ANALYSIS REPORT (UFSAR) CHAPTER 14
SAFETY ANALYSIS: ACCIDENT/INCIDENT CLASSIFICATION

Page 2 of 5

UFSAR CHAPTER 14 BASED ACCIDENT	OFF-SITE DOSE CONSEQUENCES (0-2 Hours)	ADDRESSED BY	PROBABLE EAL INITIATING CONDITION REACHED	COMMENT(S)
14.11 CONTROL ELEMENT ASSEMBLY DROP EVENT	Negligible	10 CFR 50.72	N/A	Unplanned reactor trip.
14.12 ASYMMETRIC STEAM GENERATOR EVENT	Negligible	10 CFR 50.72	N/A	Unplanned reactor trip.
14.25 EXCESSIVE CHARGING EVENT	None Shown	N/A	N/A	This can be mitigated by operator. There is no effect on power level.
POSTULATED ACCIDENTS				
14.13 CONTROL ELEMENT ASSEMBLY EJECTION EVENT	Secondary Pathway 0.3280 Rem TEDE Containment Pathway 0.8513 Rem TEDE	Abnormal Radiation Levels Fission Barrier	RG1.1 Offsite dose resulting from an actual or imminent release of gaseous radioactivity exceeds 1000mR TEDE or 5000mR thyroid CDE for the actual projection duration of the release using actual meteorology FS1.1 Loss or potential loss of any two barriers	Declaration is based on the breaching of the RCS pressure boundary and escalation to General Emergency based on prolonged release.
14.14 STEAM LINE BREAK EVENT	0.2180 Rem TEDE	Fission Barrier Abnormal Radiation Levels	FA1.1 Any loss or potential loss of fuel cladding or RCS RG1.1 Offsite dose resulting from an actual or imminent release of gaseous radioactivity exceeds 1000mR TEDE or 5000mR thyroid CDE for the actual projection duration of the release using actual meteorology	Declaration is based on uncontrolled RCS cooldown and exceeding P-T limit.

ATTACHMENT 2-1
UPDATED FINAL SAFETY ANALYSIS REPORT (UFSAR) CHAPTER 14
SAFETY ANALYSIS: ACCIDENT/INCIDENT CLASSIFICATION
Page 3 of 5

UFSAR CHAPTER 14 BASED ACCIDENT	OFF-SITE DOSE CONSEQUENCES (0-2 Hours)	ADDRESSED BY	PROBABLE EAL INITIATING CONDITION REACHED	COMMENT(S)
14.15 STEAM GENERATOR TUBE RUPTURE EVENT	0.4910 Rem TEDE	Fission Barrier Abnormal Radiation Levels	FA1.1 Any loss or potential loss of fuel cladding or RCS FS1.1 Loss or potential loss of any two barriers RG1.1 Offsite dose resulting from an actual or imminent release of gaseous radioactivity exceeds 1000mR TEDE or 5000mR thyroid CDE for the actual projection duration of the release using actual meteorology	EALs address key concerns of SG Tube Rupture and its results. From EOP-6 and EAL basis, the most likely declaration is Alert based on potential loss of RCS barrier. Escalation to General Emergency is based on prolonged release.
14.16 SEIZED ROTOR EVENT	0.041 Rem TEDE (8 hr release)	System Malfunction Abnormal Radiation Levels	SU7.1 Fuel Cladding Degradation RG1.1 Offsite dose resulting from an actual or imminent release of gaseous radioactivity exceeds 1000mR TEDE or 5000mR thyroid CDE for the actual projection duration of the release using actual meteorology	Effect of seized rotor is damage to 5% fuel pins.
14.17 LOSS OF COOLANT ACCIDENT	Expected fuel clad rupture	Fission Barrier	FS1.1 Loss or potential loss of any two barriers	Loss/Potential Loss of Fuel Clad Barrier and RCS Barrier (Temperature)
14.26 FEEDLINE BREAK EVENT	0.4 Rem TEDE	Other Hazards Fission Barrier Abnormal Radiation Levels	HA6.1 Emergency Director judgment FS1.1 Loss or potential loss of any two barriers RS1.2Offsite dose resulting from an actual or imminent release of gaseous radioactivity exceeds 100mR TEDE or 500 mR thyroid CDE for the actual or projected duration of the release	

ATTACHMENT 2-1

UPDATED FINAL SAFETY ANALYSIS REPORT (UFSAR) CHAPTER 14

SAFETY ANALYSIS: ACCIDENT/INCIDENT CLASSIFICATION

Page 4 of 5

USFAR CHAPTER 14 BASED ACCIDENT	OFF-SITE DOSE CONSEQUENCES (0-2 Hours)	ADDRESSED BY	PROBABLE EAL INITIATING CONDITION REACHED	COMMENT(S)
POSTULATED OCCURRENCES				
14.18 FUEL HANDLING INCIDENT	Containment 0.6958 Rem TEDE SFP 1.1136 Rem TEDE	Abnormal Radiation Levels	RU2.2 Unexpected rise in plant radiation RS1.2 Offsite dose resulting from an actual or imminent release of gaseous radioactivity exceeds 100mR TEDE or 500 mR thyroid CDE for the actual or projected duration of the release	
14.19 TURBINE GENERATOR OVERSPEED INCIDENT	None Shown	Other Hazards	HU1.4 Natural and destructive phenomena affecting the Protected Area (turbine) HA1.4 Natural and destructive phenomena affecting the Vital Area (turbine)	HU1.4 addresses turbine failure with observable casing damage. If missiles generated affect safe shutdown, escalation to Alert is via HA1.4, Destructive Phenomena Affecting Safe Shutdown.
14.20 CONTAINMENT PRESSURE ANALYSIS	None Shown	Fission Barrier	FU1.1 Any loss or any potential loss of containment FS1.1 Loss or potential loss of any two barriers	Based UFSAR Analysis of containment response to DBA, containment operating within design limits results in a Site Area Emergency as highest emergency class.
14.22 WASTE GAS INCIDENT	0.182 rem whole body	Abnormal Radiation Levels	RS1.2 Offsite dose resulting from an actual or imminent release of gaseous radioactivity exceeds 100mR TEDE or 500 mR thyroid CDE for the actual or projected duration of the release	

ATTACHMENT 2-1

UPDATED FINAL SAFETY ANALYSIS REPORT (UFSAR) CHAPTER 14

SAFETY ANALYSIS: ACCIDENT/INCIDENT CLASSIFICATION

Page 5 of 5

USFAR CHAPTER 14 BASED ACCIDENT	OFF-SITE DOSE CONSEQUENCES (0-2 Hours)	ADDRESSED BY	PROBABLE EAL INITIATING CONDITION REACHED	COMMENT(S)
14.23 WASTE PROCESSING SYSTEM INCIDENT	0731 rem thyroid 0.032 rem whole body	Abnormal Radiation Levels	RU1.1 Any unplanned release of gaseous or liquid radioactivity to the environment that exceeds two times the radiological effluent technical specifications for 60 minutes longer	If a sustained dose does not occur, this incident is reportable under 10 CFR 50.72. Emergency declaration is based on predicted maximum dose due to this incident exceeding the threshold of 0.1 mrem whole body in one hour.
14.24 MAXIMUM HYPOTHETICAL ACCIDENT	1.8531 Rem TEDE	Fission Barrier	FG1.1 Loss of any two barriers with a loss or potential loss of a third	

CALVERT CLIFFS NUCLEAR POWER PLANT
EMERGENCY RESPONSE PLAN
ORGANIZATION

I. OPERATING ORGANIZATION

The first line of control of any emergency at Calvert Cliffs Nuclear Power Plant lies with the normal shift personnel on duty at such time as an emergency situation should occur. Assistance is available within one hour from other plant staff and operating personnel. Additional assistance is available from Constellation Energy, Federal, and State agencies and contractor personnel. Corporate Headquarters supports the ERO in the following functional area: BGE Customer Care. Customer Care provides a fully staffed call in center 24/7 and is able to field rumor control issues while providing feedback to the Joint Information Center representatives. Additionally, Headquarters aligned personnel assigned to CCNPP are considered available for assignment to the ERO if their duties do not include extended travel and they have the approval of their corporate sponsor. Attachment 3-1, Management Organization, provides an organizational chart of supporting organizations. Emergency positions are staffed so relations to responsibilities and duties of the normal staff complement are essentially unchanged. Operating Organization personnel resources provide the means for continuous (24-hour) plant operations, including manning of communications links.

II. STANDING REVIEW COMMITTEES

Two committees are established in the Updated Final Safety Analysis Report, Section 12.5, Review and Audit of Operations, to ensure adequate review of matters pertaining to nuclear plant safety and integrity. The Plant Operations Review Committee functions in an advisory capacity to the Plant General Manager-Calvert Cliffs Nuclear Power Plant. The Nuclear Safety Review Board is an independent review organization functioning in an advisory capacity to the Chief Nuclear Officer. Membership and specific responsibilities of the Plant Operations Review Committee and Nuclear Safety Review Board are detailed in CEG Fleet procedures.

III. EMERGENCY ORGANIZATION

Emergency Preparedness Unit maintains a list of personnel assigned as primary and alternates to emergency positions. Emergency titles apply to interim, alternate, and primary candidates alike. The first person assuming an emergency position retains title, authority, and responsibilities until relieved. Attachment 3-2, Minimum On-Site Staffing Requirements, lists the minimum onsite staffing. The following attachments show Emergency Organization relationships:

- Attachment 3-3, Emergency Organizations
- Attachment 3-4, Recovery Organizations
- Attachment 3-5, Center Interface: Unusual Event
- Attachment 3-6, Center Interface: Alert, Site Area and General Emergency

A. Emergency Director/Recovery Manager

The Emergency Director/Recovery Manager has the authority and responsibility to manage and direct the emergency response and serves as the main contact at the site. In addition to directing staff and operations personnel, he or she can call on additional Company and outside agencies assistance as needed. Additional staff will be called upon to support overall operations of the Emergency Operations Facility and may include additional personnel to support administrative, accountability, media control, etc. Emergency Director/Recovery Manager responsibilities, include but are not limited to, emergency classification; immediate and unilateral initiation of emergency actions, including making notifications and providing protective action recommendations to authorities responsible for implementing off-site emergency measures; and requesting Federal assistance. The Emergency Director/Recovery Manager has primary responsibility for interface with governmental agencies having action responsibilities to ensure the protection of the population-at-risk within the Calvert Cliffs Nuclear Power Plant emergency planning zones. The decision to notify and make offsite protective action recommendations to off-site authorities may not be delegated.

The Emergency Director/Recovery Manager is also responsible for onsite protective actions and reentry operations. The Shift Manager (staffed 24 hours) assumes the Interim-Emergency Director/Recovery Manager position at the onset of an emergency and retains it until relieved by augmenting personnel. When physically present and updated on plant conditions, the General Supervisor-Nuclear Plant Operations may succeed the Shift Manager until they in turn are relieved by people assigned to the

III. EMERGENCY ORGANIZATION (Continued)

A. Emergency Director/Recovery Manager (Continued)

Emergency Director/Recovery Manager position as their primary responsibility. Transfer of authority and responsibility is by voice acknowledgment of relieving party.

B. Technical Support Center Manager

The Technical Support Center Manager reports to the Emergency Director/Recovery Manager as senior licensee official on-site. This person provides guidance and technical assistance to the operating supervisor in the Control Room with the objective of taking the plant to a safe condition with minimal effect on the health and safety of plant personnel and the public.

C. General Supervisor-Nuclear Plant Operations

The General Supervisor – Nuclear Plant Operations is the operating supervisor in the Control Room. This person provides general supervision to the Shift Manager; overall coordination of maintenance and related activities necessary to support Control Room needs; and liaison with the Technical Support Center Manager. The General Supervisor – Nuclear Plant Operations reports to the Technical Support Center Manager.

D. Shift Manager

The Shift Manager has authority and responsibility for reactor plant manipulations including implementation of normal, abnormal, and emergency procedures. The Shift Manager reports to the General Supervisor-Nuclear Plant Operations.

- Shift Technical Advisor:

  The Shift Technical Advisor assists the Shift Manager by making recommendations pertaining to plant safety, operations, accident assessment, and procedures.

- First Aid Responders:

  Nuclear Plant Operations, under the supervision of the Shift Manager, provides first aid medical services to injured persons.

III. EMERGENCY ORGANIZATION (Continued)

D. Shift Manager (Continued)

- Fire Brigade Responders:

  Nuclear Plant Operations, under the supervision of the Shift Manager, provides fire fighting services to the site.

E. Emergency Operations Facility Director

The Emergency Operations Facility Director has the authority and responsibility for managing Emergency Operations Facility operations. This responsibility includes information flow, interfacing with Technical Representatives and assisting Emergency Director/Recovery Manager as directed.

F. Operational Support Center Director

The Operational Support Center Director has authority and responsibility for mechanical, electrical and instrument corrective actions and for providing support for onsite protective actions, plant operations, and reentry and recovery. The Operational Support Center Director also coordinates logistic support for the Control Room so access to it is restricted to personnel specifically requested. The Operational Support Center Director reports to the Technical Support Center Manager, or in this person's absence, the General Supervisor Nuclear Plant Operations.

G. Radiation Protection Director

The Radiation Protection Director has authority and responsibility for onsite radiation protection and personnel radiation exposure control. The Radiation Protection Director also coordinates with the Radiological Assessment Director for support. The Radiation Protection Director reports to the Operational Support Center Director.

The Shift Radiation Safety Technician (staffed 24 hours) assumes this position at emergency onset and retains it until relieved by augmenting personnel.

III. EMERGENCY ORGANIZATION (Continued)

G. Radiation Protection Director (Continued)

Functions reporting to and coordinated by the Radiation Protection Director include:

1. Survey Team

Responsible for Iodine Sampling, Radiological Job Coverage, Radiological Access Control and Emergency Response Facility monitoring (Control Room/Technical Support Center, Operational Support Center/Nuclear Security Facility, and the South Service Building Cafeteria).

H. Maintenance Team Leaders and Maintenance Teams

The Maintenance Team Leaders coordinate their teams' activities for repair and damage control (mechanical, electrical, instrument). The teams are responsible for assessing equipment damage and affecting repairs. Maintenance Team Leaders report to the Operational Support Center Director. Technicians reporting to and coordinated by the Maintenance Team Leaders include:

- Mechanical Maintenance Technicians
- Electrical Maintenance Technicians
- Instrument Maintenance Technicians

I. Operations Team Leader and Operations Team

The Operations Team Leader directs extra operators who comprise the Operations Team for support as requested by the Control Room. The Operations Team supplements on shift operators for operations tasks. The Operations Team Leader reports to the Operational Support Center Director.

J. Engineering Director

The Engineering Director has authority and responsibility for providing direct mechanical, and electrical engineering oversight to Operational Support Center Engineering personnel. The Engineering Director has authority and responsibility for providing engineering support in connection with the UFSAR, ISFSI, USAR, the license, and modifications, and

III. EMERGENCY ORGANIZATION (Continued)

J. Engineering Director (Continued)

for overseeing activities of engineers and technicians in response to requests from the Operational Support Center Director, Technical Support Center Director, and Emergency Operations Facility personnel. This support includes core protection and analysis. This function is supported in the Operational Support Center by a mechanical engineer, and an electrical engineer, and in the Technical Support Center by a technical advisor. If necessary, contractor services may be brought to bear by the Engineering Advisor. This action does not preclude the Technical Support Center Manager from soliciting contractor engineering support. The Engineering Director reports to the Operational Support Center Director.

K. Safety Services

A Safety Services representative serves as an advisor to Nuclear Plant Operations during a fire and first aid response. Safety Services reports to the OSC-Director.

L. Security Liaison

The Security Liaison is a Nuclear Security Officer responsible for maintaining an interface between the Operational Support Center and the Security Shift Supervisor. The Security Liaison reports to the Security Shift Supervisor.

M. Security Shift Supervisor

The Security Shift Supervisor has the authority to and is responsible for implementing the Nuclear Security Plan. The Security Shift Supervisor reports to the Nuclear Security Coordinator. The Security Shift Supervisor position also supports personnel accountability activities.

N. Chemistry Team Leader and Chemistry Team

The Chemistry Team Leader directs the Chemistry Team in drawing and analyzing liquid samples. The Chemistry Team Leader reports to the Chemistry Director.

O. Technical Support Center Director

The Technical Support Center Director has authority and responsibility for core protection and analysis, for pursuing analysis of potential problems or phenomenon and for assessing strategies derived from likely paths to core melt and containment failure. The Technical Support Center Director reports to the Technical Support Center Manager.

Functions reporting to and coordinated by the Technical Support Center Manager include:

1. Reactor Engineering: Responsible for core damage assessment and severe accident management assessment performed by Reactor Engineers and Reactor Engineers - Thermal Hydraulics.
2. Technical Analysis: Responsible for plant damage assessment concentrating on systems analysis and containment integrity performed by the Technical Analyst.
3. Operational Analysis: Responsible for plant damage assessment concentrating on operational insights and reactor coolant system integrity performed by the Operational Analyst.
4. Technical Support Center Computer Maintenance: Responsible for activating the Emergency Response Data System.

P. Chemistry Director

The Chemistry Director has authority and responsibility for coordinating sampling and sample analysis, and evaluation of plant fluid systems. The Chemistry Team under the supervision of a Chemistry Team Leader supports the Chemistry Director. The Chemistry Director reports to the Technical Support Center Manager.

Q. Security Coordinator

The Security Coordinator supervises and coordinates all security related activities onsite including those of the Security Shift Supervisor (the Security Shift Supervisor supervises Nuclear Security Officers and Security System Operators) and fitness-for-duty testing activities. The Security Coordinator reports to the Technical Support Center Manager.

R. Radiological Assessment Director

The Radiological Assessment Director reports to the Emergency Director/Recovery Manager. This position has authority and responsibility to assess, map, and coordinate

III. EMERGENCY ORGANIZATION (Continued)

R. Radiological Assessment Director (Continued)

calculations of radiological data required to depict onsite and offsite radiation dose and/or exposure rates.

This position evaluates radiological conditions and makes recommendations to the Emergency Director/Recovery Manager. The Offsite Survey Team reports to and is directed by the Radiological Assessment Director. Dose assessment tasks may be divided between the Radiological Assessment Director and an alternate, if an alternate Radiological Assessment Director is available. The principal responsibility of the Radiological Assessment Director is to provide protective action recommendations and radiological evaluations to the Emergency Director/Recovery Manager. Performance of radiological evaluations may be assigned to the alternate Radiological Assessment Director. At emergency onset, the Shift Chemistry Technician (staffed 24 hours) performs interim dose assessment until relieved by the Radiological Assessment Director. Radiological Assessment Director support is provided by the following:

1. Environmental Assessment:

   This person acts in an advisory capacity to the Radiological Assessment Director regarding environmental sampling and analysis.

2. Offsite Monitoring:

   The Offsite Survey Team monitors radiation dose rates and radioactivity concentrations at assigned locations offsite for use in offsite radiological assessment.

3. Radiological Assessment Specialists:

   These personnel perform radiological calculations and assessments required to depict offsite radiation dose and/or exposure rates.

S. Communicators

Communicators report to the director of their respective emergency center. Communicators have authority and responsibility for communications according to Emergency Response Plan Implementation Procedures. Communication responsibilities include initial and follow-up communications with Calvert Cliffs Nuclear Power Plant, State, local and Federal

III. EMERGENCY ORGANIZATION (Continued)

S. Communicators (continued)

personnel; communications with regulatory agencies through the Emergency Notifications System; and communication of plant parameter status data, environmental status data, Radiological Monitoring System status data; and communications between emergency response facilities.

T. Fitness-For-Duty Tester

Personnel provided at onsite or offsite emergency response facilities that are specially trained to conduct fitness-for-duty testing for emergency responders, as needed. Fitness-for-duty activities are coordinated and supervised by the Security Coordinator.

U. Telecommunications/Information Technology

The Telecommunications Support Manager provides computer support at the EOF and JIC. The Telecommunications Support Manager has authority and responsibility for coordination of all communications and information technology activities.

IV. RECOVERY ORGANIZATION

The offsite emergency organization (Recovery Organization) is normally directed from the Emergency Operations Facility. Constellation Energy provides corporate support and additional resources to the Recovery Organization as needed. The Recovery Organization is activated at the direction of the Emergency Director/Recovery Manager. The Recovery Organization is responsible for providing additional personnel and technical assistance from offsite sources.

A. Emergency Director/Recovery Manager (Recovery Phase)

The Emergency Director/Recovery Manager transitions to a different role when the determination has been made to enter the recovery phase of the event.

The Emergency Director/Recovery Manager ensures augmentation and support of Calvert Cliffs Nuclear Power Plant's response efforts (including assuring continuity of technical, administrative and material resources) and may interface with Federal, State, and local agency representatives. This position has the authority to request Federal assistance if a situation warrants. Attachments 3-4 and 3-6 show the Recovery Organization interrelationships.

IV. RECOVERY ORGANIZATION (Continued)

A. Emergency Director/Recovery Manager (Recovery Phase) (continued)

The Emergency Director/Recovery Manager may choose to speak for the Company. This representation may occur during major press conferences (e.g., with the Governor or the Maryland Secretary of the Environment) or at intervals commensurate with the need. The decision to act as spokesperson will be based on recommendations from the Joint Information Center Director. The Emergency Director/Recovery Manager retains responsibility for Calvert Cliffs Nuclear Power Plant's activities throughout an emergency (on a 24 hour basis). If not physically in the Emergency Operations Facility or Joint Information Center, the Emergency Director/Recovery Manager will be in close proximity to one or the other and will be on call for status changes or deviations from standing orders.

B. Support Managers and Directors

1. Public Information

The Joint Information Center Director maintains overall command and control of the Joint Information Center operations, including coordination with government authorities, liaison between Emergency Director/Recovery Manager, and media response and rumor control. This position reports to the Emergency Director/Recovery Manager.

Positions reporting to and coordinated by the Joint Information Center Director include:

a. Corporate Spokesperson: Supports the JIC Director by providing timely, technically accurate and complete briefings to the media when required or directed.

b. Joint Information Center Administrative Manager: Coordinates activation/deactivation of the JIC and assigns responsibilities to the Administrative Support personnel at the JIC. Coordinates Emergency Director/Recovery Managers review/approval of press releases and information flow between the EOF and JIC.

c. Customer Relations Representative: Provides interface between the Calvert Cliffs Nuclear Power Plant Joint Public Information organizations and the BGE Customer Service, Customer Care Center.

IV. RECOVERY ORGANIZATION (Continued)

B. Support Managers and Directors (continued)

d. Administrative Support Pool provides general support to the JIC staff.

e. Technical Advisor: Obtains plant technical information (e.g., plant parameters data, radiological monitoring data, and environment monitoring data) and ensures it is understood by the Calvert Cliffs JIC staff.

f. Technical Writer: is responsible for preparing written material including news releases, briefing summaries and other materials as directed by the Corporate Spokesperson pertaining to the event at CCNPP.

g. Rumor Control Coordinator: Liaison between the Customer Relations Representative, BGE Customer Service Customer Care Center, and the Joint Information Center; ensuring BGE Customer Care has up to date information and rumors are communicated to the JIC corporate spokesperson.

2. Administrative

The Administrative Support Manager has authority and responsibility for administrative, logistical, procurement, and offsite security support activities.

3. Telecommunications/Information Technology

The Telecommunications Support Manager provides computer support at the EOF and JIC. The Telecommunications Support Manager has authority and responsibility for coordination of all communications and information technology activities.

C. Emergency Operations Facility Director (Recovery Phase)

The Emergency Operations Facility Director has the authority and responsibility for managing Emergency Operations Facility operations. This responsibility includes information flow, interfacing with Technical Representatives and assisting Emergency Director/Recovery Manager as directed.

IV. RECOVERY ORGANIZATION (Continued)

D. Technical Representatives

Emergency Response Plan Implementation Procedures provide for dispatching representatives to principal off-site governmental emergency operations centers. Personnel assigned and specific responsibilities are addressed in Emergency Response Plan Implementation Procedures. Technical Representatives do not have decision and/or recommendation-making authority.

V. CONTRACTED SERVICES

A. Contractors

Contractors and private organizations may be requested to provide assistance to and augmentation of the emergency organization. Assisting groups may include the NSSS supplier, plant Architect-Engineer or any industry support company. These support services are outlined in memorandums of agreement in Appendix D and include support for Fire and Rescue, Ambulance Services, Medical Services to include Physicians, Nuclear Incident Training, Nuclear Emergency Consulting and Technical Assistance, Earthquake confirmation; Disaster planning memorandums between local utilities. Specific contractors are dependent on emergency situation needs and are described in associated Emergency Response Implementing Procedures.

B. Other

The Institute for Nuclear Power Operations publication "Emergency Resources Manual" (Ref. 39) lists points of contact, location, and support available from nuclear facilities. Resources would be requested based on emergency situation needs through INPO.

VI. LOCAL SERVICES

Appendix D, Letters of Agreement, contains written agreements identifying services provided by local agencies for handling emergencies, (e.g., medical, hospital and fire fighting organizations). Provisions are made for transportation and treatment of injured personnel who may also be contaminated. Agreement letters identify authorities, responsibilities, and limits on the actions of the respective agency.

VII. PARTICIPATING GOVERNMENTAL AGENCIES

Functions performed by Federal, State, and county agencies are summarized in the following subsections. Appendix D, Letters of Agreement, contains written agreements identifying services provided by Federal, State, and county agencies.

Detailed information is contained in:

1. Maryland Core Emergency Operations Plan – Fixed Nuclear Facilities (FNF) Appendix (Formerly Annex Q), Radiological Emergency Plan
2. Calvert County, Dorchester County, and St. Mary's County Radiological Emergency Plans and Standard Operating Procedures.
3. Virginia Radiological Emergency Response Plan
4. Delaware Radiological Emergency Plan
5. District of Columbia, District Response Plan

A. State of Maryland

The Maryland Core Emergency Operations Plan is the official State plan for responding to radiological emergencies. State officials and agencies identified in the Plan having overall command, coordination, key, and support responsibilities include:

1. The Governor
2. Maryland Emergency Management Agency (MEMA)
3. Department of Health and Mental Hygiene
4. Maryland Department of Agriculture
5. Maryland Department of Environment
6. Department of Natural Resources
7. Maryland State Police
8. Department of Human Resources

VII. PARTICIPATING GOVERNMENTAL AGENCIES (continued)

A. State of Maryland (continued)

9. Department of Transportation
10. Maryland State Department of Education
11. Department of Housing and Community Development
12. Maryland Military Department/National Guard
13. Maryland Institute for Emergency Medical Services System
14. Office of the Comptroller of the Treasury
15. Office of the State Fire Marshal

B. Functions and Responsibilities of Key Agencies and Officials

1. The Secretary – Maryland Department of the Environment has the authority of the Governor and maintains responsibility for overall command of an emergency response. Major areas of action under his/her command include:
   a. Accident assessment
   b. Notification and communication
   c. Command and coordination
   d. Protective actions
      1) Evacuation
      2) Ingestion of Potassium Iodide or thyroid protection
      3) Take shelter
      4) Access control
      5) Food, water, and milk control
   e. Parallel actions
      1) Emergency medical services
      2) Radiation exposure control
      3) Law enforcement and crime prevention
      4) Mass Care
      5) Re-entry
      6) Return
      7) Relocation

VII. PARTICIPATING GOVERNMENTAL AGENCIES (continued)

B. Functions and Responsibilities of Key Agencies and Officials (continued)

f. Public Information

2. The MEMA coordinates State, private, and Federal agency response to and from CCNPP to aid County emergency operations. The MEMA directs County requests for assistance to appropriate State and Federal agencies.

3. The State Department of Environment makes available resources and personnel to perform the following:

a. Provide technical information to the Secretary-Department of the Environment.

b. Dispatch field monitoring teams to emergency area(s).

c. Set up headquarters for direction of activities by the State Radiological Health Administrator at the Accident Assessment Center in the near site Emergency Operations Facility.

d. Determine when assistance is required from the Federal Department of Energy and request such assistance.

e. Determine when protective actions for the public are required and inform State and local authorities.

f. Provide guidance in establishing public restricted areas.

g. Provide contamination control action guides.

h. Request outside radiological monitoring assistance when needed.

i. Provide guidance for external human and animal decontamination.

j. Provide guidance for facilities, equipment, and area decontamination.

k. Provide guidance to the State Departments of Agriculture and Health and Mental Hygiene for controlling the use of milk and agricultural products.

l. Determine and notify appropriate authorities when people may return to evacuated areas.

m. Provide direction of Ingestion Pathway Coordinating Committee activities.

VII. PARTICIPATING GOVERNMENTAL AGENCIES (continued)

B. Functions and Responsibilities of Key Agencies and Officials (Continued)

4. The State Department of Health and Mental Hygiene makes available resources and personnel to perform the following:

   a. Dispatch agricultural sampling teams to effected areas.
   b. Provide guidance to the State Department of Agriculture for controlling the use of milk and agricultural products.
   c. Provide laboratory analysis of field samples.
   d. Support Ingestion Pathway Coordination Committee activities.

5. The Maryland State Police render assistance as follows:

   a. Establish off-site command post in vicinity of the plant site.
   b. Evacuate and exclude individuals from designated public and private areas.
   c. Control traffic into and out of designated areas.
   d. Transport Maryland Department of Environment Monitoring Teams on request.
   e. Assist in medical evacuation via helicopter.
   f. Aid in emergency communications.
   g. Coordinate with County Sheriffs to assist in communications, evacuations, and traffic control.

6. The Maryland Department of Natural Resources Police Force and the Fisheries Service render assistance as follows:

   a. Evacuate and prevent entry to designated water areas.
   b. Aid in emergency communications.
   c. Assist in radiological monitoring.
   d. Assist in waterborne population evacuation as required.

7. The Maryland Emergency Management Agency Public Information Officer is responsible for coordination of State and local information releases. The Public Information Officer coordinates with Calvert Cliffs Nuclear Power Plant's Joint

VII. PARTICIPATING GOVERNMENTAL AGENCIES (Continued)

Information Center Director to prevent conflicting statements between State/local and Calvert Cliffs Nuclear Power Plant's spokespersons.

C. Planning Zone Support

1. Plume Exposure Emergency Planning Zone

Calvert County, Dorchester County, and St. Mary's County Radiological Emergency Plans and Standard Operating Procedures summarize the plan used by county agencies within the Plume Exposure Emergency Planning Zone. Command of county agencies is under the direction of the Board of County Commissioners, or County Council for each county. Coordination and responsibility for implementing protective actions is the responsibility of the Director of each county's Emergency Management Agency.

2. Ingestion Emergency Planning Zone

a. Maryland

The ingestion EPZ for CCNPP includes all or portions of thirteen Maryland counties.

- Anne Arundel County
- Calvert County
- Caroline County
- Charles County
- Dorchester County
- Kent County
- Prince George's County
- Queen Anne's County
- Somerset County
- St. Mary's County
- Talbot County
- Wicomico County
- Worcester County

Functions and responsibilities of agencies responsible for emergency response are described in the Maryland Emergency Operations Plan, Annex Q, and Radiological Emergency Plan.

VII. PARTICIPATING GOVERNMENTAL AGENCIES (Continued)

C. Planning Zone Support (Continued)

b. Commonwealth of Virginia

The ingestion EPZ for CCNPP includes all or portions of the following Virginia political subdivisions:

	Counties		Cities
1.	Accomack (Tangier Island)	1.	Alexandria
2.	Arlington	2.	Falls Church
3.	Caroline		
4.	Essex		
5.	Fairfax		
6.	King George		
7.	King and Queen		
8.	Lancaster		
9.	Middlesex		
10.	Northumberland		
11.	Prince William		
12.	Richmond		
13.	Stafford		
14.	Westmoreland		

Functions and activities of these agencies are described in the Virginia Radiological Emergency Response Plan.

VII. PARTICIPATING GOVERNMENTAL AGENCIES (Continued)

C. Planning Zone Support (Continued)

c. State of Delaware

Functions and activities of agencies responsible for emergency response in the Delaware portion of the ingestion EPZ are described in the Delaware Radiological Emergency Plan and Implementing Procedures.

d. District of Columbia

Functions and activities of agencies responsible for emergency response in the Washington, D.C., portion of the ingestion EPZ are described in the District of Columbia, District Response Plan.

D. Support From Federal Agencies

Calvert Cliffs Nuclear Power Plant is located about 70 miles south of Baltimore and 50 miles southeast of Washington, D.C. The site is less than 2 hours driving time from either city or their respective airports (Baltimore-Washington International; Ronald Reagan National). A helicopter landing can be accommodated at Calvert Cliffs Nuclear Power Plant and the Emergency Operations Facility. Emergency facilities have been designed to meet the space and communications needs of a small scale Federal response. Federal Radiological Emergency Response Plan implementation may require the use of Andrews Air Force Base and/or Federal, State or local facilities to accommodate the large volume of associated personnel.

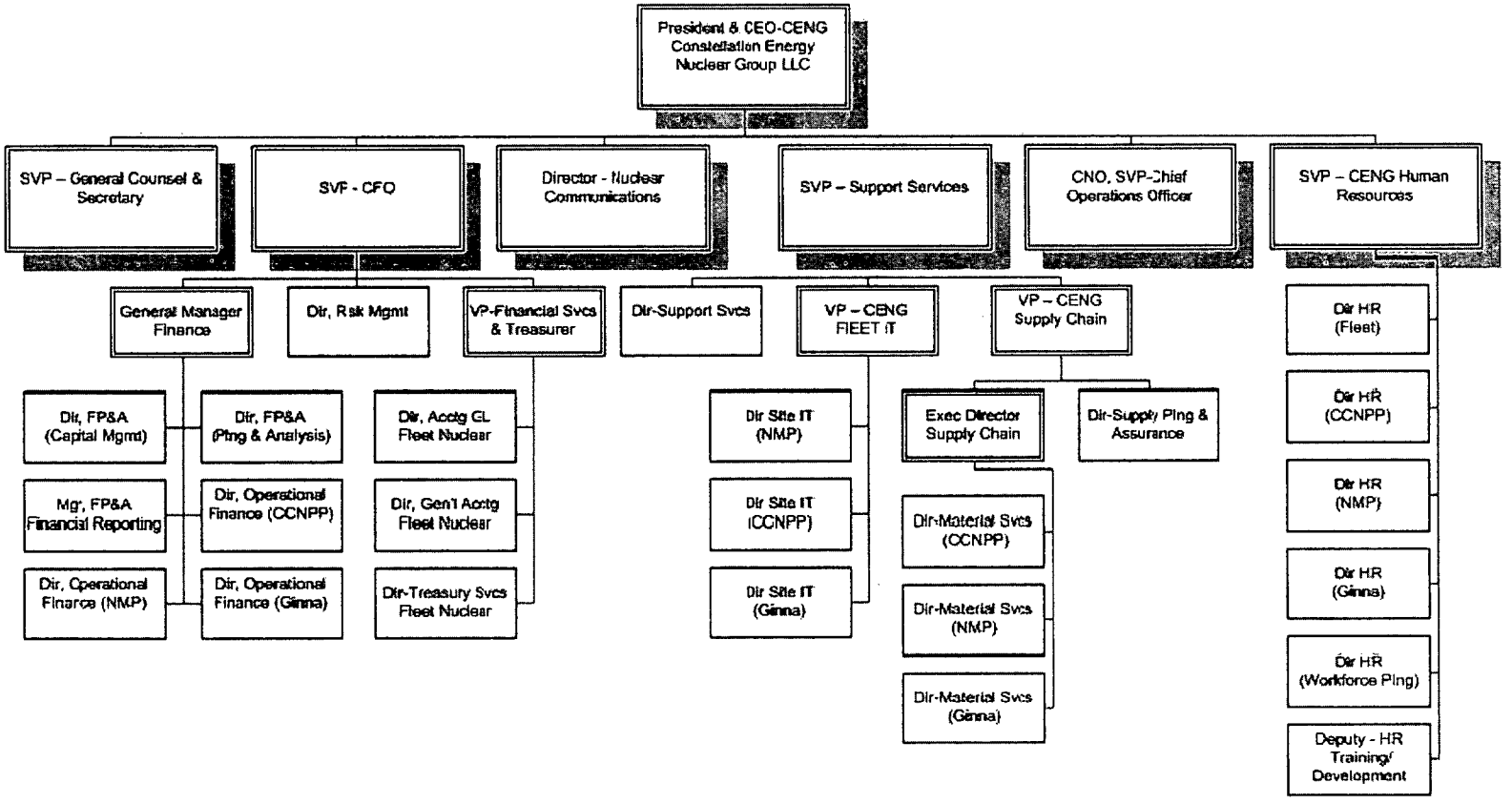
The following subsections identify Federal agencies that could be individually called on for support during an emergency at CCNPP.

1. U.S. Nuclear Regulatory Commission - Region I, Office of Inspection & Enforcement, King of Prussia, Pennsylvania. The Directorate of Regulatory Operations will be notified of radiological incidents in accordance with 10CFR20.403, and will conduct appropriate investigative activities.
2. U.S. Department of Energy, Brookhaven Area Office, Upton, New York. The Brookhaven Area Office of the U.S. Department of Energy will provide assistance, consultation, and services in accordance with Appendix D, agreement letter.

ATTACHMENT 3-1

MANAGEMENT ORGANIZATION

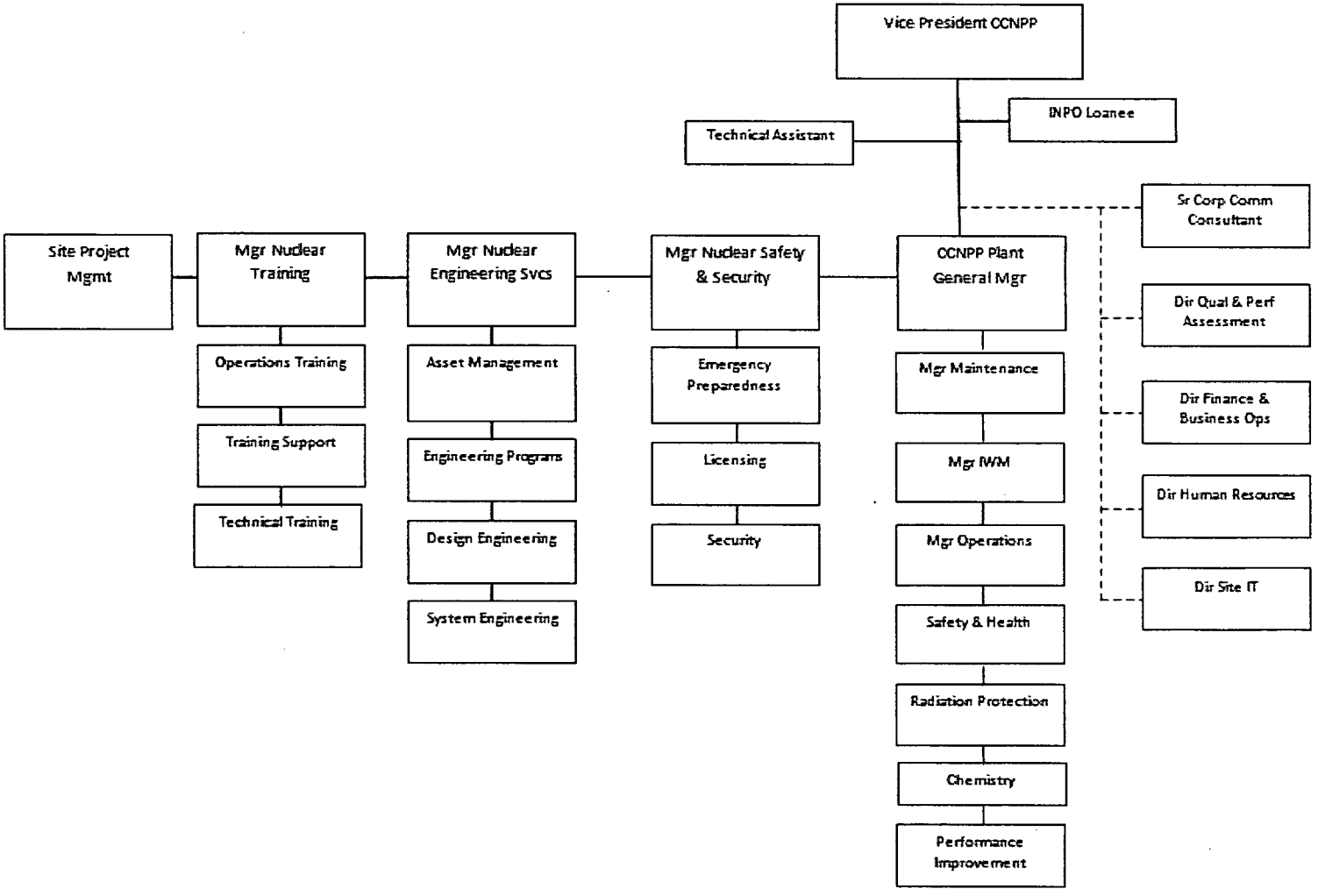
(Page 1 of 2)



ATTACHMENT 3-1

MANAGEMENT ORGANIZATION

(Page 2 of 2)



ATTACHMENT 3-2

MINIMUM ON-SITE STAFFING REQUIREMENTS

Page 1 of 2

MAJOR FUNCTIONAL AREA	MAJOR TASKS	POSITION, TITLE, OR EXPERTISE	ON SHIFT	WITHIN [a] APPROX. 60 MINUTES
Plant operations and assessment of operational aspects		Senior Reactor Operators Reactor Operators Auxiliary Operators Shift Technical Advisor Operations Technical Assistant	2 4 5 1 Per UFSAR	--
Emergency direction and control [c]		Shift Manager	1	--
Notification/ communication	Notify licensee, Federal, State, and local personnel and maintain communications	Emergency Communicator	1	3
Support of operational accident assessment	Site emergency coordination	Manager	--	1
Radiological accident assessment	a. Off-site dose assessment b. Off-site surveys c. On-site surveys d. In-plant surveys e. Chemistry/radio-chemistry	Senior Health Physics (HP) expertise Survey Team Survey Team Survey Team Chemistry Technicians	-- -- -- 1 1	1 4 2 2 1
Plant System Engineering, repair and corrective actions	Technical support Repair and corrective actions	Rx Core Engineer Electrical Engineer Mechanical Engineer Mechanical maintenance Rad Waste Operator Electrical maintenance Instrument and Control (I&C) Technician	-- -- -- -- 1(b) -- --	2 1 1 3 -- 2 2
Protective actions (in-plant) operational aspects	Radiation protection: a. Access control b. HP coverage for repair, corrective actions, search and rescue first-aid and firefighting c. Personnel monitoring d. Dosimetry	Survey Team	1	6
Firefighting		Fire Brigade personnel	per UFSAR	Local Support (d)
Rescue operations and first aid		First Aid Team personnel	2(e)	Local Support (d)
Site access control and personnel accountability	Security, communications, personnel accountability	Security personnel	per Security Plan	--

ATTACHMENT 3-2

MINIMUM ON-SITE STAFFING REQUIREMENTS

Page 2 of 2

(a) Additions required for Alert, Site Area Emergency and General Emergency.

(b) Provided by shift personnel assigned other functions.

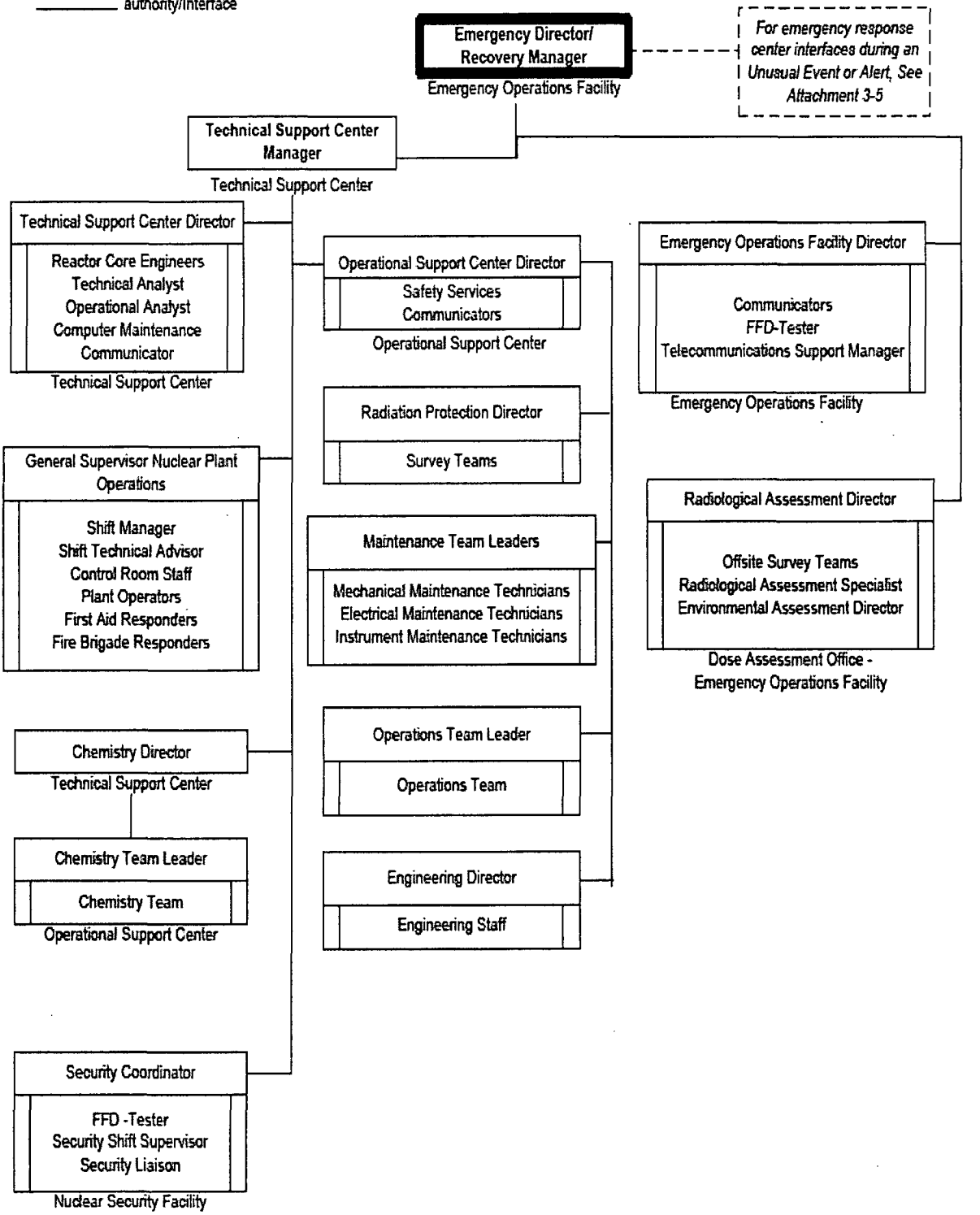
(c) Overall direction of facility response to be assumed by person(s) assigned Emergency Director/Recovery Manager position as primary responsibility when all centers are fully manned. Direction of minute-to-minute facility operations remains with the Technical Support Center Manager in the Technical Support Center.

(d) Additions within approximately 30 minutes.

(e) Rescue operations and first aid is a collateral duty of the designated Fire Brigade (Fire & Safety Watch and Fire & Safety Responder)

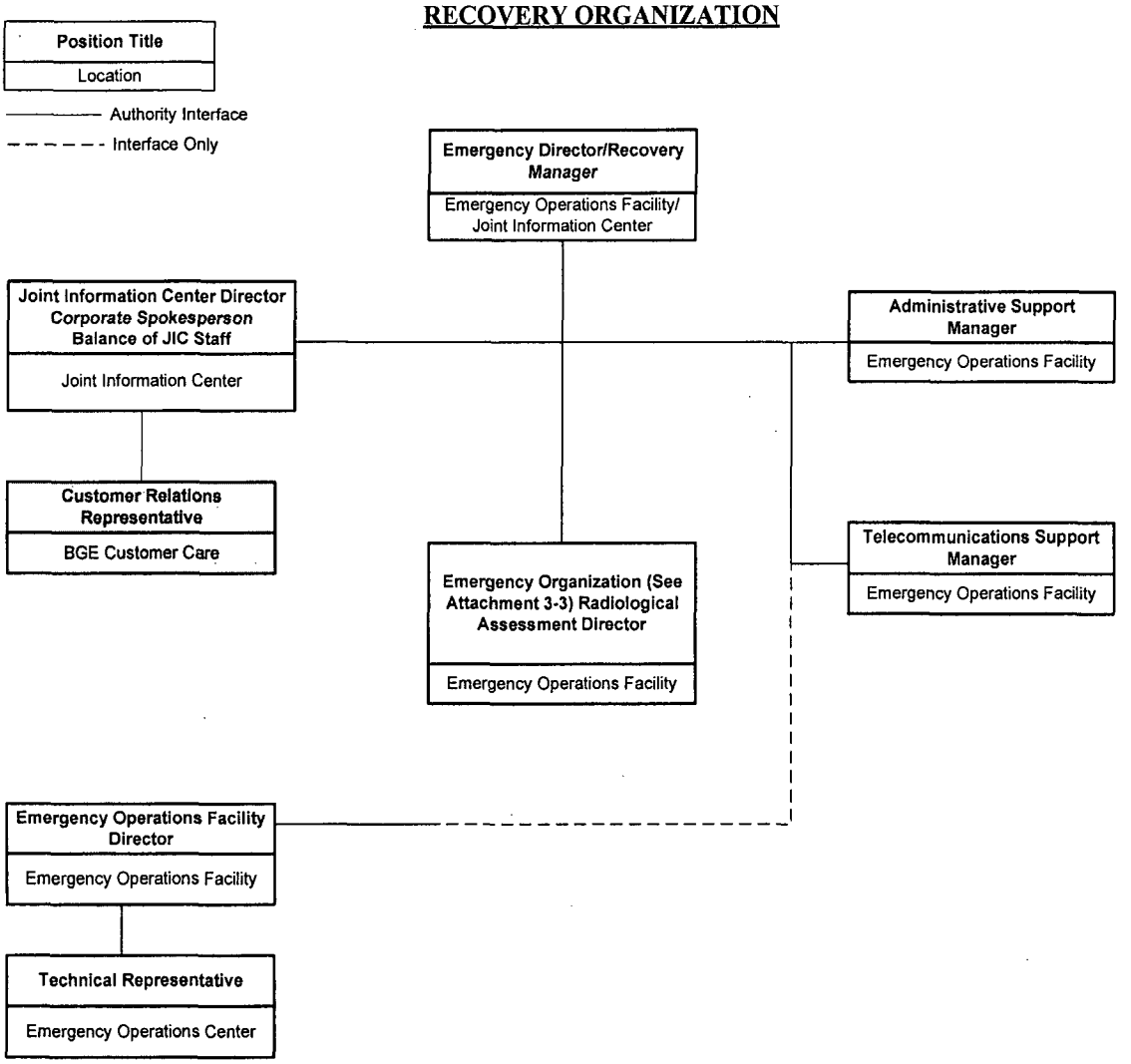
Key: Position Title
Location
_____ authority/Interface

ATTACHMENT 3-3
EMERGENCY ORGANIZATION

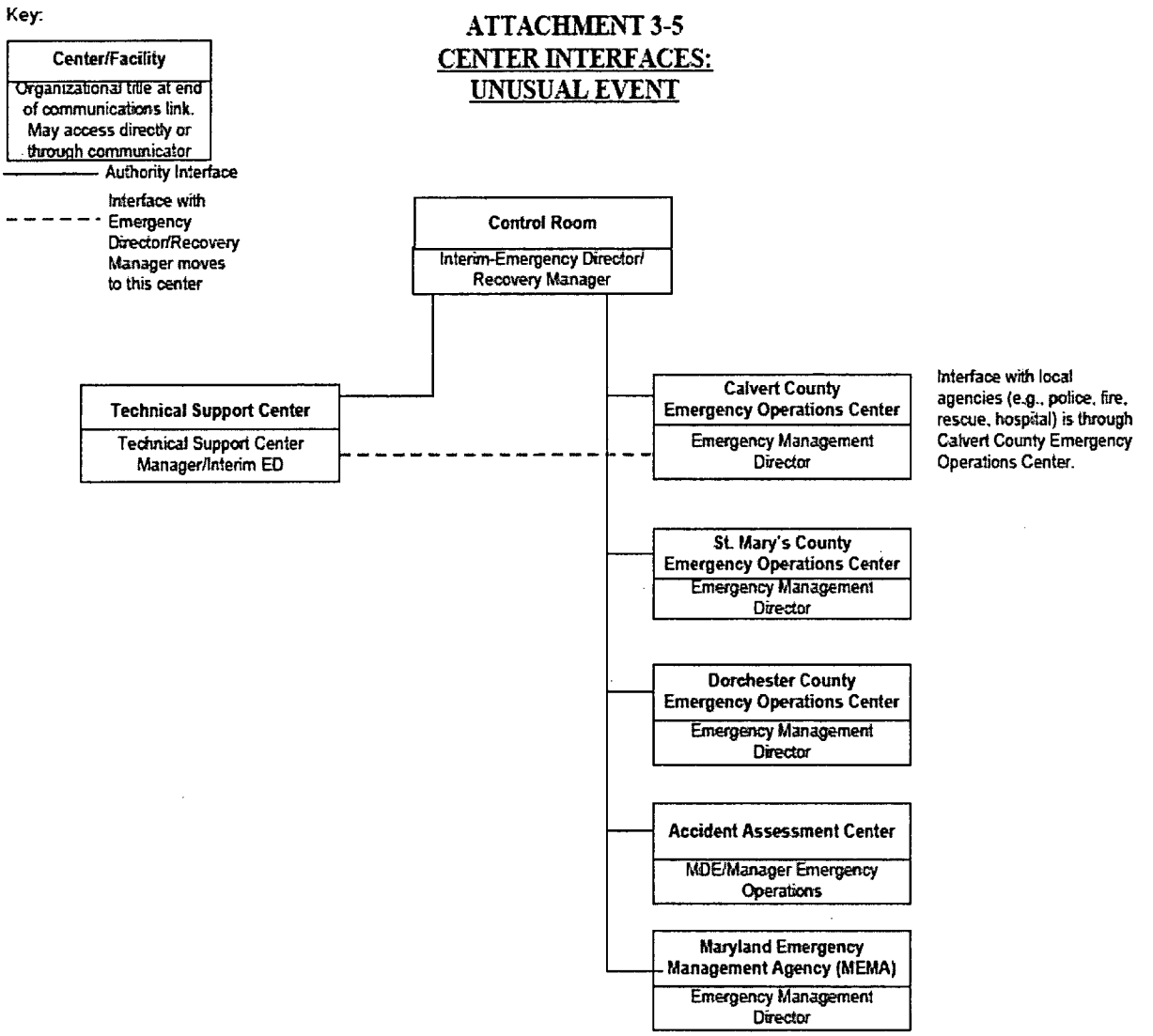


Key:

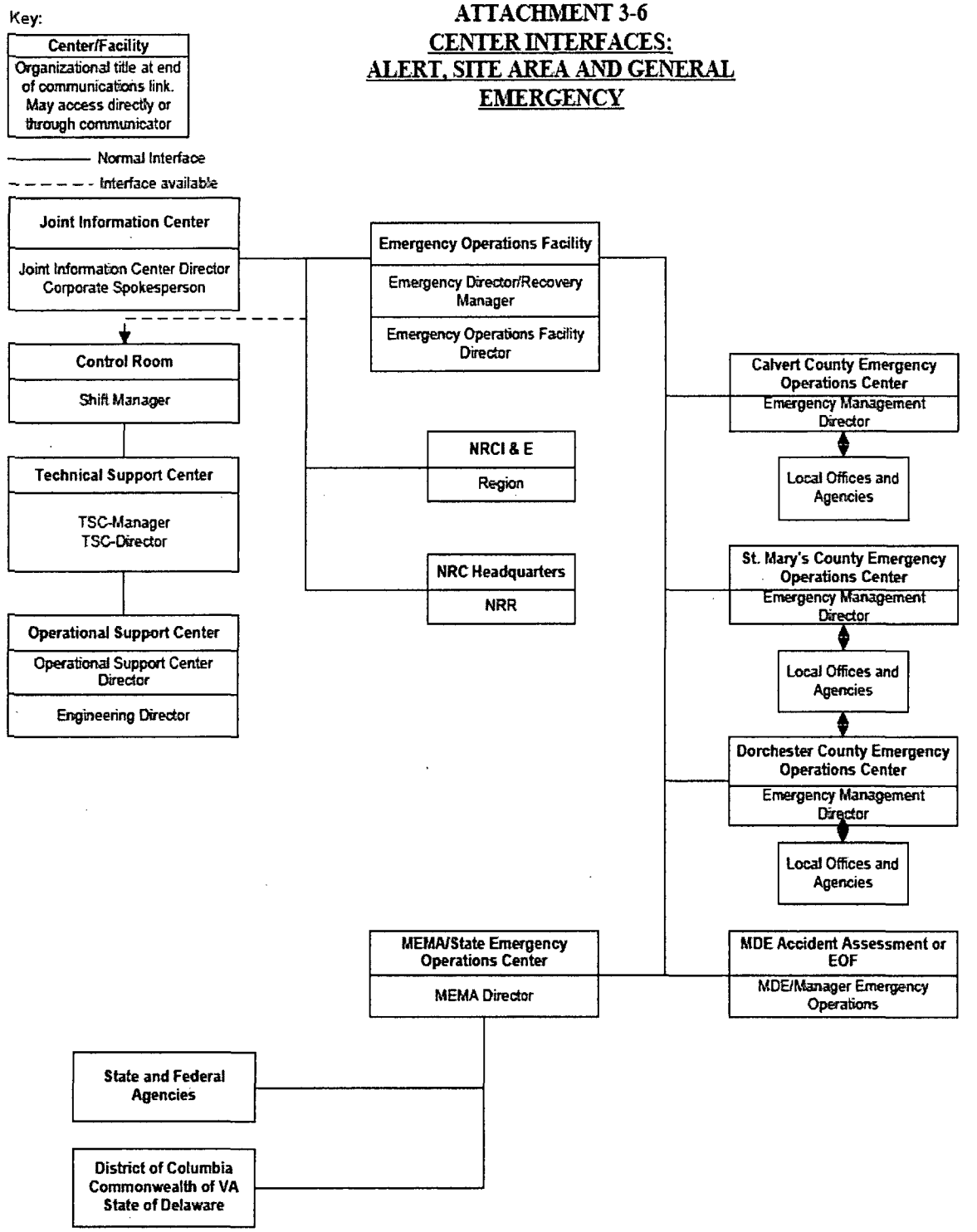
ATTACHMENT 3-4
RECOVERY ORGANIZATION



ATTACHMENT 3-5
CENTER INTERFACES:
UNUSUAL EVENT



ATTACHMENT 3-6
CENTER INTERFACES: ALERT, SITE AREA AND GENERAL EMERGENCY



CALVERT CLIFFS NUCLEAR POWER PLANT

EMERGENCY RESPONSE PLAN

EMERGENCY MEASURES

I. RECOGNITION AND CLASSIFICATION

Calvert Cliffs Nuclear Power Plant staff recognizes and responds to off-normal plant conditions. Abnormal and Emergency Operating Procedures allow personnel to mitigate emergency consequences and correct off-normal conditions quickly. These procedures reference the Emergency Response Plan Implementation Procedures. Emergency Response Plan Implementation Procedures contain procedures and guidance for accident assessment and emergency classification. These procedures implement the Emergency Response Plan. Attachment 4-1, Off-Normal Condition Response Sequence, shows the basic response sequence followed during off-normal conditions.

II. NOTIFICATION

A. On-Site Personnel

Emergency Response Plan Implementation Procedures provide for 24-hour on-site personnel warning, alerting, activating, and advising for emergency situations. This includes:

1. Employees without emergency assignments.
2. Visitors and persons in on-site public access areas.
3. Contract and construction personnel.

B. Off-Site Agencies

Emergency Response Plan Implementation Procedures provide for 24-hour alerting, notifying, and mobilizing CEG off-site response organizations and for 24-hour alerting and notifying non-CEG off-site response organizations as provided in Attachment 4-2, Off-site Agency Notification. These procedures include means for message verification.

II. NOTIFICATION (Continued)

C. Messages

1. Initial emergency messages sent from the plant are detailed in the Emergency Response Plan Implementation Procedures. Messages contain:

   a) Emergency class and nature of incident.

   b) Whether a release is taking place.

   c) Potentially affected population and areas.

   d) Whether protective measures are necessary.

2. Emergency Response Plan Implementation Procedures provide for facility follow-up messages to off-site authorities. These procedures contain:

   a) Incident location, caller name, and communications identification.

   b) Nature of incident, date/time, and classification.

   c) Actual or projected release type (airborne, waterborne, surface spill) and estimated duration/impact times.

   d) Radioactive material release quantity estimate and release points/heights.

   e) Released material chemical and physical form including relative quantities and concentrations of noble gases, iodines, and particulates.

   f) Meteorological conditions (wind speed, direction-to and from), stability indicator, precipitation.

   g) Actual or projected site boundary dose rate; site boundary projected integrated dose.

   h) Projected dose rates and integrated dose at projected peak and at 2, 5, and 10 miles including sector(s) affected.

   i) In-plant, on-site, off-site surface radioactive contamination estimate.

   j) Facility response actions in progress.

II. NOTIFICATION (Continued)

C. Messages (Continued)

k) Recommended emergency actions, protective measures, and recommendations set forth in Environmental Protection Agency's Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA-400-R-92-001), Tables 2-1 and 2-2.

l) Support requests.

m) Incident prognosis (worsening/terminating).

3. Initial and follow-up messages provide supporting information for messages developed by State and local agencies for the public. Initial and follow-up messages are consistent with the classification scheme addressed in the Emergency Response Plan Implementation Procedures.

4. Off-site authorities responsible for implementing protective measures within the plume exposure pathway Emergency Planning Zone receive initial (prompt notification) and follow-up messages directly. Provision exists to make Initial Notifications within 15 minutes of emergency declaration.

D. Prompt Public Notification

Prompt public notification using sirens or backup methods such as route alerting that facilitates public awareness to turn on their televisions or radios and listen for information or instructions broadcast by state or local government authorities on the Emergency Alert System.

A physical means has been established and demonstrated to exist for providing prompt public notification within the plume exposure pathway Emergency Planning Zone. The Public Alert and Notification System is described in detail in the upgraded Public Alert and Notification System for Calvert Cliffs Nuclear Power Plant, September 2002 (Reference 49), and subsequent correspondence with the Federal Emergency Management Agency.

III. AUGMENTATION

A. Staffing

Attachment 3-2, Minimum On-Site Staffing Requirements outlines ERO positions required to meet minimum staffing and full augmentation of the on-shift complement at an Alert or higher declaration. Minimum staffing is to occur within approximately 60 minutes of an Alert or higher classification with the exception of the Joint Information Center (JIC). The JIC has been determined to be a Recovery Organization and as such will achieve minimum staffing within approximately 120 minutes of event declaration.

B. Activation

It is the goal to activate the ERO facilities within 15 minutes of achieving minimum staffing. The facility can be declared activated when the following conditions are met:

1. Minimum staffing has been achieved.
2. Personnel are ready to perform their function.
3. Personnel have been briefed on the situation.

IV. ACCIDENT ASSESSMENT

Accident assessment consists of a variety of actions taken to determine the nature, effects, and severity of an accident and includes evaluation of reactor operator status reports, damage assessment reports, meteorological observations, seismic observations, fire reports, radiological dose projections, in-plant radiological monitoring, off-site (environmental) radiological monitoring, etc.

Emergency Response Plan Implementation Procedures provide methods and techniques for:

A. Determining radioactive material release source term.

Example: Relationship between Containment radiation monitor reading and radioactive material available for release from Containment.

B. Determining radioactive material release based on plant system parameters and effluent monitors (graphic recorders and the plant computer provide records to back calculate total amounts of plant released radioactivity).

C. Establishing the relationship between effluent monitor readings and on-site/off-site exposure and contamination for various meteorological conditions.

IV. ACCIDENT ASSESSMENT (Continued)

D. Determining release rate/projected dose if assessment instrumentation is off-scale or inoperable.

E. Rapid assessment and chemical sampling and analysis of magnitude and location of radiological hazards (actual or potential) through liquid or gaseous release pathways.

F. Relating measured parameters (e.g., Containment levels, water and air activity levels) to dose rates for key isotopes (i.e., NUREG-0654, Table 3, Page 18) and gross radioactivity measurements. Provisions are made for estimating integrated dose from projected and actual dose rates and for comparing these estimates with protective action guides.

G. Periodically estimating total population exposure.

H. Relaxing protective measures to allow reentry into an evacuated area and for return of areas to normal use. This condition includes provision for informing the response organizations that a recovery operation is being initiated and of any changes in the organization structure that may occur.

V. REPAIR AND CORRECTIVE ACTION

Those emergency measures taken to lessen or terminate an emergency situation at or near the source of the problem includes measures taken to prevent an uncontrolled release of radioactive material, or to reduce the magnitude of a release. Corrective action includes equipment repair or shutdown, installation of emergency structures, fire fighting, and damage control.

VI. PROTECTIVE ACTIONS

A. Accountability

Emergency Response Plan Implementation Procedures provide the capability to account for all individuals in the Protected Area during a Site Area Emergency or General Emergency, to ascertain the names of missing individuals within 30 minutes of a Site Area Emergency or General Emergency declaration, and to account for all Protected Area individuals continuously thereafter. To accomplish accountability, site assembly is executed at Alert level emergency in anticipation of emergency escalation. The accountability process begins when assembly is complete.

VI. PROTECTIVE ACTIONS (Continued)

B. Evacuation

1. Evacuation routes for on-site individuals allow access to Maryland Route 2/4 via the plant access road and Camp Canoy Road (through Camp Canoy facility). Transportation is by personal vehicle.

   Two roads allow alternative evacuation routes for inclement weather, high traffic density, and specific radiological conditions.

2. Emergency Response Plan Implementation Procedures provide for on-site, non-essential personnel evacuation during a Site Area or General Emergency.

C. Off-Site Recommendations

1. Guidelines for the choice of protective actions during an emergency, consistent with Federal Guidance, are provided in the Emergency Response Plan Implementation Procedures. The effectiveness of evacuation and protection afforded in residential units and other shelters is assumed to be that which is described in Federal Guidance.

2. Reports considered in determining evacuation effectiveness and local protection afforded include:

   a) "Public Protection Strategies for Potential Nuclear Accidents," "Sheltering Concepts with Existing Public and Private Structures" (SAND 77-1725), Sandia Laboratory.

   b) "Examination of Off-Site Radiological Emergency Measures for Nuclear Reactor Accidents involving Core melt" (SAND 78-0454), Sandia Laboratory.

   c) "Protective Action Evaluation, Part II, Evacuation and Sheltering as Protective Actions Against Nuclear Accidents Involving Gaseous Releases" (EPA 520/1-78-001B).

VI. PROTECTIVE ACTIONS (Continued)

C. Off-Site Recommendations (Continued)

d) "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents" (EPA 400-R-92-001).

e) "Criteria for Protective Action Recommendations for Severe Accidents" (NUREG-0654/FEMA-REP-1, Rev. 1, Supp. 3).

f) "RTM-96, Response Technical Manual" (NUREG/BR-0150, Vol. 1, Rev. 4.).

g) "Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies" (Center for Devices and Radiological Health, FDA, August 13, 1998).

VII. EXPOSURE CONTROL

A. Emergency Response Plan Implementation Procedures and Radiation Safety Procedures provide an on-site radiation protection program including exposure guidelines implementation methods for use during emergencies. Provisions are made for distribution of dosimeters (both direct reading and permanent record devices); ensuring dosimeters are read at appropriate frequencies; maintaining dose records for emergency workers.

B. The Emergency Response Plan Implementation Procedures permit on-site workers to receive radiation exposures while carrying out lifesaving or other emergency activities. They facilitate expeditious decision making and a reasonable consideration of relative risks.

1. Exposure guidelines are consistent with Environmental Protection Agency's Guidance on Dose Limits for Workers Performing Emergency Services (EPA-400-R-92-001)

VII. EXPOSURE CONTROL (Continued)

2. Guidelines are established for:

   a) Providing first aid and medical treatment service.

   b) Undertaking corrective actions.

   c) Performing assessment actions.

   d) Performing personnel decontamination.

   e) Injured person removal and ambulance service.

VIII. CONTAMINATION CONTROL

A. Radiation Safety Procedures provide on-site contamination/decontamination control measures for:

1. Area access control.
2. Equipment, supplies, and instruments.
3. Personnel (including wounds).

These procedures specify levels at which decontamination needs to be performed and provides for decontaminants suitable for expected contamination types including radio/iodine skin contamination.

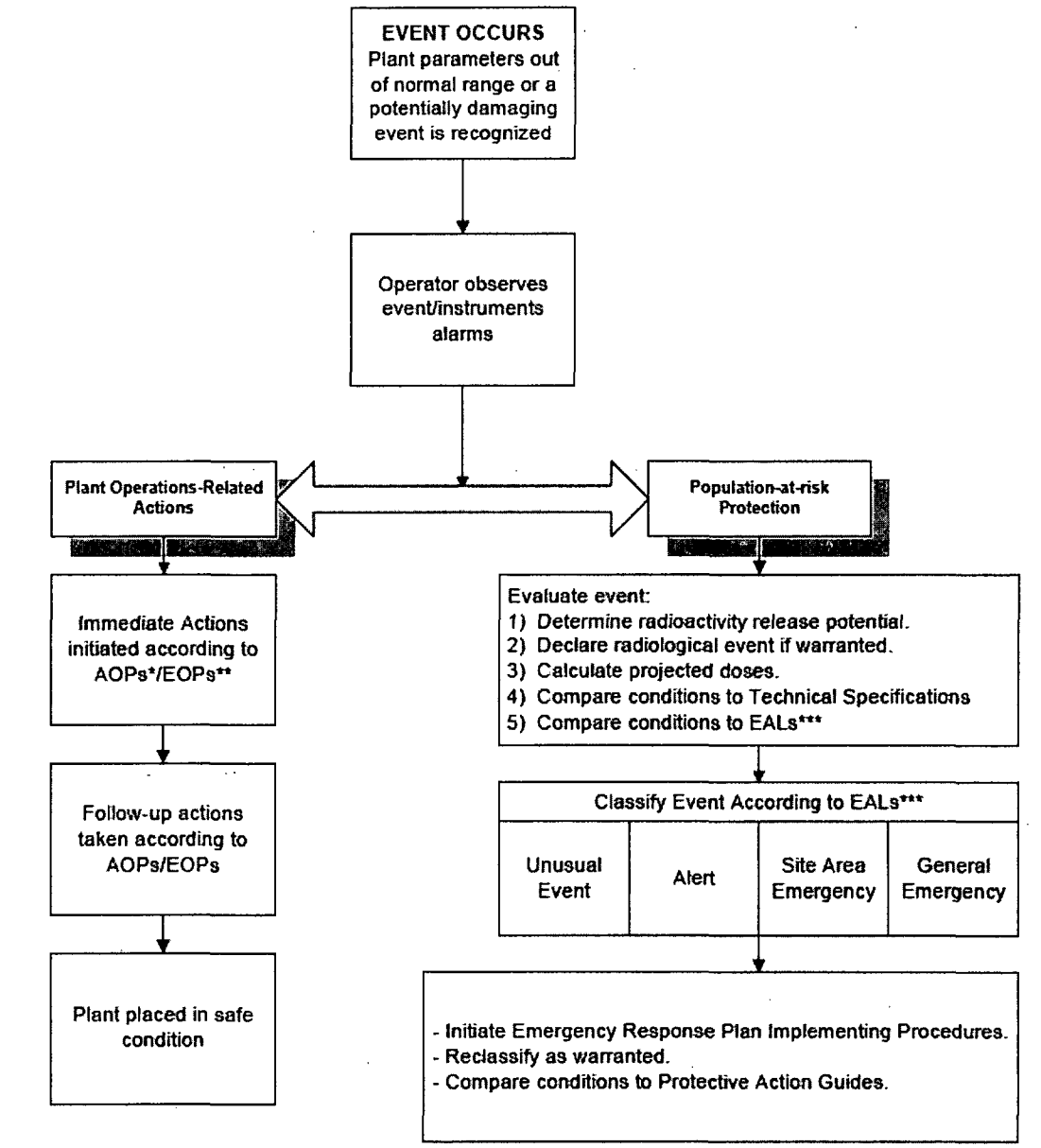
Emergency food and water supplies will be brought to the site as needed. Food and water brought to the site will be protected against contamination.

B. Radiation Safety Procedures provide for radiological monitoring of people evacuated from the site.

IX. PERSONNEL EMERGENCIES

Emergency Response Plan Implementation Procedures describe actions taken in response to personnel emergencies (with and without contamination considerations).

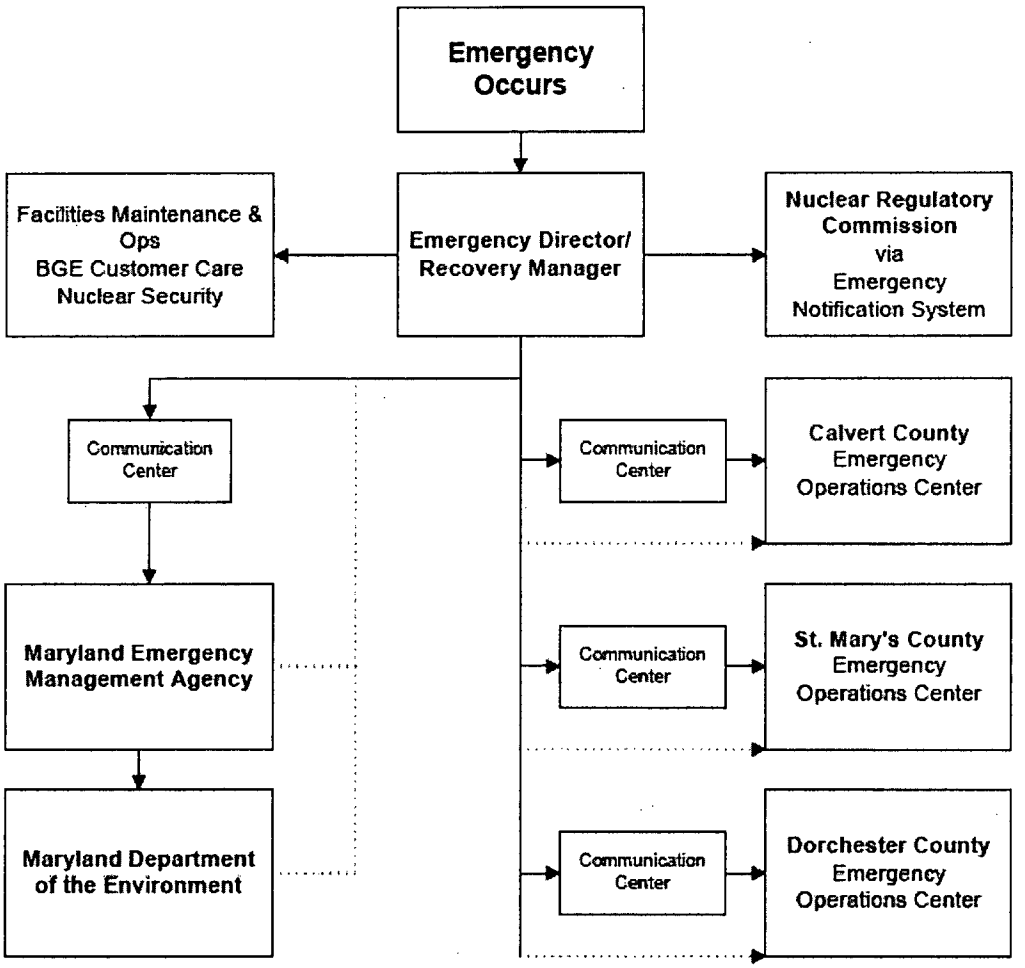
ATTACHMENT 4-1
OFF-NORMAL CONDITION RESPONSE SEQUENCE



*AOP -Abnormal Operating Procedure
**EOP -Emergency Operating Procedure
***EAL -Emergency Action Level

ATTACHMENT 4-2

OFF-SITE AGENCY NOTIFICATION



———— 24 Hour Operation Communication Line

..... Normal Work Hours

CALVERT CLIFFS NUCLEAR POWER PLANT
EMERGENCY RESPONSE PLAN

FACILITIES AND EQUIPMENT

I. FACILITIES

Specific locations on-site and off-site have been designated as emergency control and support centers. These centers are equipped to control, assess, and correct emergency conditions and allow timely communication between centers. The centers' functional objectives are presented in Attachment 5-1, Facilities Functional Objectives.

A. Control Room

Plant operations are directed from the Control Room. Nuclear plant instrumentation, Area and Process Radiation Monitoring System instrumentation, controls and instrumentation for reactor and turbine generator operation are provided here. A description of the Control Room is contained in the Updated Final Safety Analysis Report (Ref. 55) Section 7.6.2. Emergency equipment available to the Control Room is listed in Emergency Response Plan Implementation Procedures.

B. Emergency Operations Facility (EOF)

1. The Emergency Operations Facility floor plan is shown in Attachment 5-2, Emergency Operations Facility, and its location in Calvert County is shown in Attachment 5-3, Emergency Operations Facility and Joint Information Center Location.

2. The EOF is the location where the Emergency Director/Recovery Manager will direct a staff in evaluating and coordinating the overall company activities involved with an emergency.

   The EOF has facilities and capabilities for:

   - Management of overall emergency response
   - Coordination of radiological and environmental assessment (including receipt and analysis of field monitoring data and sample media coordination)

I. **FACILITIES** (Continued)

B.2 Emergency Operations Facility (Continued)

- Determination of recommended public protective actions, and Notification of off-site agencies (when emergency declaration is performed at the EOF)
- Coordination of event, plant and response information provided to public information staff for dissemination to the media and public
- Staffing and activation of the facility within time frames and at emergency classification levels defined in the emergency response plan
- Coordination of emergency response activities with Federal, State, and local agencies
- Provisions are made for acquisition, displaying, and evaluation of radiological, meteorological , and plant system data
- Analyzing plant technical information and providing technical briefing on event conditions and prognosis to licensee staff and off-site agencies

The EOF is used for continued evaluation and coordination of activities related to an emergency having actual or potential environmental consequences. The EOF is activated during an Alert, Site Area Emergency or General Emergency. Space is provided so that NRC, Federal, State, and local response agencies can coordinate their activities from this location.

3. The Emergency Operations Facility is located about twelve miles from the site, in Calvert Industrial Park, Skipjack Road at Hallowing Point Road. It is a well engineered structure for design life of Calvert Cliffs Nuclear Power Plant. Detailed emergency equipment listing for the Emergency Operations Facility is contained in Emergency Response Plan Implementation Procedures.

C. Technical Support Center

1. The location of the Technical Support Center at Calvert Cliffs Nuclear Power Plant is shown in Attachment 5-4, TSC Location Relative to Control Room.

2. The Technical Support Center is a work area for designated technical, engineering, and management personnel who provide technical support to plant operations personnel during emergency conditions. Technical Support Center resources are used to provide guidance and technical assistance to the Control Room. It has facilities for and functions as the Emergency Operation Facility during an Alert level emergency and for a Site Area Emergency and General Emergency until the Emergency Operation Facility is activated. Technical Support Center facilitates reactor operator relief from peripheral duties and communications not directly related to reactor system operations. Attachment 5-5, Characteristics of Technical Support Center vs. Emergency Operations Facility, shows characteristics of Technical Support Center relative to plant operations. The Technical Support Center will be fully operational within approximately one hour after activation.

I. **FACILITIES** (Continued)

C. Technical Support Center (Continued)

3. The Technical Support Center is located on the 55 foot elevation with an Annex on the 58 foot elevation. It is contiguous with and has direct (door) access from the Control Room (can also be accessed from the Turbine Hall). Habitability duplicates Control Room for postulated accident conditions. Space available is considered adequate for personnel and equipment assigned. Radiological protection of personnel is afforded by radiation monitoring personnel.

4. Two computer systems provide data gathering, trending, storage, and display to permit accurate accident assessment with minimum interference of Control Room operation:

- Safety Parameter Display System computer provides continuous indication of plant parameters from which quick assessments of plant safety status can be made.
- Technical Support Center computer provides real time and historical displays and reports to assist in analysis of unit shutdown.

These systems have backup battery power supply to maintain continuity of Technical Support Center functions and immediately resume data acquisition, storage, and display if primary source loss occurs.

Parameters monitored in the Technical Support Center include NUREG 0737 Supplement 1 variables as modified by Calvert Cliffs Nuclear Power Plant's submittals to NRC.

5. The Technical Support Center contains or has access to complete and up-to-date plant records and procedures including:

a. Drawings/Schematics
b. Technical Specifications
c. Operating Instructions/Abnormal Operating Procedures/Emergency Operating Procedures
d. Final Safety Analysis Report
e. Emergency Response Plan Implementation Procedures

I. **FACILITIES** (Continued)

C. Technical Support Center (Continued)

6. Detailed emergency equipment listing is contained in Emergency Response Plan Implementation Procedures.

D. Operational Support Center

The Operational Support Center is located within the protected area (co-located with the Outage Control Center (OCC)) separate from Control Room and Technical Support Center. It provides space for the assembly of support personnel during an emergency. From this location plant logistic support (e.g., maintenance and engineering), required to bring the plant to a safe, stable condition is coordinated. In this way, access to the Control Room is restricted to personnel specifically requested by the Control Room. In addition, from this location plant systems and engineering is coordinated to respond to the needs of the Technical Support Center and the Emergency Operations Facility. No specific habitability criteria are established. Detailed Operational Support Center emergency equipment listing is contained in Emergency Response Plan Implementation Procedures. Implementation Procedures include provisions for performing Operational Support Center functions by essential support people from a second (alternate) location.

E. Joint Information Center

1. The Joint Information Center location is shown in Attachment 5-3, Emergency Operations Facility and Joint Information Center Location.

2. The Joint Information Center is a central location for Calvert Cliffs Nuclear Power Plant personnel to meet with NRC, State and County representatives for releasing emergency announcements to news media.

3. The Joint Information Center is located about twelve miles from the site, in Calvert Industrial Park, Skipjack Road at Hallowing Point Road. It is a well engineered structure for design life of Calvert Cliffs Nuclear Power Plant.

I. **FACILITIES** (Continued)

E. Joint Public Information Center (Continued)

4. The Joint Information Center will be activated for a Site Area Emergency and General Emergency. In the first few hours of an emergency (while the Joint Information Center is being activated) Corporate Communications will provide an information clearing house from their current location. Should a crisis assume prolonged proportions after the center has been activated, Corporate Communications can provide additional personnel. The Joint Information Center, once activated, provides media representatives and public information officers immediate access to accurate emergency related information. The Joint Information Center contains equipment for document reproduction, telecopying, web access, communications, and television electrical connections. The Joint Information Center is a central clearing house for regular information exchange such that all parties have the most current and accurate information to communicate to the public. Attachment 5-6, Public Information Flow identifies the flow of public information after Joint Information Center activation.

F. Laboratories

1. On-site

The Chemistry Laboratory (Auxiliary Building) is available for emergency response during a design basis accident. This availability includes design basis accidents that are coincident with a loss of off-site power. The laboratory can receive power from the plant's emergency diesel generators. General capabilities include:

- Radionuclide identification in various sample media.
- Analysis and measurement of radionuclides in samples taken within the plant and samples taken in the plant site and off-site environment.

I. **FACILITIES** (Continued)

2. Off-site

The Technical and Support Services Division, Constellation Generation Group maintains a fixed counting laboratory in the Fort Smallwood Road Shops Complex:

- Dosimetry of Legal Record processing.
- Radiological Environmental monitoring equipment and sample media.
- Radiological Environmental sampling, and analysis of soil, water, air, vegetation, and so forth
- Radiological Environmental Consulting.

G. Decontamination

Facilities:

- 69 foot Auxiliary Building, Rad-Con area.
- Farm Demonstration Building (on-site). Serves relocated on-site personnel.
- Calvert Memorial Hospital, Prince Frederick

These facilities contain provisions for radiological decontamination of personnel, their wounds, supplies, instruments and equipment. These facilities have extra clothing and decontaminants suitable for the type of contamination expected, including radioiodine skin contamination. Detailed inventory lists and instructions for these facilities are part of Emergency Response Plan Implementation Procedures. Waste disposal, subsequent to decontamination activities, is according to Radiation Protection procedures.

I. FACILITIES (Continued)

H. Medical

1. On-Site

A first aid room located in the Auxiliary Building (69 foot level) facilitates medical treatment and initial assessment of radiation exposure and uptake. Emergency Response Plan Implementation Procedures provide detailed listing of emergency equipment kept there.

2. Off-Site

Arrangements have been made for local and back-up hospitals and medical services having the capability for evaluation of radiation exposure and uptake. This arrangement includes assurance that persons providing these services are adequately prepared to handle contaminated individuals. Arrangements with other hospitals having similar capabilities are contained in the Maryland Core Emergency Operations Plan – Fixed Nuclear Facilities (FNF) Appendix (Formerly Annex Q), Radiological Incident Annex.

Equipment kept at the local off-site facility is listed in the Emergency Response Plan Implementation Procedures.

3. Transport

Agreements are maintained for transporting victims of radiological accidents to medical support facilities.

I. Alternate Emergency Response Facilities

If events on-site prevent immediate access to the site, the impacted Emergency Response Organization may be directed to staff an alternate facility identified in Appendix D, Letters of Agreement.

II. COMMUNICATIONS

Emergency Response Plan Implementation Procedures describe the primary and backup means of communications between Calvert Cliffs Nuclear Power Plant, local, State and Federal response organizations. Systems are compatible with one another and include:

A. A minimum of a telephone link and alternate (State/local).

B. Provision for communications with contiguous State/local governments within the Emergency Planning Zones.

C. Provision for communications as needed with Federal emergency response organizations.

D. Provision for communications between Plant, Emergency Operations Facility, alternate facilities, State and local emergency operations centers and radiological monitoring teams.

E. Provision for alerting or activating emergency personnel in each response organization.

F. Provision for Calvert Cliffs Nuclear Power Plant communication with NRC headquarters and NRC Regional Office Emergency Operations Center and the Emergency Operations Facility and radiological monitoring team assembly area.

G. Coordinated communication link for fixed and mobile medical support facilities.

III. MONITORING INSTRUMENTATION

A. Geophysical Phenomena Monitors

1. On-site

a. Meteorological/Hydrologic

1) Primary Systems: Meteorological tower is equipped with:

- 10m & 60m - wind speed/direction sensors.

III. MONITORING INSTRUMENTATION (Continued)

A. Geophysical Phenomena Monitors (Continued)

- 10m to 60m - Temperature Gradient System with Aspirated Radiation Shields and Rosemount Bulb sensors (10m & 60m ambient temperature).
- Ground level Precipitation Gauge.

2) Backup System: The Emergency Response Plan Implementation Procedures provide instructions for accessing back-up meteorological data in the event the primary meteorological data becomes unavailable.

This equipment is used to initiate emergency measures according to Emergency Response Plan Implementation Procedures, Emergency Action Levels. Primary systems produce current local meteorological data that provides the means to estimate radioactive material dispersion due to accidental, atmospheric releases by the plant and is consistent with recommendations addressed in Safety Guide 23, as supplemented by Supplement 1 to NUREG-0737. The backup system utilizes near site meteorological data that provides information when the primary system is out of service.

b. Seismic

The updated Final Safety Analysis Report (Reference 55) Section 7.5.7 identifies seismic monitoring systems used to initiate emergency classification according to Emergency Response Plan Implementation Procedures.

III. MONITORING INSTRUMENTATION (Continued)

A. Geophysical Phenomena Monitors (Continued)

2. Off-Site

a. Agreements are maintained with off-site agencies to acquire geophysical phenomena monitor data for emergency access when necessary. These agencies are identified in the Emergency Response Plan Support Services listing.

b. Regional meteorological information is available via contracted services with a weather monitoring center that provides appropriate National Weather Service warnings directly to control room personnel. Regional weather information is also available at CEG's Electric Systems Operations Building, Rutherford Business Center. Capabilities include weather radar monitor and National Weather Service information via the satellite based data system (National Weather Wire System) from the Washington Weather Forecast Office in Sterling, Virginia.

B. Meteorological Model

A Class A, atmospheric transport and diffusion assessment model (Ref. 21, App. 2) is maintained on independent, redundant, computers in the Control Room, Technical Support Center, and Emergency Operations Facility (includes a separate computer for state use).

Provisions exist for remote access of site meteorological parameters for Federal, State, and local authorities. The variable trajectory, puff advection, atmospheric dispersion model is used to determine the magnitude of the impact of an accidental release of radioactivity and provides continuous real time (as the release is occurring) assessment of predicted effluent transport and diffusion. The model uses input from meteorological data systems and source term estimates to provide estimates of dose rates, and dose to 10 miles, and deposition rates, total deposition and subsequent gamma exposure from contaminated ground to 50 miles. The model accounts for source decay, plume depletion mechanisms, building wake, plume rise and mixing height. For the 10-mile EPZ, the model uses finite cloud techniques to estimate plume exposure dose rates, four-day external dose rates from deposition, thyroid dose rates and dose rates due to inhalation.

III. MONITORING INSTRUMENTATION (Continued)

B. Meteorological Model (Continued)

Accumulated dose is calculated as the sum of external exposure to the plume, internal exposure due to inhalation in the plume and external exposure to ground deposition according to EPA-400 guidance. A complete description is referenced in the Emergency Response Plan Implementation Procedures and in the RADDOSE System documentation.

C. Radiological Monitors

The Updated Final Safety Analysis Report (Reference 55) Chapter 11, identifies radiological monitors (e.g., process, area, effluent, wound and portable monitors and sampling equipment) available for initiating emergency measures according to Section 2, Emergency Conditions. Specific instruments are incorporated in Emergency Response Plan Implementation Procedures.

D. Process Monitors

The Updated Final Safety Analysis Report (Reference 55) Chapter 7, identifies process monitors (e.g., reactor coolant system pressure and temperature, containment pressure and temperature, liquid levels, flow rates, status or line-up of equipment components) available for initiating emergency measures according to Section 2, Emergency Conditions. Specific instruments are incorporated in Emergency Response Plan Implementation Procedures.

E. Fire/Combustion Monitors

The Updated Final Safety Analysis Report (Reference 55) Section 9.9, identifies fire and combustion products detectors available for initiating emergency measures according to Section 2, Emergency Conditions.

III. MONITORING INSTRUMENTATION (Continued)

F. Field Monitoring

Emergency Response Plan Implementation Procedures describe field monitoring capabilities and resources within plume exposure Emergency Planning Zone which are intrinsic to Calvert Cliffs Nuclear Power Plant's concept of operation. These capabilities include transportation and monitoring equipment (dose ratemeters and sampling devices). Sampling devices are capable of detecting and measuring radioiodine concentrations in air as low as 1E-7 uCi/cc under field conditions. Interference from noble gas presence and background radiation do not decrease the stated minimum detectable activity. Maps identify preselected sampling and monitoring points using sector and zone designators such as those in Reference 21, Table J-1.

G. Environmental Monitoring

The Updated Final Safety Analysis Report (Reference 55) Section 11.2.3.4 and Off-site Dose Calculation Manual, describe the off-site radiological monitoring program for the area surrounding Calvert Cliffs Nuclear Power Plant. Appropriate equipment is provided to facilitate this program. The monitoring equipment meets, as a minimum, the NRC Radiological Assessment Branch Technical Position for the Environmental Radiological Monitoring Program.

H. Post Accident Sampling

The Updated Final Safety Analysis Report (Reference 55) Section 9.6.2.2 describes capabilities and resources available to provide initial values and continuing assessment through the course of an accident for post accident sampling. Capability to sample and analyze the containment atmosphere and Reactor Coolant System meets or exceeds NUREG 0737, Item II.B.3 requirements as modified by Calvert Cliffs Nuclear Power Plant's submittals to NRC. Calvert Cliffs Nuclear Power Plant procedures detail system operations.

III. MONITORING INSTRUMENTATION (Continued)

I. In-plant Iodine Instrumentation

Radiation Safety Procedures and Emergency Response Plan Implementation Procedures describe in-plant iodine instrumentation which provides on-site capabilities for determining initial iodine values and continuing assessment through the course of an accident.

IV. EMERGENCY KITS

Emergency Response Plan Implementation Procedures identify emergency kits/lockers and their contents (protective equipment, communications equipment, radiological monitoring equipment and emergency supplies).

V. RESPIRATORY PROTECTION

Radiation Safety Procedures provide for individual respiratory protection for individuals remaining or arriving on-site during emergencies.

VI. PROTECTIVE CLOTHING

Supplies of apparel include coveralls, rubber gloves, shoe covers and boots, and hoods. Inventories are maintained for normal plant use by Radiation Protection personnel. Emergency clothing supplies are kept at specific areas and emergency centers. This clothing is issued to personnel required to enter areas of known or suspected radioactive contamination. For emergency conditions, normal street clothing is considered as protective apparel. It can be supplemented, as necessary, to protect skin surfaces.

VII. RADIOPROTECTIVE DRUGS

Emergency Response Plan Implementation Procedures provide for use of radioprotective drugs (e.g., individual thyroid protection) for individuals remaining or arriving on-site during emergencies.

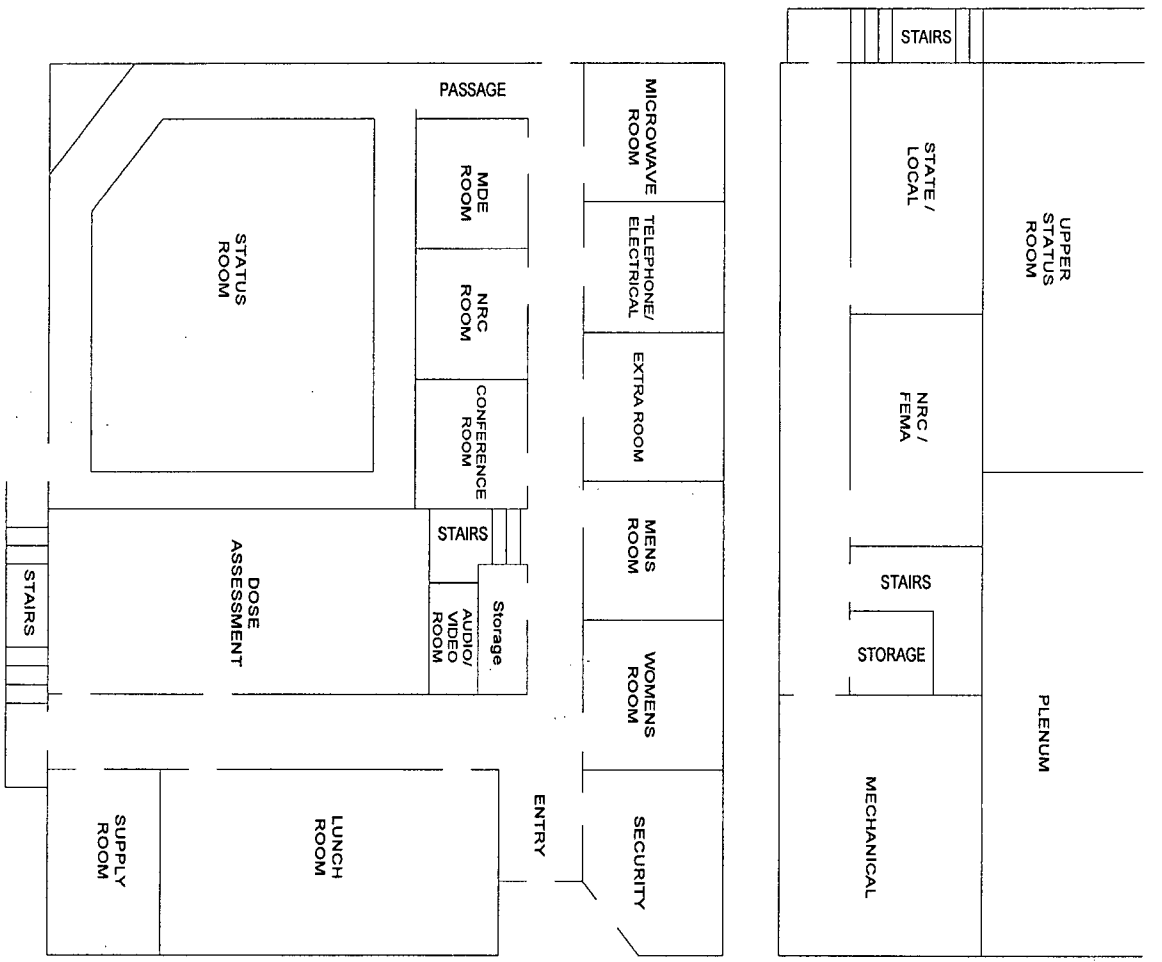
ATTACHMENT 5-1

FACILITY FUNCTIONAL OBJECTIVES

FACILITY NAME	FUNCTIONAL OBJECTIVES
Emergency Operations Facility (EOF)	1) Management of overall emergency response 2) Coordination of radiological and environmental assessment (including receipt and analysis of field monitoring data and sample media coordination) 3) Determination of recommended public protective actions, and Notification of off-site agencies (when emergency declaration is performed at the EOF) 4) Coordination of event, plant and response information provided to public information staff for dissemination to the media and public 5) Staffing and activation of the facility within time frames and at emergency classification levels defined in the emergency response plan 6) Coordination of emergency response activities with Federal, State, and local agencies 7) Provisions are made for acquisition, displaying, and evaluation of radiological, meteorological , and plant system data 8) Analyzing plant technical information and providing technical briefing on event conditions and prognosis to licensee staff and off-site agencies
Technical Support Center (TSC)	1) Provide plant management and analytical support to Operations personnel during emergency conditions. 2) Relieve reactor operators of peripheral duties and communications not directly related to reactor system manipulations. 3) Prevent congestion in the Control Room. 4) Perform EOF functions in Alert, Site and General Emergency, until the EOF is functional.
Operational Support Center (OSC)	1) Provide and coordinate logistic support (i.e., maintenance, etc. to bring the plant to a safe, stable condition). 2) Restrict Control Room access to personnel specifically requested by Shift Manager or General Supervisor-Nuclear Plant Operations. 3) Provide and coordinate engineering support for TSC and EOF.
Joint Information Center (JIC)	1) Provide media representatives with immediate access to accurate emergency related information, generated by all involved agencies. 2) Provide equipment for document reproduction, telecopying, communications, and television electrical connections.
Alternate Facilities	1) Staging area for augmentation of impacted emergency response organization if site is not accessible. 2) Communication capability with EOF, Control Room and Plant Security.

ATTACHMENT 5-2

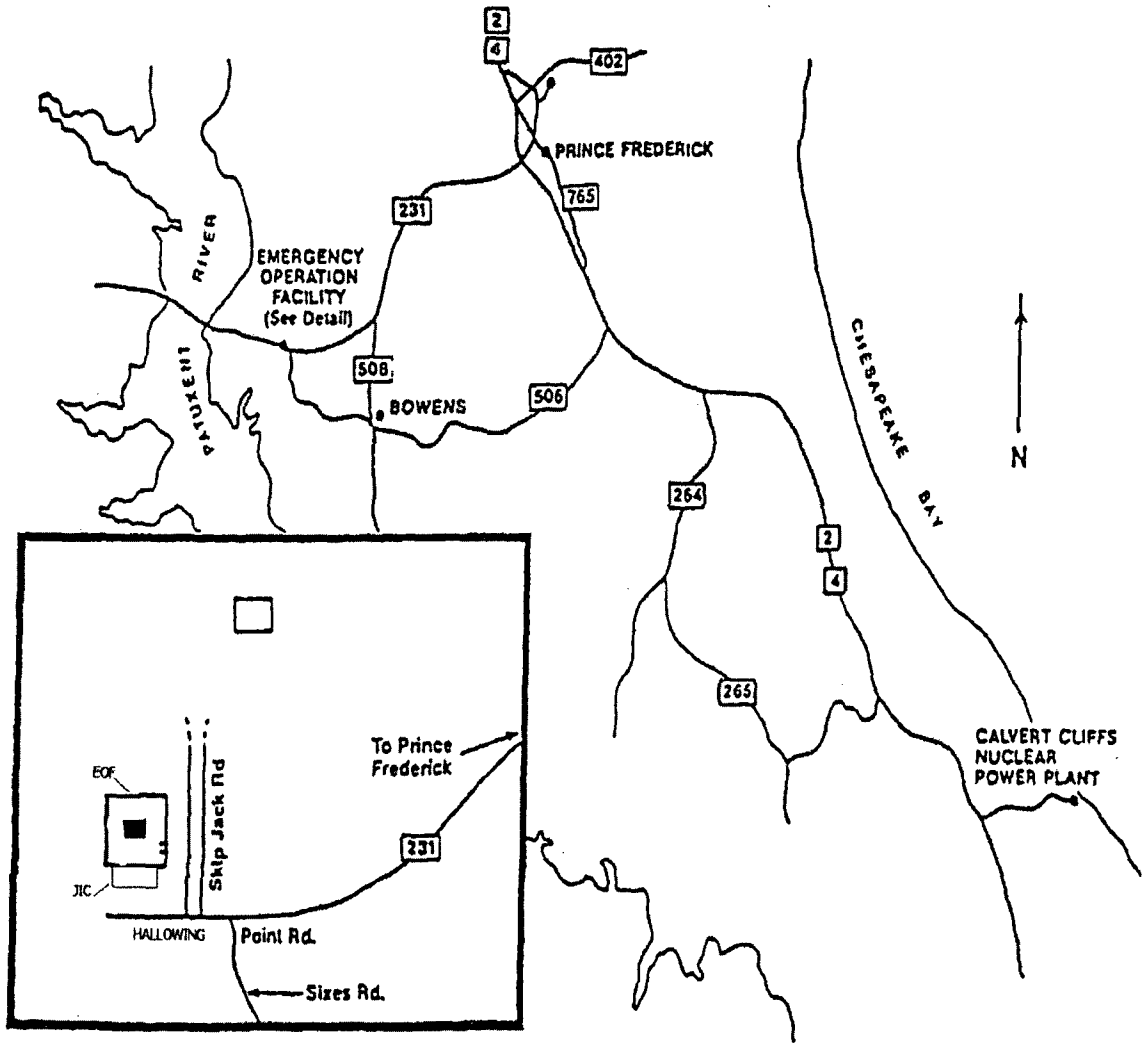
EMERGENCY OPERATIONS FACILITY



ATTACHMENT 5-3

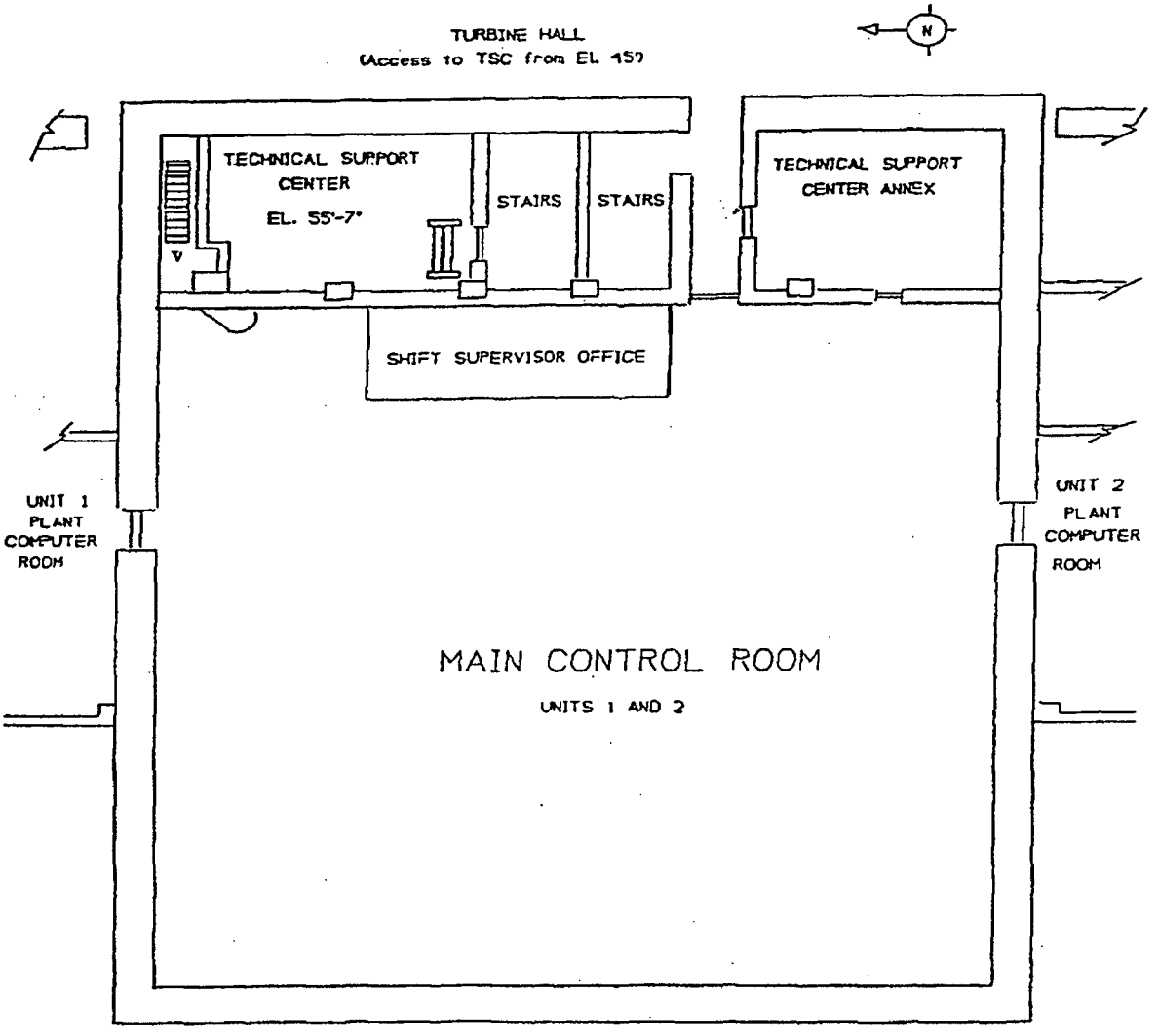
EMERGENCY OPERATIONS FACILITY

AND JOINT INFORMATION CENTER LOCATION



ATTACHMENT 5-4

TSC LOCATION RELATIVE TO CONROL ROOM



ATTACHMENT 5-5

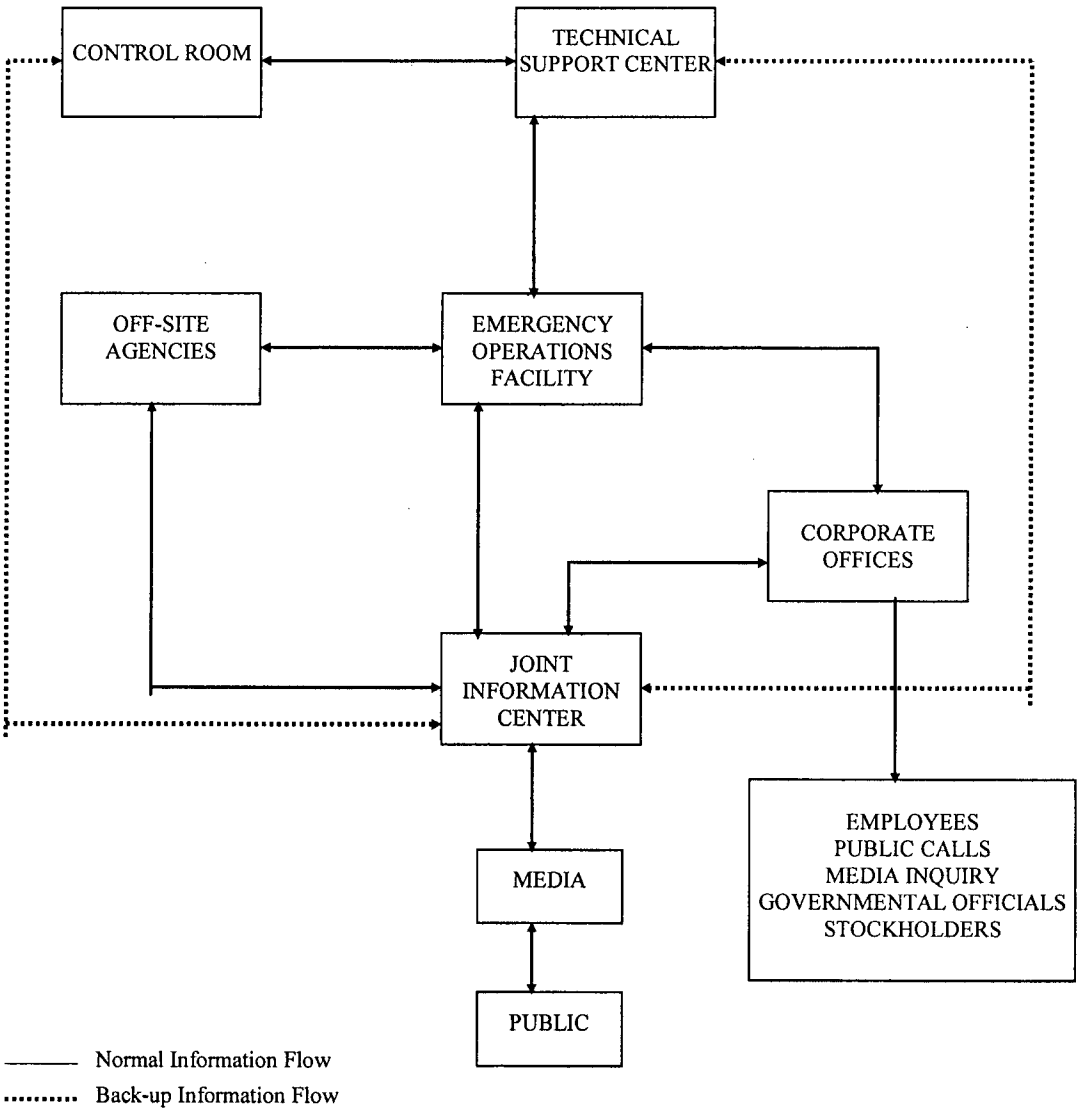
CHARACTERISTICS OF TECHNICAL SUPPORT CENTER VS. CONTROL ROOM AND OPERATIONAL SUPPORT CENTER

(i.e. Control Room and Operational Support Center)

CONTROL ROOM & OPERATIONAL SUPPORT CENTER	TECHNICAL SUPPORT CENTER
• Activities performed by trained, licensed operators in the Control Room supported by OSC maintenance engineering staff.	• Activities performed by high level engineering and management personnel. Supported by the OSC engineering staff.
• Actions based on:	• Actions based on:
• Specific procedures to assure success of safety functions (criticality control, core coverage, heat removal, containment)	• Accident management strategies derived from likely paths to core melt and containment failure.
• Reaction to plant symptoms (flux, flows, pressures, temperatures)	• Anticipation of potential problems or phenomenon
• Success-oriented (goal is to bring plant to a safe stable condition)	• Defensive strategy (do what is necessary to save the core and containment)
• Limited number of options prescribed	• Broad range of options in response to unfolding events
• Strong incentives for adherence to procedures	• Requires authority to overrule established procedures
• Actions should be unambiguously beneficial	• Actions may have negative side effects
• Time for decision making on order of minutes	• Time for decision making on order of hours to days

ATTACHMENT 5-6

PUBLIC INFORMATION FLOW



CALVERT CLIFFS NUCLEAR POWER PLANT
EMERGENCY RESPONSE PLAN

MAINTAINING PREPAREDNESS

I. TRAINING

An integrated training program provides for and ensures initial, annual, and continuing training of appropriate individuals and groups involved in emergencies.

A. General Orientation

General Employee Training describes the program that provides training to all persons having access to Calvert Cliffs Nuclear Power Plant and includes Emergency Response Plan indoctrination.

B. Emergency Personnel

Plant procedures establish a training program for instructing personnel who implement radiological emergency response plans. Specialized initial training, annual, and continuing training programs (including scope, nature and frequency) is provided for:

1. Directors or coordinators of response organizations.

2. Personnel responsible for accident assessment.

3. Radiological monitoring teams and radiological analysis personnel.

4. Security and fire fighting personnel.

5. Onsite repair and damage control/correctional action teams.

6. First aid and rescue personnel. This training includes courses equivalent to or exceeding Red Cross Multi-Media.

7. Local support services personnel including Emergency Management/Emergency Services personnel. Site specific training is provided to those off-site organizations who may be called upon to provide assistance.

I. **TRAINING** (Continued)

B. Emergency Personnel (Continued)

8. Medical support personnel.

9. Recovery Organization personnel.

10. Personnel responsible for transmission of emergency information instructions.

The training program for members of the emergency organizations includes practical drills in which individuals demonstrate ability to perform assigned emergency functions.

C. Public

1. Calvert Cliffs Nuclear Power Plant coordinates annual updating and dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. The information includes but is not necessarily limited to:

a. Educational information on radiation.

b. Contact for additional information.

c. Protective measures, e.g., evacuation routes and relocation centers, sheltering, respiratory protection, radioprotective drugs.

d. Special needs of the handicapped.

Means for accomplishing this dissemination include publication distribution, information in telephone books, and signs or notices to refer the transient population to the phone directory or other source of local emergency information.

This program provides the permanent and transient adult population within the plume exposure Emergency Planning Zone an adequate opportunity to become aware of the information annually. Publications and information provide written material that is likely to be available in a residence during an emergency.

I. **TRAINING** (Continued)

C. Public (Continued)

2. Calvert Cliffs Nuclear Power Plant disseminates information annually to acquaint news media with emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.

D. Emergency Preparedness Unit

Emergency Preparedness Unit maintains a training program for Emergency Preparedness Unit members responsible for the planning effort. Training includes attendance at emergency planning seminars, information workshops and training classes, and literary reviews.

II. EXERCISES AND DRILLS

Plant procedures provide for periodic exercises to evaluate major portions of emergency response capabilities; drills to develop and maintain skills; tests to verify communications operability; and correction of deficiencies identified as a result of any of the preceding. During drills, on-the-spot correction of performance errors is made with a demonstration of proper performance offered by the controller. Correction of errors made in exercises is through Self-Assessment and Corrective Actions programs described in plant procedures.

III. PROGRAM RESPONSIBILITY

The Director-Emergency Preparedness has Corporate authority and responsibility for Calvert Cliffs Nuclear Power Plant radiological emergency response planning. This responsibility includes emergency plan development and updating and coordination of plans with other response organizations.

IV. EQUIPMENT INVENTORY AND MAINTENANCE

Emergency equipment and instrumentation are inspected, inventoried and/or operationally checked once each calendar quarter, after each use and/or whenever tampering is suspected.

IV. EQUIPMENT INVENTORY AND MAINTENANCE (Continued)

Equipment calibration is according to plant procedures that endorse manufacturers' calibration recommendations. Sufficient reserves are available to replace items removed from emergency kits for calibration and repair.

V. PROGRAM REVIEW AND UPDATE

A. Calvert Cliffs Emergency Response Plan and plant procedures and agreements contained there-in are updated as needed. Updates include changes identified by drills and exercises.

B. Calvert Cliffs Emergency Response Plan and Emergency Response Plan Implementation Procedure changes and revisions shall be reviewed by the Plant Operations and Review Committee. The Plant Operations and Review Committee shall submit recommended changes to the Nuclear Safety Review Board according to plant procedures.

C. Calvert Cliffs Emergency Response Plan and Emergency Response Plan Implementation Procedures and approved changes are forwarded to appropriate organizations and individuals having responsibility for their implementation. Revised pages are marked to show changes, except where changes are extensive.

D. The Calvert Cliffs Emergency Response Plan is certified by the Director-Emergency Preparedness to be current on an annual basis. Emergency Response Plan Implementation Procedures are certified by the Director-Emergency Preparedness to be current on a biennial basis.

E. Documents that are associated with the Calvert Cliffs Emergency Response Plan that contain telephone numbers are updated quarterly.

F. Emergency Preparedness will ensure that all emergency preparedness program elements are reviewed by persons who have no direct responsibility for the implementation of the emergency preparedness program either:

1. At intervals not to exceed 12 months or,

V. **PROGRAM REVIEW AND UPDATE** (Continued)

2. As necessary, based on an assessment against performance indicators, and as soon as reasonably practicable after a change occurs in personnel, procedures, equipment, or facilities that potentially could adversely affect emergency preparedness, but not longer than 12 months after the change. In any case, all elements of the emergency preparedness program are to be reviewed at least once every 24 months.

   This review includes an evaluation for adequacy of interfaces with the State and local governments and of drills, exercises, capabilities, and procedures. The Director – Emergency Preparedness will evaluate and correct review findings. The results of the review, along with the recommendations for improvement, must be documented and reported to corporate and plant management. Parts of the review involving the adequacy evaluation of the interface with the State and local governments are made available to them. Review results are retained for five years.

G. Annually, emergency action levels are reviewed with State and local government authorities.

VI. **RECORDS**

A. Plant procedures describe retention requirements for records generated as a result of the implementation of the Emergency Response Plan.

B. Records pertaining to the independent review of the emergency preparedness program will be collected, stored, maintained and retrieved according to plant procedures. Independent review records include:

1. Review report (includes findings and recommendations).

2. Review findings and recommendations resolution.

3. Reports pertaining to interface with offsite agencies shall be made available to the appropriate state or local government.

CALVERT CLIFFS NUCLEAR POWER PLANT
EMERGENCY RESPONSE PLAN

REFERENCES

1. ANSI/ANS-3.7.1.-1979, American National Standard for Facilities and Medical Care in Onsite Nuclear Power Plant Radiological Emergencies.

2. ANSI/ANS-3.7.2.-1979, American National Standard for Emergency Control Centers for Nuclear Power Plants.

3. ANSI/N320-1979, American National Standard Performance Specifications for Reactor Emergency Radiological Monitoring Instrumentation.

4. ANS-3.2/ANSI N18.7-1976, Administrative Controls and Quality Assurance for the operations Phase of Nuclear Power Plants.

5. "Decontamination and Treatment of the Radioactively Contaminated Patient," Calvert Memorial Hospital and Calvert Cliffs Nuclear Power Plant.

6. Calvert Cliffs Nuclear Power Plant Operating License Unit 1, NO. DPR-53 and Unit 2 NO. DPR-69, including:

   a. Appendix A, Technical Specifications (Safety)

   b. Appendix B, Technical Specifications (Environmental)

7. Calvert Cliffs Nuclear Power Plant Procedures:

   a. Nuclear Program administrative interdepartmental, departmental and section/unit Procedures
   b. Radiation Safety Procedures
   c. Nuclear Engineering Operating Instructions
   d. Operating Procedures (Emergency Operating Procedures, Abnormal Operating Procedures, Operating Instructions)
   e. Security Plan Implementation Procedures
   f. Security Plan
   g. Calvert Cliffs Safety Parameters Display System Alarm Manual
   h. Fleet Industrial Safety Manual
   i. Offsite Dose Calculation Manual

8. Department of Health, Education, and Welfare, Food and Drug Administration, 21 CFR Part 1090, "Accidental Radioactive Contamination of Human Food and Animal Feeds" Proposed Rules, Federal Register, Vol. 43, No. 242, December 15, 1978.

9. Department of Health, Education, and Welfare, Food and Drug Administration Notice on "Potassium Iodide as a Thyroid-Blocking Agent in a Radiation Emergency," Federal Register, Vol. 43, No. 242, December 15, 1978.

10. Federal Radiation Council Report NO. 7, May 1965, Background Material for the Development of Radiation Protection Standards.

11. Final Safety Analysis Report (FSAR), Calvert Cliffs Nuclear Power Plant, Inc., Calvert Cliffs Nuclear Power Plant.

12. Markee,/E. H., "On the Relationships of Range to Standard Deviation of the Wind Fluctuations, "Monthly Weather Review, Vol. 91, No. 2 (February 1963).

13. National Council on Radiation Protection Report NO. 39, January 15, 1971, "Basic Radiation Protection Criteria."

14. National Council on Radiation Protection Report 53 March 1, 1977, "Review of NCRP Radiation Dose Limits for Embryo and Fetus in Occupationally-Exposed Women."

15. National Council on Radiation Protection Report NO. 55, August 1, 1977, "Protection of the Thyroid Gland in the Event of Releases of Radioiodine."

16. NUREG-75/087, Revision 1, USNRC Standard Review Plan Section 9.5.1, Fire Protection Program, and Section 13.3, Emergency Planning.

17. NUREG-0396, EPA 520/1-78-016, November 1978, Planning Basis for the Development of Site and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants.

18. NUREG-0578 (extracts), July 1979, TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations.

19. NUREG-0600 (extracts), Investigation into the March 28, 1979 Three Mile Island Accident by Office of Inspection and Enforcement, dated August 1979.

20. NUREG-0610, USNRC Draft Emergency Action Level Guidelines for Nuclear Power Plants, dated September 1979.

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

22. NUREG-0696, Functional Criteria for Emergency Response Facilities, February, 1981.

23. D. Ramsden, F.H. Passant, C.O. Peabody, and R.G. Speight "Radioiodine Uptake in the Thyroid Studies of the Blocking and Subsequent Recovery of the Gland Following and Administration of Stable Iodine, "Health Physics 13, 633, Pergamon Press, 1967 (RA67).

24. Slade, D.H., "Dispersion Estimates from Pollutant Releases of a Few Seconds to 8-hours in Duration," Technical Note 2-ARL-1,ESSA, Washington, DC, (August, 1965).

25. State of Maryland Radiological Emergency Plan, (July, 2007 Revision 10), Annex Q.

26. Title 10, Code of Federal Regulations.

    a. Part 20, Standards for Protection Against Radiation.

    b. Part 50, Licensing of Production and Utilization Facilities.

    c. Part 50, Appendix E, Emergency Plans for Production and Utilization Facilities.

    d. Part 50, Appendix E, Emergency Planning and Preparedness for Production and Utilization Facilities, Proposed Rule, Published in the Federal Register on August 29, 1979

    e. Part 100, Reactor Site Criteria.

27. U.S. NRC, Emergency Planning Review Guideline Number One-Revision One-Emergency Planning Acceptance Criteria For Licensed Nuclear Power Plants, dated September 7, 1979.

28. U.S. NRC, SECY-79-450, dated July 23, 1979, Action Plan for Promptly Improving Emergency Preparedness.

29. U.S. NRC Regulatory Guide 1.16, Revision 4, dated August 1975, Reporting of Operating Information - Appendix A, Technical Specifications.

30. U.S. NRC Regulatory Guide 1.21, Revision 1, Dated June 1974, Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Material in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants.

31. U.S. NRC Regulatory Guide 1.23, proposed Revision 1, September 1981, Meteorological Programs in Support of Nuclear Power Plants.

32. U.S. NRC Regulatory Guide 1.97, Revision 2, December 1980, Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident.

33. U.S. NRC Regulatory Guide 1.70, Revision 3, Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants, Section 13.3, "Emergency Planning."

34. U.S. NRC Regulatory Guide 1.120 (for comment), Revision 1 dated November 1977, Fire Protection Guidelines for Nuclear Power Plants.

35. U.S. NRC Regulatory Guide 1.109, Revision 1, Dated October, 1977, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I.

36. Report to NRC prepared by Combustion Engineering, Inc., and submitted by Baltimore Gas and Electric as "Environmental Impact of Extended Fuel Cycles in Calvert Cliffs Units 1 and 2." November, 1979.

37. Calvert Cliffs Fire Fighting Strategies Manual.

38. Emergency Response Plan Implementation Procedures, Calvert Cliffs Nuclear Power Plant.

39. "Emergency Resources Manual (RP/EP-1)," Institute of Nuclear Power Operations.

40. NUREG/CR-1311, October, 1979 "Examination of Offsite Radiological Emergency Protective Measures for Nuclear Power Accidents Involving Core Melt."

41. CCNPP Operating Procedures, OP-2 Rev. 5, April 1979, "Measurements of Radionuclides in Milk."

42. CCNPP Operating Procedures, OP-4 Rev. 9, March 1980 "Procedures for Collection and Radioanalysis of Aquatic Samples."

43. CCNPP Operating Procedures, OP-5 Rev. 7, August 1979, "Collection and Radioanalysis of Terrestrial and Atmospheric Samples."

44. CCNPP Operating Procedures, OP-6 Rev. 3, June 1978, "External Radiation Dose Rate Measurements."

45. Commonwealth of Virginia, Radiological Emergency Response Plan (RERP).

46. State of Delaware, Radiological Emergency Plan (REP).

47. District of Columbia, District Response Plan.

48. NUREG-0818, October 1981, "Emergency Action Levels for Light Water Reactors" Draft Report for Comment.

49. "Upgraded Public Alert and Notification System for Calvert Cliffs Nuclear Power Plant," September 2002.

50. Updated Safety Analysis Report for Independent Spent Fuel Storage Installation.

51. Regulatory Guide, 1.101, U.S. NRC, Emergency Planning For Nuclear Power Plant.

52. USNRC Safety Guide 23, February 1972, "Onsite Meteorological Programs."

53. NUREG -0737, November 1980, "Clarification of TMI Action Plan Requirements."

54. NUREG-0737, Supplement 1, January 1983, "Clarification of TMI Action Plan Requirements: Requirements for Emergency Response Capability."

55. Updated Final Safety Analysis Report (UFSAR), Calvert Cliffs Nuclear Power Plant, Units 1 and 2, Calvert Cliffs Nuclear Power Plant, Inc.

56. Nuclear Crisis Management Protocol, Business Continuity Program.

57. Calvert County REP and SOP.

58. St. Mary's County REP and SOP.

59. Dorchester County REP and SOP.

60. EPA manual of PAGs and Protective Actions for Nuclear Incidents, October 1991 (EPA-400-R-92-001).

61. On-Shift Staffing Analysis Report, Revision 0

APPENDIX A

LIQUEFIED NATURAL GAS CONTINGENCY

I. DEFINITIONS

A. Liquefied Natural Gas

Liquefied natural gas is mainly methane gas cooled to about -260°F so it changes from a gas to a liquid.

B. Methane

Methane is a colorless, odorless gas that is flammable in concentrations of 5% and greater. It is positively buoyant with respect to air above about 60°F.

II. POTENTIAL THREAT

The relative proximity of the Cove Point Liquefied Natural Gas Terminal to Calvert Cliffs Nuclear Power Plant creates the possibility that abnormal occurrences at the Liquefied Natural Gas Terminal, such as a spill of Liquefied Natural Gas, could pose a potential threat to the safety to equipment and/or personnel at Calvert Cliffs Nuclear Power Plant.

The worse case occurrence at Cove Point with respect to Calvert Cliffs Nuclear Power Plant would be a large scale 25,000 m^3 spill of Liquefied Natural Gas from an Liquefied Natural Gas tanker directly onto the surface of the Chesapeake Bay in the vicinity of the unloading pier. Such a spill is postulated to occur if a Liquefied Natural Gas-laden tanker is involved in a collision with another vessel whereby one or more of the Liquefied Natural Gas tanks aboard the tanker is ruptured. Releases of a smaller size or release from an onshore storage tank have been analyzed and shown to pose no significant threat at Calvert Cliffs Nuclear Power Plant (Liquefied Natural Gas References A, B, and C).

II. POTENTIAL THREAT (Continued)

A significant Liquefied Natural Gas spill to the Chesapeake Bay from a ruptured tank of an Liquefied Natural Gas tanker in the vicinity of the Calvert Cliffs Nuclear Power Plant poses two potential hazards to the personnel and/or operations of the plant. With appropriate atmospheric and bay conditions, a methane vapor cloud emanating from a spill could extend from the spill area to the plant vicinity, engulf portions of the plant, and then ignite.

The resultant heat energy released could be hazardous to personnel and could damage equipment. Additionally, should a flammable concentration of methane vapor fill a confined space or room, an explosion could occur if it ignited. A specific hazard created by methane vapor is the possibility of asphyxiation if the concentration is great enough to reduce oxygen to below minimum life-support levels (approximately 17%).

The development and subsequent dispersion of a methane vapor cloud could occur as follows:

Liquefied Natural Gas (a very cold liquid) is lighter than water and insoluble in water and will form a pool on the surface of water if spilled. As it pools, it absorbs heat from the water. Heating Liquefied Natural Gas causes it to vaporize into methane gas. As the Liquefied Natural Gas pool spreads, the rate of vapor generation increases because there is more surface area for heat absorption. The diameter of the resulting vapor cloud normally will be much greater than its height, since vertical mixing will be inherent due to local temperature inversion by the still cold methane gas cloud. Although methane vapor is colorless, the cloud will appear white due to condensation and/or freezing of water vapor condensed from atmosphere onto the cloud surface.

The initial bulk temperature of newly vaporized methane is approximately -250°F. At this temperature and at atmospheric pressure, methane vapor is approximately 50% more dense than ambient air. Consequently, there is no tendency for the cloud to rise. Experimental data indicates that the vapor cloud continues to spread radically, and there is very little vertical dispersion. Entrainment of air increases the cloud temperature, but generally, the density of the mixture remains above that of the diluting air. In instances where the heat input from the surface of the water, and/or heat input from the condensing and freezing of atmospheric water vapor is significant, the vapor cloud may become positively buoyant, thus terminating the threat to Calvert Cliffs Nuclear Power Plant since the methane will rapidly mix vertically and disperse.

II. POTENTIAL THREAT (Continued)

Once a methane cloud begins to form, atmospheric and wind conditions may be such that the cloud could propagate toward Calvert Cliffs Nuclear Power Plant. Wind speeds of 5-15 mph with stable atmospheric conditions and wind direction from the spill to the plant are necessary to transport the cloud to Calvert Cliffs Nuclear Power Plant. As the cloud moves downwind, it is further diluted and dispersed by turbulent mixing with surrounding air. In the absence of ignition, this process would continue until the concentration of methane in the cloud reduced to the Lower Flammability Limit, about 5% methane, and the methane is totally dispersed into the atmosphere (on the order of 20 minutes).

If at any point in the vapor cloud the methane concentration is between 5% and 15% (Lower Flammability Limit and Upper Flammability Limit, respectively) and an ignition source is present, the vapor cloud will ignite. It will then slowly burn back to the source of the spill at a rate dependent upon the wind conditions. The cloud continues to burn until the concentration of methane is reduced below 5%.

A land-based spill at Cove Point will present no hazard to the plant or to plant personnel. This is principally due to the limited heat source provided by land versus water for Liquefied Natural Gas vaporization and intervening terrain between Cove Point and Calvert Cliffs Nuclear Power Plant.

An accident will threaten the safety of the plant and personnel only if it is a major Liquefied Natural Gas spill from a tanker and the meteorological and bay conditions are such that the resulting vapor cloud can travel the 3 to 4 miles to Calvert Cliffs Nuclear Power Plant. If there is no vapor ignition, the major concern is protection of the plant personnel in an oxygen deficient atmosphere.

If the plume ignites away from the plant structure additional concern is to heat flux generated by the burning cloud that could harm exposed personnel. By taking appropriate actions, hazards to plant personnel could be avoided, and threats to safety of the plant can be minimized.

III. CONCERNS AND ACTIONS IN A LIQUEFIED NATURAL GAS EMERGENCY

The exclusion of methane from the Control Room is vital to plant safety and should be of utmost concern. Control Room ventilation system alignment must be considered as soon as a Liquefied Natural Gas threat is identified.

Plant operational needs will have to be considered and adjustments made if warranted. Ventilation systems including the battery ventilation systems may have to be secured or isolated from outside intakes. Electrical lineups may have to be changed to preserve the ability of the plant to supply vital loads.

Doors and other outside openings to plant structures may have to be secured.

Methane ignition could result in a large scale fire in the vicinity of plant structures. Such a fire could place a significant heat load on equipment or could result in serious personnel injury.

Methane incursion into confined spaces with subsequent ignition could result in an explosion.

Methane concentrations may vary from area to area. Careful monitoring for methane concentrations in specific locations of interest, (i.e., inside a pump motor casing or inside of an electrical panel, etc.) should be performed prior to starting up equipment.

Methane can asphyxiate and can result in dizziness, unconsciousness or even death if inhaled in sufficient concentrations. Personnel must take appropriate precautions such as the use of self-contained or airline respiratory devices.

Access to the site could be affected by the presence of methane or a methane fire. Alternate means of routing assistance on-site and of removing personnel (e.g., for medical purposes) will be considered.

The free movement of personnel outside of plant structures may be impossible, and thus early, prompt actions and decisions may be required.

IV. COMMUNICATIONS

Emergency Response Plan Implementation Procedures describe communication networks between Calvert Cliffs Nuclear Power Plant and the Cove Point Liquefied Natural Gas Plant.

V. LIQUEFIED NATURAL GAS REFERENCES

A. Liquefied Natural Gas (LNP) Hazards for Calvert Cliffs Nuclear Power Plant Final Report, May 28, 1993.

B. Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, Liquefied Natural Gas Hazards Study, "Safety Evaluation by the Office of Nuclear Reactor Regulations (USNRC) Regarding the Proximity of the Cove Point Facility," March 13, 1978.

C. Calvert Cliffs Nuclear Power Plant, Units 1 and 2, "Liquefied Natural Gas Hazards Update," March 9, 1978.

D. Risk Assessment Study for the Cove Point, Maryland Liquefied Natural Gas Facility, Science Applications, Inc. La Folla, CA, SIA-789-626-LJ, March 23, 1978.

E. Cove Point LNG Project Docket No. CPo1-76-000. July 2001

F. NRC Letter to Calvert Cliffs Nuclear Power Plant, "Liquefied Natural Gas Hazard Analysis – Calvert Cliffs Nuclear Power Plant, Unit No. 1 (TAC No. M86704) and Unit No. 2 (TAC NO. M86705)." August 31, 1995.

G. Maryland Power Plant Research Program, "Cove Point LNG Terminal Expansion Project risk Study." June 28, 2006. DNR 12-7312006-147, PPRP-CPT-01.

H. Constellation Energy Nuclear Generation Group Letter to the U.S. Nuclear Regulatory Commission. "Calvert Cliffs Nuclear Power Plant; Unit Nos. 1&2; Docket Nos. 50-317 & 50-318, Independent Spent Fuel Storage Installation; Docket No. 72-8, revision to Hazards Analysis Related to Liquefied Natural Gas Plant operations at Cove Point." February 20, 2008.

V. LIQUEFIED NATURAL GAS REFERENCES (Continued)

I. NUREG-1407, "Protocol and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities." Final Report Published June 1991.

APPENDIX B

EMERGENCY RESPONSE PLAN DISTRIBUTION

The Calvert Cliffs Emergency Response Plan and approved changes to the Emergency Response Plan are forwarded to all organizations and appropriate individuals with responsibility for implementation of the Emergency Response Plan. An Emergency Response Plan distribution list is maintained according to standard plant practices for document control.

The Calvert Cliffs Emergency Response Plan is submitted to the Nuclear Regulatory Commission (NRC) Document Control Desk through standard plant practices for transmitting approved documentation to the NRC.

APPENDIX C

EVACUATION TIME ESTIMATES

In April 2008 Constellation Energy instituted consultant KLD Associates, Inc. Revision 1 to the Evacuation Time Estimates (ETE). The ETE document is currently imaged in the Electronic Document Management System (EDMS). The document type is ETE.

APPENDIX D

LETTERS OF AGREEMENT

Letters of agreement between non-CCNPP and non-CENG agencies and individuals are maintained on file by the Director-Emergency Preparedness.

ATTACHMENTS

- Attachment D-1, Calvert County Volunteer Fire & Rescue Association.
- Attachment D-2, Memo from Site Vice President assigning Corporate Authority to Emergency Directors
- Attachment D-3, Calvert Memorial Hospital Emergency Department Staff Letter of Support – update not required per letter
- Attachment D-4, Radiation Emergency Assistance Center/Training Site (REAC/TS)
- Attachment D-5, Department of Energy Brookhaven Area Office dated 2002 – update not required per letter.
- Attachment D-6, Institute of Nuclear Power Operations dated 2010 – update not required per letter
- Attachment D-7, Delaware Geological Survey, University of Delaware.
- Attachment D-8, Memorandum of Understanding Regarding Communications Between Cove Point LNG Plant and the Calvert Cliffs Nuclear Power Plant
- Attachment D-9, CCNPP Health Physics (Radiation Safety) Guidance and Assistance for Calvert Memorial Hospital
- Attachment D-10, St. Leonard Volunteer Fire Department and Rescue Squad. (Alternate assembly location)
- Attachment D-11, Solomons Rescue Squad and Fire Department (Alternate assembly location)
- Attachment D-12, Maryland Emergency Management Agency
- Attachment D-13, Maryland State Police Barrack "U" Prince Frederick
- Attachment D-14, Office of the Sheriff Calvert County

ATTACHMENT D-1

CALVERT COUNTY VOLUNTEER & RESCUE ASSOCIATION

CALVERT COUNTY VOLUNTEER & RESCUE ASSOCIATION

175 Main Street
Prince Frederick, Maryland
20678

12/20/2012

Director-Emergency Preparedness
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, Maryland 20657

Dear Director:

The Calvert County Fire & Rescue Associations member departments and special services units accept responsibility for providing fire fighting, emergency medical services (including transport of injured), and other emergency assistance to the Calvert Cliffs Nuclear Power Plant in support of Calvert Cliffs Nuclear Power Plant's Radiological Emergency Response Plan.

This assistance will be implemented at the request of the Calvert Cliffs Nuclear Power Plant contingent upon equipment availability, with consideration for overall fire and emergency priorities.

Initial information exchange shall be coordinated through the Calvert County Communications Control Center.

Sincerely,

J.W. Freesland, III
President Calvert County Fire & Rescue Association

DO YOUR SHARE FOR FIRE PREVENTION

ATTACHMENT D-2
MEMO FROM SITE VICE PRESIDENT ASSIGNING CORPORATE AUTHORITY TO EMERGENCY DIRECTORS

CENG
a joint venture of
Constellation Energy EDF

INTERNAL CORRESPONDENCE

December 20, 2012

TO: Site Managers

FROM: George Gellrich
VIA: Mike Fick

SUBJECT: Emergency Director/Recovery Manager (ED/RM) Responsibilities

My expectations concerning Emergency Director/Recovery Manager responsibilities are as follows. When the Emergency Response Plan is implemented the ED/RM's primary responsibility is to assure the public safety and health and plant' personnel's safety under all emergency conditions. This includes requiring the service of any Company employees or group as necessary to support implementation of the Emergency Response Plan. Until the ED/RM position is staffed, the Shift Manager acts as the Interim ED with the full authority of that office

Your support of the ED/RM and the Emergency Response Organization (ERO) is necessary to ensure decisions affecting public safety and health adequately address risk and are appropriately conservative in an emergency situation.

Please ensure your people are aware of these conditions.

Michael Fick
Director – Emergency Preparedness

George Gellrich
Vice President – Calvert Cliffs Nuclear Power Plant

ATTACHMENT D-3
CALVERT MEMORIAL HOSPITAL EMERGENCY DEPARTMENT STAFF LETTER OF SUPPORT – UPDATE NOT REQUIRED PER LETTER

Lusby, Maryland 20657

CENG
a joint venture of
Constellation Energy EDF

December 20, 2012

Calvert Memorial Hospital
100 Hospital Road
Prince Frederick, MD 20678

Re: Request for Current Letter of Support

Federal regulations require commercial nuclear power utilities to maintain up-to-date letters of agreement (every two years) with organizations or individuals providing support during an emergency as mentioned in the Radiological Emergency Response Plan. Calvert Cliffs Nuclear Power Plant (CCNPP) takes credit in the Calvert Cliffs Emergency Response Plan for the medical services Calvert Memorial Hospital (CMH) would provide for plant personnel injuries involving radiation exposure or contamination.

This letter certifies an agreement between Calvert Cliffs Nuclear Power Plant and the Calvert Memorial Hospital that in an emergency situation at CCNPP, all parties will work together, provide facilities and hospital care as necessary during radiological emergency events.

- CCNPP shall continue to provide necessary training to CMH Security and Emergency Room staff associated with radiation, decontamination and emergency care of patients.
- CCNPP shall provide Radiation Emergency Assistance Center/Training Site (REAC/TS) type training from the Oak Ridge Institute to Emergency Room Physicians as necessary.
- CCNPP shall provide technical radiological health physist to assist CMH during radiologically contamination events.
- Calvert Memorial Hospital shall provide patient care for radiologically contaminated patients from CCNPP 24 hours a day, 365 days a year.
- Calvert Memorial Hospital shall allow use of Emergency Room Decontamination rooms as necessary to CCNPP staff.
- Whenever able, CMH will notify CCNPP of any Emergency Department physician contract changes at least three (3) months in advance.

This letter of agreement shall remain in effect until notified by either party to terminate.

Michael Fick
Director – Emergency Preparedness
Calvert Cliffs Nuclear Power Plant

Andy Moffitt
Emergency Manager
Calvert Memorial Hospital

Jim Xinis
President and CEO
Calvert Memorial Hospital

ATTACHMENT D-4

RADIATION EMERGENCY ASSISTANCE CENTER/TRAINING SITE (REAC/TS)

Page 1 of 2

Department of Energy

Oak Ridge Office
P.O. Box 2001
Oak Ridge, Tennessee 37831
December 17, 2010

Mr. Michael Fick, Director
Emergency Preparedness
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, Maryland 20657

Dear Mr. Fick:

LETTER OF AGREEMENT – RADIATION EMERGENCY ASSISTANCE CENTER/TRAINING SITE (REAC/TS) SUPPORT

Please reference an electronic mail of November 30, 2010, from Rick Woods, requesting that the Department of Energy (DOE) REAC/TS facilities and team be available to provide back-up capability and assistance to the Calvert Cliffs Nuclear Power Plant in the event of a radiological emergency. This response constitutes our agreement to provide this service upon your request. The agreement remains in effect until terminated in writing by either party.

We wish to remind you that our REAC/TS facilities in the Oak Ridge Institute for Science and Education (ORISE) are government controlled and operated by the Oak Ridge Associated Universities under contract with DOE. Therefore, REAC/TS is prohibited from competing with commercial firms that can provide radiological emergency services. Only if the magnitude or uniqueness of a radiological emergency exceeds your in-house and commercially available capabilities would REAC/TS be authorized to provide back-up services.

Since these facilities are government controlled, no fee or retainer is required to assure the availability of back-up services by REAC/TS. However, if you utilize the services of REAC/TS, we should expect to recover those costs that could reasonably be related to handling such an incident, including all charges billed to DOE or ORISE by hospitals and physicians. Information concerning the REAC/TS facilities, staff, services available, and procedures for seeking REAC/TS assistance can be obtained by direct contact with the REAC/TS Director, Dr. Albert Wiley, ORISE, Post Office Box 117, Oak Ridge, Tennessee 37831, or at telephone number (865) 576-3131.

Sincerely,

M. G. Branton

Michele G. Branton
Contracting Officer's Representative

ATTACHMENT D-4

RADIATION EMERGENCY ASSISTANCE CENTER/TRAINING SITE (REAC/TC)

Page 2 of 2

Mr. Michael Fick December 17, 2010

cc:

Rebecca M. Kennard, MS 48, ORISE

Albert L. Wiley, MS 39, ORISE

ATTACHMENT D-5

DEPARTMENT OF ENERGY BROOKHAVEN AREA OFFICE DATED 2002 – UPDATE NOT REQUIRED PER LETTER

Department of Energy
Brookhaven Area Office
P.O. Box 5000
Upton, New York 11973

JUN 03 2002

TO: DISTRIBUTION LIST

SUBJECT: DEPARTMENT OF ENERGY'S (DOE) RADIOLOGICAL ASSISTANCE PROGRAM (RAP) MEMORANDUM OF UNDERSTANDING

The DOE Brookhaven Area Office (BAO) is the Regional Coordinating Office (RCO) for DOE's Region 1, after discussion with representatives from the U.S. Nuclear Regulatory Commission (USNRC) and the Federal Emergency Management Agency (FEMA), has concluded that individual memorandums of understanding (MOUs) are no longer required.

Numerous federal laws, regulations, and DOE Orders, that are currently in existence, require DOE to maintain an overready response capability for coping with any nuclear/radiological incident in support of FEMA and the NRC. The elimination of the annual letters would in no way impact the assistance or support that BAO is required to provide and has maintained over the years. BAO, as the RCO for DOE Region 1, will carry out that assistance required by law, regulation, and DOE Orders.

If you have any questions or would like further details, please contact me at (631) 344-7509.

Sincerely,

Steven M. Costiro
Regional Response Coordinator

ATTACHMENT D-6

INSTITUTE OF NUCLEAR POWER OPERATIONS DATED 2010 – UPDATE NOT REQUIRED PER LETTER

INPO®

Institute of Nuclear Power Operations

Suite 100
700 Galleria Parkway, SE
Atlanta, GA 30339-5943
770-644-8000
FAX 770-644-8549

October 30, 2012

Dear Ladies and Gentlemen:

This letter certifies that the plant emergency assistance agreement between INPO and its member utilities remains in effect. In the event of an emergency at your utility, INPO will assist you in acquiring the help of other organizations in the industry, as described in Section 1 of the Emergency Resources Manual, INPO 03-001, and in the United States Nuclear Industry Response Framework. If requested, INPO will provide the following assistance:

- coordinate technical information flow from the affected utility to the nuclear industry and government agencies
- coordinate the procurement and shipping of equipment and supplies
- locate personnel with technical expertise
- facilitate industry vendor and commercial supplier support
- obtain technical information and industry operating experience regarding plant components and systems
- provide an INPO liaison to facilitate interface

This agreement will remain in effect until terminated in writing. Should you have any questions, please call Steve Meng at (770) 644-8548 or e-mail at MengSW@inpo.org.

Sincerely,

Jeffrey T. Gasser
Vice President
Emergency Response

JTG:cjm

ATTACHMENT D-7
DELAWARE GEOLOGICAL SURVEY, UNIVERSITY OF DELAWARE

Delaware Geological Survey
State of Delaware
University of Delaware • Delaware Geological Survey Building
Newark, Delaware 19716-7501

David R. Wunsch
Director and State Geologist

December 20, 2012

Mr. Michael J. Fick, Director
Emergency Preparedness
1650 Calvert Cliffs Parkway
Lusby, Maryland 20657

Dear Mr. Fick:

It is my understanding that our organization is on your emergency response list as a provider of seismic information and that you would like to have a letter stating that the Delaware Geological Survey (DGS) will be able to provide seismic information to you that it obtains from its seismic network. It is also our understanding that such a request would most likely be associated with an earthquake in the vicinity of Calvert Cliffs or from a more distant earthquake that could affect the Calvert Cliffs Power Plant. That data that we obtain through operation of our seismic stations are available upon request.

The DGS currently operative a five-station seismic network in Delaware (BVD, BWD, NED, DEMA, and SCOM). BVD, BWD, and NED are located in northern New Castle County, DEMA is located near the border of New Castle and Kent counties, and SCOM is located in Sussex County. The DGS Seismic Network has become an integral part of several seismic networks located in the northeastern and southeastern United States, as well as the National Earthquake Information Center operated by the U. S. Geological Survey (USGS). Locations of the DGS stations are contained on the accompanying figure.

This letter of agreement shall remain in effect until notified by either party to terminate.

The DGS can be contacted by telephone at (302) 831-2833 or 2834, and via electronic means at delgeosurvey@udel.edu.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Stefanie J. Baxter
(original signature)

Stefanie J. Baxter
Geologist

Phone: 302-831-2833 • Fax: 302-831-3579 • Email: delgeosurvey@udel.edu • Web Address: www.udel.edu/dgs

ATTACHMENT D-8

MEMORANDUM OF UNDERSTANDING REGARDING COMMUNICATIONS BETWEEN COVE POINT LNG PLANT AND THE CALVERT CLIFFS NUCLEAR POWER PLANT

Memorandum of Understanding

Regarding Communications Between

The Dominion Cove Point LNG Plant and the Calvert Cliffs Nuclear Power Plant

THIS MEMORANDUM OF UNDERSTANDING (MOU) is made as of December 20, 2012 by and between Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) and the Dominion Cove Point LNG, L.P. (Cove Point). CCNPP and Cove Point are sometimes singularly and collectively referred to hereafter as Party and Parties. This MOU shall remain in effect until notified by either party to terminate.

WHEREAS, Cove Point is required as a condition of a FERC Order, dated October 12, 2001, to establish communication links with CCNPP and to identify the types of potential incidents that should promptly be reported to CCNPP (among other related requirements).[1]

WHEREAS, CCNPP desires to establish a communications protocol between the Parties so that it will be notified of incidents at Cove Point and relating to LNG tanker operations that may pose any type of a security or safety threat to CCNPP.

WHEREAS, Cove Point desires to establish a communications protocol between the Parties so that it will be notified of incidents at CCNPP that may pose any type of a security or safety threat to Cove Point.

WHEREAS, the Parties mutually desire that this MOU set forth a frame work for such communication but that no liability shall attach in the event that either Party fails to meet the communications guidelines set forth herein.

I. Communications Links – The notifications described below must be made to a person which means that leaving a message on a recorder does not constitute notification.

A. Per the FERC Order referenced above, Cove Point must establish a direct, independent communication link and a redundant backup link between Cove Point LNG Plant and CCNPP. The direct independent link will be an "Automatic Ringdown" telephone line installed between the Cove Point and CCNPP Control Rooms. The direct telephone line will be the responsibility of Cove Point to maintain. The backup communications link will be an 800 MHz radio. The 800MHz radio and radio system will be responsibility of CCNPP to maintain.

[1] FERC Docket CP01-76-001, et. al., 97 FERC ¶ 61,043 (2001).

ATTACHMENT D-8

MEMORANDUM OF UNDERSTANDING REGARDING COMMUNICATIONS BETWEEN COVE POINT LNG PLANT AND THE CALVERT CLIFFS NUCLEAR POWER PLANT

B. Notifications by Cove Point shall be made to CCNPP using the means listed below, in the following order of priority:

1. Direct line (red phone).
2. Radio.
3. Commercial phone to CCNPP Central Alarm Station (CAS) at 410-495-4682 or Secondary Alarm Station at 410-495-4695.
4. Commercial phone to CCNPP Operation Shift Manager at 410-495-5201.
5. Commercial Phone to CCNPP Unit 1 Control Room at 410-495-5203 or Unit 2 Control Room at 410-495-5204.

C. Notifications by CCNPP shall be made to Cove Point using the means listed below, in the following order of priority:

1. Direct line (red phone).
2. Radio.
3. Commercial phone to Cove Point Main Control Room at 410-286-5111.
4. Commercial phone to Cove Point Manager LNG Operations at 410-286-5101. (weekday – daytime).
5. Commercial phone to Cove Point Supervisor LNG Operations at 410-286-5173. (weekday – daytime).

II. Communications Protocol – Cove Point to CCNPP

A. Cove Point agrees to promptly notify CCNPP of the following events related to the Cove Point facility.

1. Information concerning the approach of each laden LNG tanker in route to the Cove Point docking facility.
2. Serious LNG spills or other problems.
3. Any situation that the staff of Cove Point control room believes threatens the safe and/or secure operation of Cove Point and/or CCNPP.

MEMORANDUM OF UNDERSTANDING REGARDING COMMUNICATIONS BETWEEN COVE POINT LNG PLANT AND THE CALVERT CLIFFS NUCLEAR POWER PLANT

Page 3 of 3

III. Communications Protocol – CCNPP to Cove Point

A. CCNPP agrees to notify Cove Point of the following events related to the CCNPP facility:

1. Any situation that the staff of CCNPP control room or Security Director believes threatens the safe and/or secure operation of Cove Point and/or CCNPP.

IV. No Liability

A. NEITHER PARTY SHALL BE RESPONSIBLE TO THE OTHER PARTY OR ANY THIRD PARTY, OR OTHERWISE LIABLE, FOR INCIDENTAL, INDIRECT, PUNATIVE, EXEMPLARY, SPECIAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THIS MOU (WHETHER ARIDING IN CONTRACT, TORT, STRICT LIABILITY OR OTHERWISE), INCLUDING WITHOUT LIMITATION, ANY LOSSES OR DAMAGES CAUSED BY REASON OF UNAVAILABILITY OF A PLANT, PLANT SHUTDOWNS, SERVICE INTERRUPTIONS, LOSS OF USE, PROFITS OR REVENUE, INVENTORY OR USE CHARGES, COST OF PURCHASED OR REPLACMENT POWER, INTEREST CHARGES, COST OF CAPITAL, OR CLAIMS OF CUSTOMERS.

AGREED AND ACCEPTED:

CALVERT CLIFFS NUCLEAR POWER PLANT, INC.

BY: Michael J. Fick
(Michael Fick, Director-Emergency Preparedness)

Date: 11/14/12

DOMINION COVE POINT LNG, L.P.

BY: Mic Gardner
(Michael Gardner, Manager LNG Operations)

Date: 11-14-2012

ATTACHMENT D-9

CCNPP HEALTH PHYSICS (RADAITION SAFETY) GUIDANCE AND ASSISTANCE FOR CALVERT MEMORIAL HOSPITAL

CENG
a joint venture of
Constellation Energy EDF

INTERNAL CORRESPONDENCE

Letter of Agreement

December 20, 2012

The purpose of this letter is to confirm an agreement between Calvert Memorial Hospital (CMH) and Constellation Energy, Calvert Cliffs Nuclear Power Plant. (CCNPP) to provide Health Physics (Radiation Safety) guidance and assistance during an incident involving a radioactively contaminated injured patient.

Commensurate with plant operating conditions, Radiation Safety Technicians and Health Physicist's will be available on a 24/7 basis to provide assistance. This includes, but is not limited to. Radiological monitoring and exposure control, for any type of incident (including transportation) that may involve radioactive materials. The appropriate contacts can be made by using the current Radiation Emergency Telephone Directory provided in the Calvert Memorial Hospital Plan for Treatment and Decontamination of the Radioactive Contaminated Patient.

Michael J. Fick
Michael Fick
Director – Emergency Preparedness

Ken Gould
Ken Gould
General Supervisor, Radiation Protection – CCNPP

ATTACHMENT D-10

ST. LEONARD VOLUNTEER FIRE DEPARTMENT AND RESCUE SQUAD (ALTERNATE FACILITY)

1650 Calvert Cliffs Parkway
Lusby, Maryland 20657

CENG
a joint venture of
Constellation Energy EDF
CALVERT CLIFFS
NUCLEAR POWER PLANT

12/20/2012

To: George Anderson
President, St. Leonard Volunteer Fire Department and Rescue Squad
200 Calvert Beach Road
P.O. Box 101
St. Leonard, MD. 20685-0101

Mr. Anderson:

Calvert Cliffs Nuclear Power Plant requests that the parking areas at the St. Leonard Volunteer Fire Department and Rescue Squad be used as an emergency response staging area in the event of a hostile action that prevents safe site access. CCNPP also requests access to the office and phone to conduct initial response. In this scenario we would notify emergency personnel to respond to an "alternate" duty location. That location would be either the St. Leonard Fire Department or the Solomon's Fire House.

It is unlikely that these types of events will occur; however, it is in everyone's best interest to be prepared for any situation. If this agreement is acceptable, please sign and return this document at your earliest convenience. We appreciate the assistance that this partnership provides. Should you have any questions, please do not hesitate to call. I can be reached at (410) 495-5216. This letter of agreement shall remain in effect until notified by either party to terminate.

Sincerely

Michael J. Fick

Michael Fick, Director
Calvert Cliffs Emergency Preparedness Unit

Acknowledged

George Anderson, President

Cc: Calvert County EMA

ATTACHMENT D-11

SOLOMON'S RESCUE SQUAD AND FIRE DEPARTMENT (ALTERNATE FACILITY)

1650 Calvert Cliffs Parkway
Lusby, Maryland 20657

CENG
a joint venture of
Constellation Energy EDF
CALVERT CLIFFS
NUCLEAR POWER PLANT

12/20/2012

To: Renee Crampton
President, Solomons Volunteer Rescue Squad and Fire Department
13150 H.G. Trueman Road
P.O. Box 189
Solomon's, MD. 20688-0189

Ms. Crampton:

Calvert Cliffs Nuclear Power Plant requests that the parking areas at the Solomons Volunteer Rescue Squad and Fire Department be used as an emergency response staging area in the event of a hostile action that prevents safe site access. CCNPP also requests access to the office and phone to conduct initial response. In this scenario we would notify emergency personnel to respond to an "alternate" duty location. That location would be either the Solomons Fire House or the St. Leonard Fire Department.

It is unlikely that these types of events will occur; however, it is in everyone's best interest to be prepared for any situation. If this agreement is acceptable, please sign and return this document at your earliest convenience. We appreciate the assistance that this partnership provides. Should you have any questions, please do not hesitate to call. I can be reached at (410) 495-5216. This letter of agreement shall remain in effect until notified by either party to terminate.

Sincerely

Michael J. Fick

Michael Fick, Director
Calvert Cliffs Emergency Preparedness Unit

Acknowledged

Renee Crampton

Renee Crampton, President

Cc: Calvert County EMA

ATTACHMENT D-12 Page 1 of 3

MARYLAND EMERGENCY MANAGEMENT AGENCY

1650 Calvert Cliffs Parkway
Lusby, Maryland 20657

CENG
a joint venture of
Constellation Energy EDF
CALVERT CLIFFS
NUCLEAR POWER PLANT

1. This letter constitutes a mutual Statement of Agreement between the State of Maryland and Calvert Cliffs Nuclear Power Plant regarding coordinations of offsite/onsite response to nuclear incidents at the Calvert Cliffs Nuclear Power Plant. This agreement is in consonance with Nuclear Regulatory Commission (NCR) and Federal Emergemcy Management Agency (FEMA) guidance as outlined in NUREG-0654/FEMA-REP-1, Revision 1 and Maryland Annotated Code, Title 14.

2. The State of Maryland has established its basic plan for emergency operations in the "State of Maryland Emergency Operations Plan, Fixed Nuclear Facility (FNF) Appendix, Radiological Emergency ResponsePlan (formerly Annex Q) ," The operations plan details emergency response to incidents at nuclear power plant facilities located within or adjacent to the State.

3. Since portions of Calvert, St. Mary's and Dorchester counties are within the designated plume exposure pathway emergency planning zone for Calvert Cliffs, their respective emergency management agencies, in coordination with the Maryland Emergency Management Agency have prepared offsite radiological emergency response annexes to its emergency operations plans for use in the event of an incident at the Calvert Cliffs Nuclear Power Plant.

4. Calvert Cliffs Nuclear Power Plant has established a Radiological Emergency Response Plan that is compatible with the "State of Maryland Emergency Operations Plan, Fixed Nuclear Facility (FNF) Appendix, Radiological Emergency Response Plan".

5. The Maryland Emergency Management Agency and the aforementioned county emergency management agencies shall initiate and conduct appropriate and timely response to incidents occurring at the Calvert Cliffs Nuclear Power Plant, as detailed in the State and respective county Radiological Emergency Response Plans, following notification by Calvert Cliffs Nuclear Power Plant.

6. Upon occurrence of an UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY or GENERAL EMERGENCY at the Calvert Cliffs Nuclear Power Plant, initial notification by the facility shall be accomplised in accordance with the Section 5, "Concept of Operations" to the "State of Maryland Emergency Operations Plan, Fixed Nuclear Facility (FNF) Appendix, Radiological Emergency Response Plan."

ATTACHMENT D-12 Page 2 of 3

MARYLAND EMERGENCY MANAGEMENT AGENCY (continued)

7. Subsequent to initial notification by the facility, notification precedures for escalation to ALERT, SITE AREA EMERGENCY or GENERAL EMERGENCY shall be accomplished in accordance with "State of Maryland Emergency Operations Plan, Fixed Nuclear Facility (FNF) Appendix," Section 5, "Concept of Operations." 5.3. "Emergency Communications."

8. The physical means of communication for response to an incident shall be established and utilized in accordance with Section 5, Concept of Operations, 5.3, Emergency Communications of State of Maryland Emergency Operations Plan, Fixed Nuclear Facility (FNF) Appendix, Radiological Emergency Response Plan .

9.Calvert Cliffs Nuclear Power Plant is on the distribution list for the "State of Maryland Emergency Operations Plan, Fixed Nuclear Facility (FNF) Appendix (formerly Annex Q), Radiological Emergency Response Plan," and shall receive changes to the Plan as they are issued.

10. The Maryland Emergency Management Agency is on the distribution list for Calvert Cliffs "Radiological Emergency Response Plan" and shall receive changes to this plan as they are issued.

11. Calvert Cliffs Nuclear Power Plant shall annually review "State of Maryland Emergency Operations Plan, Fixed Nuclear Facility (FNF) Appendix, Radiological Emergency Response Plan," and provide written recommended revisions to Maryland Emergency Management Agency as deemed appropriate and necessary.

12. The Maryland Emergency Management shall review annually the Calvert Cliffs Nuclear Power Plant Radiological Emergency Response Plan and provide written recommended revisions to Calvert Cliffs Nuclear Power Plant as deemed appropriate and necessary by the Agency.

13. Calvert Cliffs Nuclear Power Plant accepts the responsibilites outlined inSection 4, General Policies, 4.1, Role of the FNF. "State of Maryland Emergency Operations Plan, Fixed Nuclear Facility (FNF) Appendix." These responsibilites establish the role of the facitlity in regard to preparedness for, and response to, incidents at the Calvert Cliffs Nuclear Power Plant and shall be adhered to as the established state/facility relationship for such incidents.

ATTACHMENT D-12 Page 3 of 3

MARYLAND EMERGENCY MANAGEMENT AGENCY (continued)

14. The Maryland Emergency Management Agency and Calvert Cliffs Nuclear Power Plant accepts and shall adhere to the principles set forth in this Statement of Agreement. In addition, the Maryland Emergency Management Agency and Calvert Cliffs Nuclear Power Plant by agreeing to the emergency operations in the "State of Maryland Emergency Operations Plan", Annex Q, "Radiological Emergency Response to Nuclear Power Plant Incidents" and Calvert Cliffs Nuclear Power Plant "Radiological Emergency Responsey Plan" will remain in effect on the date of mutual execution of this Agreement hereby further agree that future revision as described in Paragraphs 12 and 13 above that do not involve changes to the responsibilites of the parties will be considered part of this Agreement. Changes to these Plans that affect the responsablitlies of the parties to this Agreement shall be reviewed and agreed by both parties in writing prior to becoming binding on the parties. Changes in personnel are not considered substantive changes to the general terms and conditions of this agreement.

Agreed:

_____ Date 11/14/12
Ken Mallette
Director – Maryland Emergency Management Agency

_____ Date: 11/14/12
Michael Fick
Director – Calvert Cliffs Nuclear Power Plant Emergency Preparedness

cc: Ken Robinson

ATTACHMENT D-13 Page 1 of 1

MARYLAND STATE POLICE BARRACK "U" PRINCE FREDERICK

MARTIN O'MALLEY
GOVERNOR

ANTHONY G. BROWN
LT. GOVERNOR

STATE OF MARYLAND
MARYLAND STATE POLICE

(410) 535-1400 / (301) 855-1975
Barrack "U" – Southern Troop
210 Main Street
Prince Frederick, MD 20678

COLONEL
MARCUS L. BROWN
SUPERINTENDENT

December 20, 2012

Mr. Michael Fick
Emergency Preparedness Analyst
Constellation Energy
Generation Group
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657

Dear Mr. Fick:

In accordance with the regulation of the Nuclear Regulatory Commission, the Maryland State Police hereby submits the following response plan with regard to the Calvert Cliffs Nuclear Power Plant. This LOA remains in effect until notified by either party to terminate.

RESPONSE PLAN: The Maryland State Police has law enforcement jurisdiction at the Calvert Cliffs Nuclear Power Plant, Lusby, Calvert County, Maryland. As such, the Maryland State Police agree to respond to and assist at the aforementioned power plan when summoned to support the facility for both hostile based actions, and all other actions including non-hostile based actions in which the facility might summons off-site assistance. The Maryland State Police support the opportunity to visit the power plant for purposes of orientation and familiarization. The Maryland State Police also commits to our support of the facility for all full-scale drills regulated by the Nuclear Regulatory Commission.

We, Maryland State Police, look forward to our continued mutual cooperation in securing your facility, and ensuring the public interest and safety.

Sincerely,

Lieutenant Randolph L. Stephens
Commander – Barrack "U"
Prince Frederick
Maryland State Police

RLS:rg

"Maryland's Finest"

ATTACHMENT D-14

Page 1 of 1

OFFICE OF THE SHERIFF CALVERT COUNTY

OFFICE OF THE SHERIFF
CALVERT COUNTY

MIKE EVANS
SHERIFF

LT. COLONEL T.C. HEJL
ASSISTANT SHERIFF

Lt. S.R. Jones
Investigative Division

T.D. Reece
Detention Center Administrator

Lt. R.A. Thomas
Special Operations and
Homeland Security

Lt. B.R. Jones
Administrative and
Judicial Services

Lt. P.D. McDowell
Patrol Division

December 20, 2012

Constellation Energy
Calvert Cliffs Nuclear Power Plant
Attn: Mr. Michael Fick- Director of Emergency Preparedness
RE- Response Plan Update

Dear Mr. Fick,

In accordance with the regulation of the Nuclear Regulatory Commission, the Calvert County Sheriff's Office hereby submits the following plan with regard to the Calvert Cliffs Nuclear Power Plant. This LOA remains in effect until notified by either party to terminate.

RESPONSE PLAN: In that the Calvert County Sheriff's Office is the primary law enforcement agency having jurisdiction at the Calvert Cliffs Nuclear Power Plant, Lusby, Calvert County, Maryland. We agree to respond to and assist at the aforementioned power plant when summoned to support the facility for both hostile based actions and all other actions including non-hostile based actions in which the facility might summons off site assistance. Members of the Sheriff's Office will respond with all necessary equipment and specialized personnel depending on the requested services. The Calvert County Sheriff's Office also conducts periodic all hazards classes, facility familiarization tours and response plan reviews with all Sheriff's Office personnel. The Sheriff's Office also commits to our full support of the facility for all full scale drills regulated by the Nuclear Regulatory Commission.

The Sheriff's Office looks forward to our continued mutual cooperation in securing your facility and ensuring the public interest and safety.

Respectfully Submitted,

Mike Evans
Sheriff

The Calvert House, 30 Church Street
Prince Frederick, Maryland 20678
410-535-2800

Detention Center
410-535-4300

Metro Line
301-855-1194

FAX
410-535-1770

For Hearing and
Speech Impaired
TDD-535-3491

APPENDIX E

NUREG-0654 CROSS REFERENCE

This appendix cross references the Emergency Response Plan with NUREG-0654, Revision 1, November 1980.

Numbered items in this appendix correspond to NUREG-0654. Missing items are items from NUREG-0654 that do not apply to the licensee.

I. INTRODUCTION

A. FORM AND CONTENT OF PLANS

Evaluation Criteria	Applicability and Cross Reference	
	ERP	IMPLEMENTING DOCUMENTS
In addition to addressing the substance of all criteria, the plans must, of course, define the facility or facilities and area to which the plans apply.	1.I	

II. Planning Standards and Evaluation Criteria

A. Assignment of Responsibility (Organization Control) Planning Standard

Primary responsibilities for emergency response by the nuclear facility licensee, and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.a.	Each plan shall identify the State, local, Federal and private sector organizations (including utilities), that are intended to be part of the overall response organization for Emergency Planning Zones. (See Appendix 5).	1.II 1.III 3.VI 3.VII 3.VIII	
b.	Each organization and sub organization having an operational role shall specify its concept of operations, and its relationship to the total effort.	1.III 3.I 3.III 3.IV 3.V 3.VI 3.VII	
c.	Each plan shall illustrate these interrelationships in a block diagram.	Att. 3-3 Att. 3-4 Att. 3-5 Att. 3-6	
d.	Each organization shall identify a specific individual by title who shall be in charge of the emergency response.	3.III.A 3.IV.A	
e.	Each organization shall provide for 24-hour per day emergency response, including 24-hour per day manning of communications links.	3.I 4.II Att. 4-2	

A. Assignment of Responsibility (Organization Control) (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
2.a.	N/A		
b.	N/A		
3.	Each plan shall include written agreements referring to the concept of operations developed between Federal, State, and local agencies and other support organizations having an emergency response role within the Emergency Planning Zones. The agreements shall identify the emergency measures to be provided and the mutually acceptable criteria for their implementation, and specify the arrangements for exchange of information. These agreements may be provided in an appendix to the plan or the plan itself may contain descriptions of these matters and a signature page in the plan may serve to verify the agreements. The signature page format is appropriate for organizations where response functions are covered by laws, regulations or executive orders where separate written agreements are not necessary.	3.V 3.VI 3.VII App. D	
4.	Each principal organization shall be capable of continuous (24-hour) operations for a protracted period. The individual in the principal organization who will be responsible for assuring continuity of resources (technical, administrative, and material) shall be specified by title	3.I 3.III 3.III.A	

B. Onsite Emergency Organization

Planning Standard

On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available, and the interfaces among various onsite response activities and offsite support and response activities are specified.

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.	Each licensee shall specify the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal staff complement	3.I 3.III Att. 3-1 Att. 3-2	
2.	Each licensee shall designate an individual as emergency coordinator who shall be on shift at all times and who shall have the authority and responsibility to immediately and unilaterally initiate any emergency actions, including providing protective action recommendations to authorities responsible for implementing offsite emergency measures.	3.III.A	ERPIP-3.0, Immediate Actions ERPIP-102, General Supervisor – Nuclear Plant Operations (CR) ERPIP-201, Technical Support Center Director (TSC) ERPIP-202, Technical Support Center Manager (TSC) ERPIP-501, Emergency Director/Recovery Manager (EOF)
3.	Each licensee shall identify a line of succession for the emergency coordinator position and identify the specific conditions for higher level utility officials assuming this function.	3.III.A	ERPIP-3.0, Immediate Actions ERPIP-102, General Supervisor – Nuclear Plant Operations (CR) ERPIP-201, Technical Support Center Director (TSC) ERPIP-202, Technical Support Center Manager (TSC) ERPIP-501, Emergency Director/Recovery Manager (EOF)

B. Onsite Emergency Organization (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
4.	Each licensee shall establish the functional responsibilities assigned to the emergency coordinator and shall clearly specify which responsibilities may not be delegated to other elements of the emergency organization. Among the responsibilities which may not be delegated shall be the decision to notify and to recommend protective actions to authorities responsible for offsite emergency measures.	3.III.A 3.IV.A	ERPIP-3.0, Immediate Actions ERPIP-102, General Supervisor – Nuclear Plant Operations (CR) ERPIP-201, Technical Support Center Director (TSC) ERPIP-202, Technical Support Center Manager (TSC) ERPIP-501, Emergency Director/Recovery Manager (EOF)
5.	Each licensee shall specify the positions or title and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity. For emergency situations specific assignments shall be made for all shifts and for plant staff members, both onsite and away from the site. These assignments shall cover the emergency functions in Table B-1 entitled, "Minimum Staffing Requirements for Nuclear Power Plant Emergencies." The minimum on-shift staffing levels shall be as indicated in Table B-1. The licensee must be able to augment on-shift capabilities within a short period of time after declaration of an emergency.	Sect. 3 4.II	ERPIP-3.0, Immediate Actions ERPIP-105, Control Room Communicator (CR) ERPIP-102, General Supervisor – Nuclear Plant Operations (CR) ERPIP-201, Technical Support Center Director (TSC) ERPIP-202, Technical Support Center Manager (TSC) Emergency Response Organization (NORMS Document: ERO) ERP Section 7, Reference 6. Calvert Cliffs Nuclear Power Plant License Unit 1, N0.DPR-53 (Docket No. 50-317) and Unit 2 NO.DRR-69 (Docket No. 50-318)
6.	Each licensee shall specify the interface between and among the onsite functional areas of emergency activity, licensee headquarters support, local services support, and State and local government response organization. This shall be illustrated in a block diagram and shall include the onsite technical support center and the operational support (assembly) center and the licensee's Emergency Operations Facility (EOF).	Sect. 3	

B. Onsite Emergency Organization (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
7.	Each licensee shall specify the corporate management, administrative, and technical support personnel who will augment the plant staff as specified in the table entitled "Minimum Staffing Requirements for Nuclear Power Plant Emergencies," (Table B-1) and in the following areas:	3.III. Att. 3-2	
a.	logistics support for emergency personnel, e.g., transportation, communications, temporary quarters, food and water, sanitary facilities in the field, and special equipment and supplies procurement;	3.IV.B.2 3.IV.B.3	
b.	technical support for planning and reentry/recovery operations;	3.III.	ERPIP-201, Technical Support Center Director (TSC) ERPIP-202, Technical Support Center Manager (TSC) ERPIP-302, Engineering Director (OSC)
c.	management level interface with governmental authorities; and	3.IV.A	
d.	release of information to news media during emergency (coordinated with government authorities).	3.IV.B.1	
8.	Each licensee shall specify the contractors and private organizations who may be requested to provide technical assistance to and augmentation of the emergency organization.	3.V 3.VI App. D	ERPIP-201, Technical Support Center Director (TSC)

B. Onsite Emergency Organization (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
9.	Each licensee shall identify the services to be provided by local agencies for handling emergencies, e.g., police, ambulance, medical, hospital, and fire-fighting organizations shall be specified. The licensee shall provide for transportation and treatment of injured personnel who may also be contaminated. Copies of the arrangements and agreements reached with contractor, private, and local support agencies shall be appended to the plan. The agreements shall delineate the authorities, responsibilities, and limits on the actions of the contractor, private organization, and local services support groups.	3.V 3.VI 3.VII App. D	

C. **Emergency Response Support and Resources**

Planning Standard

Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's near-site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.	The Federal government maintains in-depth capability to assist licensees, State and local governments through the Federal Radiological Emergency Response Plan (FRERP on May 8, 1996 (61 FR 20944). Each State and Licensee shall make provisions for incorporating the Federal response capability into its operation plan, including the following:	3.VII.D	
a.	Specific persons by title authorized to request Federal assistance; see A.1.d., A.2.a.	3.III.A 3.IV.A	
b.	Specific Federal resources expected, including expected times of arrival at specific nuclear facility sites; and	3.VII.D	
c.	specific licensee, State and local resources available to support the Federal response, e.g., air fields, command posts, telephone lines, radio frequencies and telecommunications centers.	3.VII.D	
2.a.	N/A		

C. Emergency Response Support and Resources (continued)

Evaluation Criteria	Applicability and Cross Reference	
	ERP	IMPLEMENTING DOCUMENTS
b. The licensee shall prepare for the dispatch of a representative to principal offsite governmental emergency operations centers.	3.IV.D	ERPIP-720, Technical Representatives (Calvert, St. Mary's, Dorchester, and State – EOCs)
3. Each organization shall identify radiological laboratories and their general capabilities and expected availability to provide radiological monitoring and analysis services which can be used in an emergency.	5.I.F	
4. Each organization shall identify nuclear and other facilities, organizations or individuals which can be relied upon in an emergency to provide assistance. Such assistance shall be identified and supported by appropriate letters of agreement.	3.VI 3.VII App. D	INPO Resources Manual

D. **Emergency Classification System**

Planning Standard

A standard emergency classification and action level scheme, the basis of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.	An emergency classification and emergency action level scheme as set forth in Appendix 1 must be established by the licensee. The specific instruments, parameters or equipment status shall be shown for establishing each emergency class, in the in-plant emergency procedures. The plan shall identify the parameter values and equipment status for each emergency class.	2.I 2.II 2.III 2.IV 2.V	ERPIP-3.0, Immediate Actions EAL Technical Basis Document
2.	The initiating conditions shall include the example conditions found in Appendix 1 and all postulated accidents in the Final Safety Analysis Report (FSAR) for the nuclear facility.	2.II 2.III 2.IV 2.V 2.VI Att. 2-1	ERPIP-3.0, Immediate Actions
3.	N/A		
4.	N/A		

E. Notification Methods and Procedures

Planning Standard

Procedures have been established for notification, by the licensee of State and local response organization and for notification of emergency personnel by all response organizations; the content of initial and follow-up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.	Each organization shall establish procedures which describe mutually agreeable bases for notification of response organizations consistent with the emergency classification and action level scheme set forth in Appendix 1. These procedures shall include means for verification of messages. The specific details of verification need not be included in the plan.	2.I 4.II.A 4.II.B Att. 4-1 Att. 4-2	ERPIP-3.0, Immediate Actions ERPIP-105, Control Room Communicator (CR) ERPIP-209, Technical Support Center Communicator (TSC) ERPIP-509, Emergency Operations Facility Communicator (EOF)
2.	Each organization shall establish procedures for alerting, notifying, and mobilizing emergency response personnel.	4.II.A 4.III	ERPIP-105, Control Room Communicator (CR) ERPIP-201, Technical Support Center Director (TSC) ERPIP-209, Technical Support Center Communicator (TSC) ERPIP-3.0, Immediate Actions ERPIP-501, Emergency Director/Recovery Manager (EOF) ERPIP-503, Emergency Response Facility Director (EOF) ERPIP-509, Emergency Operations Facility Communicator (EOF) ERPIP-750, Security

E. **Notification Methods and Procedures** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
3.	The licensee in conjunction with State and local organizations shall establish the contents of the initial emergency messages to be sent from the plant. These messages shall contain information about the class of emergency, whether a release is taking place, potentially affected population and areas, and whether protective measures may be necessary.	4.II.C.1	ERPIP-3.0, Immediate Actions
4.	Each licensee shall make provisions for follow-up messages from the facility to offsite authorities which shall contain the following information if it is known and appropriate:	4.II.C.2	ERPIP-3.0, Immediate Actions
a.	location of incident and name and telephone number (or communications channel identification) of caller;	4.II.C.2	ERPIP-3.0, Immediate Actions
b.	date/time of incident;	4.II.C.2	ERPIP-3.0, Immediate Actions
c.	class of emergency;	4.II.C.2	ERPIP-3.0, Immediate Actions
d.	type of actual or projected release (airborne, waterborne, surface spill), and estimated duration/impact times;	4.II.C.2	ERPIP-3.0, Immediate Actions
e.	estimate of quantity or radioactive material released or being released and the points and height of releases;	4.II.C.2	ERPIP-3.0, Immediate Actions
f.	chemical and physical form of released material, including estimates of the relative quantities and concentration of noble gases, iodines and particulates;	4.II.C.2	ERPIP-3.0, Immediate Actions
g.	meteorological conditions at appropriate levels (wind speed, direction (to and from), indicator of stability, precipitation, if any);	4.II.C.2	ERPIP-3.0, Immediate Actions

E. **Notification Methods and Procedures** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
h.	actual or projected dose rates at site boundary; projected integrated dose at site boundary;	4.II.C.2	ERPIP-3.0, Immediate Actions
i.	projected dose rates and integrated dose at the projected peak and at 2, 5 and 10 miles, including sector(s) affected;	4.II.C.2	ERPIP-3.0, Immediate Actions
j.	estimate of any surface radioactive contamination in plant, onsite or offsite;	4.II.C.2	ERPIP-3.0, Immediate Actions
k.	licensee emergency response actions underway;	4.II.C.2	ERPIP-3.0, Immediate Actions
l.	recommended emergency actions, including protective measures;	4.II.C.2	ERPIP-3.0, Immediate Actions
m.	request for any needed onsite support by offsite organizations; and	4.II.C.2	ERPIP-3.0, Immediate Actions
n.	prognosis for worsening or termination of even based on plant information.	4.II.C.2.	ERPIP-3.0, Immediate Actions
5.	N/A		
6.	Each organization shall establish administrative and physical means, and the time required for notifying and providing prompt instructions to the public within the plum exposure pathway Emergency Planning Zone. (See Appendix 3.). It shall be the licensee's responsibility to demonstrate that such means exist, regardless of who implements this requirement. It shall be the responsibility of the State and local governments to activate such a system.	4.II.B 4.II.D 5.II	ERPIP-3.0, Immediate Actions ERPIP-102, General Supervisor – Nuclear Plant Operations (CR) ERPIP-201, Technical Support Center Director (TSC) ERPIP-202, Technical Support Center Manager (TSC) ERPIP-501, Emergency Director/Recovery Manager (EOF)

E. **Notification Methods and Procedures** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
7.	Each organization shall provide written messages intended for the public, consistent with the licensee's classification scheme. In particular; draft messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas. Messages shall be prepared and included as part of the State and local plans. Such messages should include the appropriate aspects of sheltering, ad hoc respiratory protection, e.g., handkerchief over mouth, thyroid blocking or evacuation. The role of the licensee is to provide the supporting information for the messages. For ad hoc respiratory protection see "Respiratory Protective Devices Manual" American Industrial Hygiene Association, 1963 pp. 123-126.	3.IV.B.1 5.I.E.	JIC-02

F. **Emergency Communications**

Planning Standard

Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.	The communication plans for emergencies shall include organizational titles and alternates for both ends of the communication links. Each organization shall establish reliable primary and backup means of communication for licensees, local, and State response organizations. Such systems should be selected to be compatible with one another. Each plan shall include:	5.II	
a.	provision for 24-hour per day notification to and activation of the State/local emergency response network; and at a minimum, a telephone link alternate, including 24-hour per day manning of communications links that initiate emergency response actions.	3.III.A. 4.II.B 5.II Att. 4-2	ERPIP-3.0, Immediate Actions ERPIP-901, Communications Equipment
b.	provision for communications with contiguous State/local governments within the Emergency Planning Zones;	5.II	ERPIP-102, General Supervisor – Nuclear Plant Operations (CR) ERPIP-105, Control Room Communicator (CR) ERPIP-201, Technical Support Center Director (TSC) ERPIP-202, Technical Support Center Manager (TSC) ERPIP-209, Technical Support Center Communicator (TSC) ERPIP-3.0, Immediate Actions ERPIP-501, Emergency Director/Recovery Manager (EOF) ERPIP-509, Emergency Operations Facility Communicator (EOF) ERPIP-901, Communications Equipment
c.	provisions for communications as needed with Federal emergency response organizations;	5.II	ERPIP-901, Communications Equipment

F. **Emergency Communications** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
d.	provision for communications between the nuclear facility and the licensee's Emergency Operations Facility, State and local emergency operations centers, and radiological monitoring teams;	5.II	ERPIP-901, Communications Equipment
e.	provision for alerting or activating emergency personnel in each response organization; and	4.II.A 4.II.B 5.II	ERPIP-102, General Supervisor – Nuclear Plant Operations (CR) ERPIP-105, Control Room Communicator (CR) ERPIP-201, Technical Support Center Director (TSC) ERPIP-202, Technical Support Center Manager (TSC) ERPIP-209, Technical Support Center Communicator (TSC) ERPIP-3.0, Immediate Actions ERPIP-501, Emergency Director/Recovery Manager (EOF) ERPIP-503, Emergency Operations Facility Director (EOF) ERPIP-509, Emergency Operations Facility Communicator (EOF) ERPIP-750, Security ERPIP-901, Communications Equipment
f.	provision for communications by the licensee with NRC headquarters and NRC Regional Office Emergency Operations Centers and the licensee's Emergency Operations Facility and radiological monitoring team assembly area.	5.II	ERPIP-104, Emergency Notification System Communications (CR) ERPIP-901, Communications Equipment
2.	Each organization shall ensure that a coordinated communication link for fixed and mobile medical support facilities exists.	5.II	ERPIP-901, Communications Equipment
3.	Each organization shall conduct periodic testing of the entire emergency communications system (see evaluation criteria H.10, N.2.a and Appendix 3).	6.II 6.IV	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1002, Control of Emergency Preparedness Program Activities EP-1-302, Emergency Preparedness Repetitive Task and Administrative Controls

G. **Public Education and Information**

Planning Standard

Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

Evaluation Criteria	Applicability and Cross Reference	
	ERP	IMPLEMENTING DOCUMENTS
1. Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. This information shall include, but not necessarily be limited to: a. educational information on radiation; b. contact for additional information; c. protective measure, e.g., evacuation routes and relocation centers, sheltering, respiratory protection, radio protective drugs; d. special needs of the handicapped. Means for accomplishing this dissemination may include, but are not necessarily limited to: information in the telephone book; periodic information in utility bills; posting in public areas; and publications distributed on an annual basis.	6.I.C.1	CNG-EP-1.01-1002, Control of Emergency Preparedness Program Activities

G. Public Education and Information (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
2.	The public information program shall provide the permanent and transient adult population within the plume exposure EPZ an adequate opportunity to become aware of the information annually. The programs should include provision for written material that is likely to be available in a residence during an emergency. Updated information shall be disseminated at least annually. Signs or other measures (e.g., decals, posted notices or other means, placed in hotels, motels, gasoline stations and phone booths) shall also be used to disseminate to any transient population within the plume exposure pathways EPZ appropriate information that would be helpful if an emergency or accident occurs. Such notices should refer the transient to the telephone director or other source of local emergency information and guide the visitor to appropriate radio and television frequencies.	6.I.C.1	CNG-EP-1.01-1002, Control of Emergency Preparedness Program Activities
3.a.	Each principal organization shall designate the points of contact and physical locations for use by news media during an emergency.	3.IV.B.1 5.I.E Att. 5-7 Att. 5-8 Att. 5-9	
b.	Each licensee shall provide space which may be used for a limited number of the news media at the Emergency Operations Facility.	5.I.E	
4.a.	Each principal organization shall designate a spokesperson who should have access to all necessary information.	3.IV.B.1 5.I.E	

G. **Public Education and Information** (continued)

Evaluation Criteria	Applicability and Cross Reference	
	ERP	IMPLEMENTING DOCUMENTS
b. Each organization shall establish arrangements for timely exchange of information among designed spokespersons.	3.IV.B.1 3.VII.A 5.I.E	
c. Each organization shall establish coordinated arrangements for dealing with rumors.	3.IV.B.1.g 5.I.E	JIC-02
5. Each organization shall conduct coordinated programs at least annually to acquaint news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.	6.I.C.2	

H. Emergency Facilities and Equipment

Planning Standard

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.	Each licensee shall establish a Technical Support Center and an onsite operations support center (assembly area) in accordance with NUREG-0696.	5.I.C 5.I.D	ERPIP-201, Technical Support Center Director (TSC) ERPIP-301, Operational Support Center Director (OSC) NRC Inspection Report dated 5/26/1982 EP Appraisal Combined Inspection Report Nos. 50-317/81-19 and 50-318/81-18
2.	Each licensee shall establish an Emergency Operations Facility from which evaluation and coordination of all licensee activities related to an emergency is to be carried out and from which the licensee shall provide information to Federal, State and local authorities responding to radiological emergencies in accordance with NUREG-0696.	5.I.B	
3.	N/A		
4.	Each organization shall provide for timely activation and staffing of the facilities and centers described in the plan.	3.III 3.IV 4.II.A 4.II.B	ERPIP-102, General Supervisor – Nuclear Plant Operations (CR) ERPIP-105, Control Room Communicator (CR) ERPIP-201, Technical Support Center Director (TSC) ERPIP-209, Technical Support Center Communicator (TSC) ERPIP-3.0, Immediate Actions ERPIP-503, Emergency Operations Facility Director (EOF) ERPIP-750, Security

H. **Emergency Facilities and Equipment** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
5.	Each licensee shall identify and establish on-site monitoring systems that are to be used to initiate emergency measure in accordance with Appendix 1, as well as those to be used for conducting assessment. The equipment shall include:	5.III.A 5.III.B 5.III.C 5.III.D	ERPIP-3.0, Immediate Actions ERPIP-318, Onsite Survey Team (OSC) ERPIP-821, Accidental Radioactivity Release Rate Estimate ERPIP-823, Dose Assessment Computer ERPIP-825, Meteorological Data Acquisition Methods
a.	geophysical phenomena monitors, (e.g., meteorological, hydrologic, seismic);	5.III.A	OI-46, Seismic Measurement Equipment
b.	radiological monitors, (e.g., process, area, emergency, effluent, wound and portable monitors and sampling equipment);	5.III.C 5.III.D 5.III.F 5.III.G	ERPIP-903, Monitoring Equipment and Instrumentation ERPIP-B.1, Equipment Checklists ERPIP-B.2, Offsite Survey Points OI-35, Radiation Monitoring System OI-44, Process Radiation Monitor OI-48, Wide Range Noble Gas Monitor RSP 1-107, Personnel Contamination Assessment/Decontamination by Radiation Safety Technicians
c.	process monitors, (e.g., reactor coolant system pressure and temperature, liquid levels, flow rates, status or lineup of equipment components); and	5.III.D	
d.	fire and combustion products detectors.	5.III.E	OI-20, Fire Protection System (Common)
6.	Each licensee shall make provision to acquire data from or for emergency access to offsite monitoring and analysis equipment including:	5.III	ERPIP-504, Environmental Assessment Director (EOF)
a.	geophysical phenomena monitors, (e.g., meteorological, hydrologic, seismic);	5.III.A	OI-46, Seismic Measurement Equipment

Emergency Facilities and Equipment (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
b.	radiological monitors including rate meters and sampling devices. Dosimetry shall be provided and shall meet, as a minimum, the NRC Radiological Assessment Branch Technical Position for the Environmental Radiological Monitoring Program; and	5.III.C 5.III.F 5.III.G	ERPIP-318, Onsite Survey Team (OSC) ERPIP-507, Offsite Survey Team (EOF) ERPIP-903, Monitoring Equipment and Instrumentation ERPIP-B.1, Equipment Checklists
c.	laboratory facilities, fixed or mobile.	5.I.F	
7.	Each organization, where appropriate shall provide for offsite radiological equipment in the vicinity of the nuclear facility.	5.III.F 5.III.G 5.IV	ERPIP-504, Environmental Assessment Director (EOF) ERPIP-507, Offsite Survey Team (EOF) ERPIP-B.1, Equipment Checklists ERPIP-B.2, Offsite Survey Points
8.	Each licensee shall provide meteorological instrumentation and procedures which satisfy the criteria in Appendix 2, and provisions to obtain representative current meteorological information from other sources.	5.III.A App. D	
9.	Each licensee shall provide for an onsite operations support center (assembly area) which shall have adequate capacity, and supplies, including, for example, respiratory protection, protective clothing, portable lighting, portable radiation monitoring equipment, cameras and communications equipment for personnel present in the assembly areas.	5.I.D	ERPIP-B.1, Equipment Checklists

H. **Emergency Facilities and Equipment** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
10.	Each organization shall make provisions to inspect, inventory and operationally check emergency equipment/instruments at least once each calendar quarter and after each use. There shall be sufficient reserves of instruments/equipment to replace those which are removed from emergency kits for calibration or repair. Calibration of equipment shall be at intervals recommended by the supplier of the equipment.	6.IV	ERPIP-903, Monitoring Equipment and Instrumentation ERPIP-B.1, Equipment Checklists
11.	Each plan shall, in an appendix, include identification of emergency kits by general category (protective equipment, communications equipment, radiological monitoring equipment and emergency supplies).	5.IV	ERPIP-B.1, Equipment Checklists
12.	Each organization shall establish a central point (preferably associated with the licensee's Emergency Operations Facility), for the receipt and analysis of all field monitoring data and coordination of sample media.	5.I.B Att. 5-1	ERPIP-511, Radiological Assessment Director (EOF)

I. Accident Assessment

Planning Standard

Adequate methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Evaluation Criteria	Applicability and Cross Reference	
	ERP	IMPLEMENTING DOCUMENTS
1. Each licensee shall identify plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents, and shall identify the plant parameter values of other information, which correspond to the example initiating conditions of Appendix 1. Such parameter values and the corresponding emergency class shall be included in the appropriate facility emergency procedures. Facility emergency procedures shall specify the kinds of instruments being used and their capabilities.	2.I	ERPIP-3.0, Immediate Actions ERPIP-600, Severe Accident Management ERPIP-601, Severe Accident Management Initial Diagnosis ERPIP-602, Severe Accident Management Verification of Diagnosis ERPIP-603, Candidate High Level Actions BD/CC ERPIP-604, Candidate High Level Actions BD/CH ERPIP-605, Candidate High Level Actions BD/CC ERPIP-606, Candidate High Level Actions BD/B ERPIP-607, Candidate High Level Actions EX/CC ERPIP-608, Candidate High Level Actions EX/CH ERPIP-609, Candidate High Level Actions EX/I ERPIP-610, Candidate High Level Actions EX/B ERPIP-611, Severe Accident Management Restorative Actions ERPIP-612, Candidate High Level Actions SFP Fuel Uncovered ERPIP-800, Core Damage Assessment (CDA) ERPIP-801, CDA Using Containment Radiation Dose Rates ERPIP-802, CDA Using Core exit Thermocouples ERPIP-803, CDA Using Hydrogen ERPIP-804, Using Radiological Analysis of Samples

I. **Accident Assessment** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
2.	Onsite capability and resources to provide initial values and continuing assessment throughout the course of an accident shall include post-accident sampling capability, radiation and effluent monitors, in-plant iodine instrumentation, and containment radiation monitoring in accordance with NUREG-0737 "Clarification of TMI Action Plan Requirements" November 1980 and Supplement 1 to NUREG-0737, January 1983	5.III.C 5.III.H 5.III.I	ERPIP-3.0, Immediate Actions ERPIP-318, Onsite Survey Team (OSC) OI-35, Radiation Monitoring System OI-44, Process Radiation Monitor OI-48, Wide Range Noble Gas Monitor
3.	Each licensee shall establish methods and techniques to be used for determining:		BG&E-EP9 Calvert Cliffs Nuclear Power Plant Accident Source Terms RADDOSE-V User's Manual VTM # 12138-353
a.	the source term of releases of radioactive material within plant systems. An example is the relationship between the containment radiation monitor(s) reading(s) and radioactive material available for release from containment.	4.IV.A	
b.	the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors.	4.IV.B	ERPIP-824, Dose Assessment Reference
4.	Each licensee shall establish the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various meteorological conditions.	4.IV.C	ERPIP-824, Dose Assessment Reference RADDOSE-V User's Manual VTM # 12138-353

I. **Accident Assessment** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
5.	Each licensee shall have the capability of acquiring and evaluating meteorological information sufficient to meet the criteria of Appendix 2. There shall be provisions for access to meteorological information by at least the Emergency Operations Facility, the Technical Support Center, the Control Room and an offsite NRC center. The licensee shall make available to the State suitable meteorological data processing interconnections which will permit independent analysis by the State, of facility generated data in those States with the resources to effectively use this information.	4.II.C 5.II 5.III.A 5.III.B	ERPIP-825, Meteorological Data Acquisition Methods
6.	Each licensee shall establish the methodology for determining the release rate/projected doses if the instrumentation used for assessment are off scale or inoperable.	4.IV.D	ERPIP-821, Accidental Radioactivity Release Monitoring and Sampling Methods
7.	Each organization shall describe the capability and resources for field monitoring within the plume exposure Emergency Planning Zone which are an intrinsic part of the concept of operations for the facility.	5.III.F	ERPIP-504, Environmental Assessment Director (EOF) ERPIP-507, Offsite Survey Team (EOF) ERPIP-511, Radiological Assessment Director (EOF)

I. **Accident Assessment** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
8.	Each organization, where appropriate, provide methods, equipment and expertise to make rapid assessments of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways. This shall include activation, notification means, field team composition, transportation, communication, monitoring equipment and estimated deployment times.	3.III 3.IV 4.II.A 4.II.B 4.IV.E 5.III.F	ERPIP-107, Chemistry Shift Technician ERPIP-3.0, Immediate Actions ERPIP-303, Radiation Protection Director (OSC) ERPIP-318, Onsite Surveys ERPIP-504, Environmental Assessment Director (EOF) ERPIP-507, Offsite Surveys ERPIP-511, Radiological Assessment Director
9.	Each organization shall have a capability to detect and measure radioiodine concentrations in air in the plume exposure EPA as low as 10^{-7}uCi/cc (microcuries per cubic centimeter) under field conditions. Interference from the presence of noble gas and background radiation shall not decrease the stated minimum detectable activity.	5.III.F	ERPIP-824, Dose Assessment Reference ERPIP-318, Onsite Surveys ERPIP-507, Offsite Surveys ERPIP-511, Radiological Assessment Director ERPIP-903, Monitoring Equipment and Instrumentation ERPIP-B.1, Equipment Checklists
10.	Each organization shall establish means for relating the various measured parameters (e.g., contamination levels, water and air activity levels) to dose rated for key isotopes (i.e., those given in Table 3, page 18) and gross radioactivity measurements. Provisions shall be made for estimating integrated dose from the projected and actual dose rates and for comparing these estimates with the protective action guides. The detailed provisions shall be described in separate procedures.	4.IV 5.III.B.	ERPIP-823, Dose Assessment Computer
11.	N/A		

J. **Protective Response**

Planning Standard

A range of protective actions have been developed for the plume exposure pathways EPZ for emergency workers and the public. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Evaluation Criteria	Applicability and Cross Reference	
	ERP	IMPLEMENTING DOCUMENTS
1. Each licensee shall establish the means and time required to warn or advise onsite individuals and individuals who may be in areas controlled by the operator, including:	4.II.A	ERPIP-102, General Supervisor – Nuclear Plant Operations (CR) ERPIP-105, Control Room Communicator (CR) ERPIP-201, Technical Support Center Director (TSC) ERPIP-209, Technical Support Center Communicator ERPIP-3.0, Immediate Actions ERPIP-303, Radiation Protection Director ERPIP-318, Onsite Surveys ERPIP-501, Emergency Director/Recovery Manager (EOF) ERPIP-509, Emergency Operations Facility Communicator ERPIP-750, Security
a. Employees not having emergency assignments;		
b. Visitors;		
c. Contractor and construction personnel; and		
d. Other persons who may be in the public access areas on or passing through the site or within the owner controlled area.		

J. **Protective Response** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
2.	Each licensee shall make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives for inclement weather, high traffic density and specific radiological conditions.	4.VI.B.1	ERPIP-201, Technical Support Center Director (TSC) ERPIP-501, Emergency Director/Recovery Manager (EOF)
3.	Each licensee shall provide for radiological monitoring of people evacuated from site.	4.VIII.B	ERPIP-318, Onsite Surveys
4.	Each licensee shall provide for the evacuation of onsite non-essential personnel in the event of a Site or General Emergency and shall provide a decontamination capability at or near the monitoring point specified in J.3	4.VI.B.2 5.I.G	ERPIP-3.0, Immediate Actions ERPIP-501, Emergency Director/Recovery Manager ERPIP-710, Farm Demonstration Building Decontamination Facility ERPIP-750, Security ERPIP-B.2, Offsite Survey Points
5.	Each licensee shall provide for a capability to account for all individuals onsite at the time of the emergency and ascertain the names of missing individuals within 30 minutes of the start of an emergency and account for all onsite individuals continuously thereafter.	4.II.A 4.VI.A	ERPIP-3.0, Immediate Actions ERPIP-102, General Supervisor – Nuclear Plant Operations (CR) ERPIP-201, Technical Support Center Director (TSC) ERPIP-301, Operational Support Center Director (OSC) ERPIP-501, Emergency Director/Recovery Manager ERPIP-750, Security
6.	Each licensee shall, for individuals remaining or arriving onsite during the emergency, make provisions for:		
a.	individual respirator protections;	5.V	ERPIP-B.1, Equipment Checklist RSP 1-117, Issuance and Wearing of Respiratory Protection Devices Used to Protect Against Airborne Radioactivity RP-1-100, Radiation Protection RP-CCRRPM Radiological Respiratory Protection Manual

J. **Protective Response** (continued)

Evaluation Criteria	Applicability and Cross Reference	
	ERP	IMPLEMENTING DOCUMENTS
b. use of protective clothing; and	5.VI	ERPIP-B.1, Equipment Checklists RSP 1-200, ALARA Planning and SWP Preparation
c. use of radioprotective drugs, (e.g., individual thyroid protection).	5.VII	ERPIP-303, Radiation Protection Director (OSC) ERPIP-511, Radiological Assessment Director (EOF)
7. Each licensee shall establish a mechanism for recommending protective actions to the appropriate State and local authorities. These shall include Emergency Action Levels corresponding to projected dose to the population-at-risk, in accordance with Appendix 1 and with the recommendations set forth in Tables 2.1 and 2.2 of the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA-400-R-92-001). As specified in Appendix 1, prompt notification shall be made directly to the offsite authorities responsible for implementing protective measures within the plume exposure pathway Emergency Planning Zone.	4.II.C Att. 4-2	ERPIP-3.0, Immediate Actions ERPIP-102, General Supervisor – Nuclear Plant Operations (CR) ERPIP-107, Chemistry Shift Technician ERPIP-201, Technical Support Center Director (TSC) ERPIP-202, Technical Support Center Manager (TSC) ERPIP-501, Emergency Director/Recovery Manager (EOF) ERPIP-504, Environmental Assessment Director (EOF) ERPIP-511, Radiological Assessment Director (EOF)
8. Each licensee's plan shall contain time estimates for evacuation within the plume exposure EPZ. These shall be in accordance with Appendix 4.	App. C	Evacuation Time Estimates

J. **Protective Response** (continued)

Evaluation Criteria	Applicability and Cross Reference	
	ERP	IMPLEMENTING DOCUMENTS
9. N/A		
10. The organization's plans to implement protective measures for the plume exposure pathway shall include:		
a. Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring, points, relocation centers in host areas, and shelter areas; identifications of radiological sampling and monitoring points shall include the designators in Table J-1 or an equivalent uniform system described in the plan);	5.III.F	ERPIP-504, Environmental Assessment Director (EOF) ERPIP-B.2, Offsite Survey Points
b. Maps showing population distribution around the nuclear facility. This shall be by evacuation areas (licensees shall also present the information in a sector format);	App. C	Evacuation Time Estimates
c. Means for notifying all segments of the transient and resident population;	4.II Att. 4-2 6.I.C	
d. N/A		
e. N/A		
f. N/A		
g. N/A		
h. N/A		
i. N/A		
j. N/A		
k. N/A		

J. **Protective Response** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
l.	Time estimates for evacuation of various sectors and distances based on a dynamic analysis (time-motion study under various conditions) for the plume exposure pathway emergency planning zone (See Appendix 4); and	App. C	Evacuation Time Estimates
m.	The basis for the choice of recommended protective actions from the plume exposure pathway during emergency conditions. This shall include expected local protection afforded [2] in residential units or other shelter for direct and inhalation exposure, as well as evacuation time estimates.	4.VI.C	ERPIP-504, Environmental Assessment Director (EOF) ERPIP-501, Emergency Director/Recovery Manager
11.	N/A		
12.	N/A		

The following reports may be considered in determining protection afforded:

(1) "Public Protection strategies for Potential Nuclear Reactor Accident" Sheltering Concepts with Existing Public and Private Structure" (SAND 77-1725), Sandia Laboratory.

(2) "Examination of Offsite Radiological Emergency Measures for Nuclear Reactor Accidents Involving Core Melt" (SAND 78-0454), Sandia Laboratory.

(3) "Protective Action Evaluation Part II, Evacuation and Sheltering as Protective Actions Against Nuclear Accidents Involving Gaseous Releases" (EPA 520/1-78-0018). U.S. Environmental Protection Agency.

K. **Radiological Exposure Control**

Planning Standard

Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guide.

Evaluation Criteria	Applicability and Cross Reference	
	ERP	IMPLEMENTING DOCUMENTS
1. Each licensee shall establish onsite exposure guidelines consistent with the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA-400-R-92-001) for:	4.VII.B	ERPIP-301, Operational Support Center Director (OSC) ERPIP-303, Radiation Protection Director ERPIP-318, Onsite Surveys ERPIP-831, Radiation Exposure Guidance RSP-1-200, ALARA Planning and RWP Preparation
a. removal of injured persons;	4.VII.B.2.e	ERPIP-103, Nuclear Plant Operations ERPIP-312, Safety Services ERPIP-501, Emergency Director/Recovery Manager (EOF) ERPIP-831, Radiation Exposure Guidance
b. undertaking corrective actions;	4.VII.B.2.b	ERPIP-730, Radiation Protection Hospital Assistance RSP 1-117, Issuance and Wearing of Respiratory Protection Devices Used to Protect Against Airborne Radioactivity
c. performing assessment actions;	4.VII.B.2.c	ERPIP-303, Radiation Protection Director ERPIP-831, Radiation Exposure Guidance RSP 1-107, Personnel Contamination Assessment/Decontamination by Radiation Safety Technicians
d. providing first aid;	4.VII.B.2.a	ERPIP-103, Nuclear Plant Operations ERPIP-312, Safety Services ERPIP-831, Radiation Exposure Guidance ERPIP 3.0, Immediate Actions Attachment 15 Personnel Emergency

K. **Radiological Exposure Control** (continued)

Evaluation Criteria	Applicability and Cross Reference	
	ERP	**IMPLEMETING PROCEDURES**
e. performing personnel decontamination;	4.VII.B.2.d	ERPIP-103, Nuclear Plant Operations ERPIP-312, Safety Services ERPIP-710, Farm Demonstration Building Decontamination Facility RSP 1-107, Personnel Contamination Assessment/Decontamination by Radiation Safety Technicians
f. providing ambulance service; and	4.VII.B.2.e	ERPIP-103, Nuclear Plant Operations ERPIP-312, Safety Services ERPIP 3.0, Immediate Actions
g. providing medical treatment services.	4.VII.B.2.a	ERPIP-501, Emergency Director/Recovery Manager (EOF) ERPIP-730, Radiation Protection Hospital Assistance ERPIP-3.0, Immediate Actions
2. Each licensee shall provide an onsite radiation protection program to be implemented during emergencies, including methods to implement exposure guidelines. The plan shall identify individual(s), by position or title, who can authorize emergency workers to receive doses in excess of 10 CFR Part 20 limits. Procedures shall be worked out in advance for permitting onsite volunteers to receive radiation exposures in the course of carrying out lifesaving and other emergency activities. These procedures shall include consideration of relative risks.	4.VII	ERPIP-301, Operational Support Center Director (OSC) ERPIP-303, Radiation Protection Director (OSC) ERPIP-318, Onsite Surveys ERPIP-831, Radiation Exposure Guidance RSP-1-200, ALARA Planning and RWP Preparation RSP 3-102, Personnel Radiation Dose Control

K. **Radiological Exposure Control** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
3.a.	Each organization shall make provisions for 24-hour-per-day capability to determine the doses received by emergency personnel involved in any nuclear accident, including volunteers. Each organization shall make provisions for distribution of dosimeters, both self-reading and permanent record devices.	4.VII.A	ERPIP-103, Nuclear Plant Operations ERPIP-303, Radiation Protection Director (OSC) ERPIP-312, Safety Services ERPIP-318, Onsite Surveys RSP 1-116, Dosimetry Issue and Dose Calculations Performed by Radiation Safety Units RSP 3-102, Personnel Radiation Dose Control RSP 3-202, Special Dosimetry RSP 3-203, Direct Reading Dosimetry Use RSP-3-201, Personnel Dosimetry
b.	Each organization shall ensure that dosimeters are read at appropriate frequencies and provide for maintaining dose records for emergency workers involved in any nuclear accident.	3.III.H 4.VII.A	ERPIP-303, Radiation Protection Director ERPIP-507, Offsite Surveys RSP 3-102, Personnel Radiation Dose Control
4.	N/A		
5.a.	Each organization, as appropriate, shall specify action levels for determining the need for decontamination.	4.VIII.A	ERPIP-501, Emergency Director/Recovery Manager RSP 1-107, Personnel Contamination Assessment/Decontamination by Radiation Safety Technicians

K. **Radiological Exposure Control** (continued)

Evaluation Criteria	Applicability and Cross Reference	
	ERP	**IMPLEMENTING DOCUMENTS**
b. Each organization, as appropriate, shall establish the means for radiological decontamination of emergency personnel wounds, supplies, instruments and equipment, and for waste disposal.	4.VII.B.2.d 4.VIII 5.I.G	ERPIP-103, Nuclear Plant Operations ERPIP-312, Safety Services ERPIP-501, Emergency Director/Recovery Manager ERPIP-710, Farm Demonstration Building Decontamination Facility RSP 1-107, Personnel Contamination Assessment/Decontamination by Radiation Safety Technicians

K. **Radiological Exposure Control** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
6.	Each licensee shall provide onsite contamination control measures including:	4.VIII	ERPIP-303, Radiation Protection Director ERPIP-504, Environmental Assessment Director (EOF) ERPIP-750, Security RSP 1-107, Personnel Contamination Assessment/Decontamination by Radiation Safety Technicians RP-1-100, Radiation Protection Manual
a.	area access control;	4.VIII.A	ERPIP-303, Radiation Protection Director
b.	drinking water and food supplies;	4.VIII.A	ERPIP-318, Onsite Surveys
c.	criteria for permitting return of areas and items to normal use, see the EPA PAG Manual EPA-400-R-92-001 (see items 16 and 17) and the Food and Drug Administration, DHHS, "Guidance on Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies," dated August 13, 1998 (63 FR 43402).	4.IV.H	ERPIP-318, Onsite Survey Team (OSC) ERPIP-750, Security
7.	Each licensee shall provide the capability for decontaminating relocated onsite personnel, including provisions for extra clothing and decontaminates suitable for the type of contamination expected, with particular attention given to radioiodine contamination of the skin.	4.VIII.A 5.I.G	ERPIP-103, Nuclear Plant Operations ERPIP-312, Safety Services ERPIP-710, Farm Demonstration Building Decontamination Facility ERPIP-B.1, Equipment Checklist RSP 1-107, Personnel Contamination Assessment/Decontamination by Radiation Safety Technicians

L. **Medical and Public Health Support**

Planning Standard

Arrangements are made for medical services for contaminated injured individuals. [1]

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.	Each organization shall arrange for local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurance that persons providing these services are adequately prepared to handle contaminated individuals.	3.V 3.VI 5.I.H.2 6.I.B.8 6.II App. D	ERPIP-730, Health Physicist Hospital Assistance
2.	Each licensee shall provide for onsite first aid capability.	4.IX 5.I.H.1 6.I.B.6	ERPIP-3.0, Immediate Actions ERPIP-103, Nuclear Plant Operations ERPIP-312, Safety Services
3.	N/A		
4.	Each organization shall arrange for transporting victims of radiological accidents to medical support facilities.	3.V 3.VI 5.I.H.3 App. D	ERPIP-3.0, Immediate Actions ERPIP-103, Nuclear Plant Operations ERPIP-312, Safety Services ERPIP-730, Health Physicist Hospital Assistance

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1/ The availability of an integrated medical services system and a public health emergency plan serving the area in which the facility is located and, as a minimum, equivalent to the Public Health Service Guide for Developing Health Disaster Plan, 1974, and to the requirements of an emergency medical services system as outlined in the Emergency Medical Services System Act of 1973 (P. L. 93-154 and amendments in 1979 P.L. 96-142), should be part of and consistent with overall State and Local Disaster control plans and should be compatible with the specific overall emergency response plan for the facility.

M. **Recovery and Reentry Planning and Post accident Operations**

Planning Standard

General plans for recovery and reentry are developed.

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.	Each organization, as appropriate, shall develop general plans and procedures for reentry and recovery and describe the means by which decisions to relax protective measures (e.g., reached). This process should consider both existing and potential conditions.	4.IV.H	ERPIP-501, Emergency Director/Recovery Manager
2.	Each licensee plan shall contain the position/title, authority and responsibilities of individuals who will fill key positions in the facility recovery organizations. This organization shall include technical personnel with responsibilities to develop, evaluate and direct recovery and reentry operations. The recovery organization recommended by "Functional Criteria for Emergency Response Facilities, "NUREG-0696, issued on February 1981, and "Clarification of TMI Action Plan Requirements, Requirements for Emergency Response Capabilities," NUREG-0737, Supplement No. 1, issued January 1983.	3.IV Att. 3-4	
3.	Each licensee and State plan shall specify means for informing members of the response organizations that a recovery operation is to be initiated, and of any changes in the organizational structure that may occur	4.IV.H.	ERPIP-501, Emergency Director/Recovery Manager
4.	Each plan shall establish a method for periodically estimating total population exposure	4.IV.G	ERPIP-511, Radiological Assessment Director ERPIP-504, Environmental Assessment Director (EOF)

N. **Exercises and Drills**

Planning Standard

Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercised or drills are (will be) corrected.

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.a.	An exercise is an event that tests the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. The emergency preparedness exercise shall simulate an emergency that results in offsite radiological releases which would require response by onsite authorities. Exercises shall be conducted as set forth in NRC and FEMA rules.	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1006, Drill and Exercise Scheduling and Preparation
b.	An exercise shall include mobilization of State and local personnel and resources adequate to verify the capability to respond to an accident scenario requiring response. The organization shall provide for a critique of the annual exercise by Federal and State observers/evaluators. The scenario should be varied from year to year such that all major elements of the plans and preparedness organizations are tested within a five-year period. Each organization should make provisions to start an exercise between 6:00 p.m. and midnight, and another between midnight and 6:00 a.m. once every six years. Exercises should be conducted under various weather conditions. Some exercises should be unannounced.	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1006, Drill and Exercise Scheduling and Preparation CNG-EP-1.01-1007, Evaluation and Documentation of Drills, Exercises and Classified Events

N. **Exercises and Drills** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
2.	A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular operation. A drill is often a component of an exercise. A drill shall be supervised and evaluated by a qualified drill instructor. Each organization shall conduct drills, in addition to the annual exercise at the frequencies indicated below:	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1006, Drill and Exercise Scheduling and Preparation
a.	Communications Drills Communications with State and local governments within the plume exposure pathway Emergency Planning Zone shall be tested monthly. Communications with Federal emergency response organizations and States within the ingestion pathway shall be tested quarterly. Communications between the nuclear facility, State and local emergency operations centers, and field assessment teams shall be tested annually. Communication drills shall also include the aspect of understanding the content of messages.	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1006, Drill and Exercise Scheduling and Preparation
b.	Fire Drills Fire drills shall be conducted in accordance with the plant (nuclear facility) technical specifications.	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1006, Drill and Exercise Scheduling and Preparation

N. **Exercises and Drills** (continued)

Evaluation Criteria	Applicability and Cross Reference	
	ERP	IMPLEMENTING DOCUMENTS
c. Medical Emergency Drills A medical emergency drill involving a simulated contaminated individual which contains provisions for participation by the local support services agencies (i.e., ambulance and offsite medical treatment facility) shall be conducted annually. The offsite portions of the medical drill may be performed as part of the required annual exercise	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1006, Drill and Exercise Scheduling and Preparation
d. Radiological Monitoring Drills Plant environs and radiological monitoring drills (onsite and offsite) shall be conducted annually. These drills shall include collection and analysis of all sample media (e.g., water, vegetation, soil and air), and provisions for communications and record keeping. The State drills need not be at each site. Where appropriate, local organizations shall participate.	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1006, Drill and Exercise Scheduling and Preparation
e. Health Physics Drills (1) Health Physics drills shall be conducted semi-annually which involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment. The State drills need not be at each site.	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1006, Drill and Exercise Scheduling and Preparation
(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 drills by licensees annually.	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1006, Drill and Exercise Scheduling and Preparation

N. **Exercises and Drills** (continued)

Evaluation Criteria	Applicability and Cross Reference	
	ERP	**IMPLEMENTING DOCUMENTS**
3. Each organization shall describe how exercises and drills are to be carried out to allow free play for decision making and to meet the following objectives. Pending the developments of exercise scenarios and exercise evaluation guidance by NRC and FEMA the scenarios for use in exercises and drills shall include but not be limited to, the following: a. The basic objective(s) of each drill and exercise and appropriate evaluation criteria; b. The date(s), time period, place(s) and participating organizations; c. The simulated events d. A time schedule of real and simulated initiating events; e. A narrative summary describing the conduct of the exercises or drills to include such things as simulated casualties, offsite fire department assistance, rescue of personnel, use of protective clothing, deployment of radiological monitoring teams, and public information activities; and f. A description of the arrangements for and advance materials to be provided to official observers.	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1006, Drill and Exercise Scheduling and Preparation

N. **Exercises and Drills** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
4.	Official observers from Federal, State or local governments will observe, evaluate, and critique the required exercises. A critique shall be scheduled at the conclusion of the exercise to evaluate the ability of organizations to respond as called for in the plan. The critique shall be conducted as soon as practicable after the exercise, and a formal evaluation should result from the critique.	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1007, Evaluation and Documentation of Drills, Exercises and Classified Events
5.	Each organization shall establish means for evaluating observer and participant comments on areas needing improvement, including emergency plan procedural changes, and for assigning responsibility for implementing corrective actions. Each organization shall establish management control used to ensure that corrective actions are implemented.	6.II	ERPIP-905, Exercises, Tests and Drills CNG-EP-1.01-1007, Evaluation and Documentation of Drills, Exercises and Classified Events

O. **Radiological Emergency Response Training**

Planning Standard

Radiological Emergency Response training is provided to those who may be called on to assist an emergency.

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.	Each organization shall assure the training of appropriate individuals.	6.I	EP-1-306, Calvert Cliffs Emergency Response Organization Training
a.	Each facility to which the plant applies shall provide site specific emergency response training for those offsite emergency organizations who may be called upon to provide assistance in the event of an emergency. 1/	6.I.B.7	EP-1-306, Calvert Cliffs Emergency Response Organization Training
b.	Each offsite response organization shall participate in and receive training. Where mutual aid agreements exist between local agencies such as fire, police and ambulance/rescue, the training shall also be offered to the other departments who are members of the mutual aid district.	6.I.B.7	EP-1-306, Calvert Cliffs Emergency Response Organization Training

1/ Training for hospital personnel, ambulance/rescue, police and fire departments shall include the procedures for notification, basic radiation protection, their expected roles. For those local services support organizations who will enter the site, training shall also include site access procedures and the identity (by position and title) of the individual in the onsite emergency organization who will control the organizations' support activities. Offsite emergency response support personnel should be provided with appropriate identification cards where required.

O. **Radiological Emergency Response Training** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
2.	The training program for members of the onsite emergency organization shall, besides classrooms training, include practical drills in which each individual demonstrates ability to perform his assigned emergency function. During the practical drills, on-the-spot correction of erroneous performance shall be made and a demonstration of the proper performance offered by the instructor.	6.I.B 6.II	ERPIP-905, Exercises, Tests and Drills EP-1-306, Calvert Cliffs Emergency Response Organization Training
3.	Training for individuals assigned to licensee first aid teams shall include courses equivalent to Red Cross Multi-Media.	6.I.B.6	EP-1-306, Calvert Cliffs Emergency Response Organization Training
4.	Each organization shall establish a training program for instructing and qualifying personnel who will implement radiological emergency response plans. 2/ The specialized initial training and periodic retraining programs and (including the scope, nature and frequency) shall be provided in the following categories:	6.I	EP-1-306, Calvert Cliffs Emergency Response Organization Training

2/ If State and local governments lack the capability and resources to accomplish this training, they may look to the licensee and the Federal government (FEMA) for assistance in this training.

* NRC and FEMA encourage State and local governments which have these capabilities to continue to include them in their training programs.

O. **Radiological Emergency Response Training** (continued)

Evaluation Criteria	Applicability and Cross Reference	
	ERP	IMPLEMENTING DOCUMENTS
a. Directors or coordinators of the response organizations;	6.I.B.1	EP-1-306, Calvert Cliffs Emergency Response Organization Training
b. Personnel responsible for accident assessment;	6.I.B.2	EP-1-306, Calvert Cliffs Emergency Response Organization Training
c. Radiological monitoring teams and radiological analysis personnel;	6.I.B.3	EP-1-306, Calvert Cliffs Emergency Response Organization Training
d. Police, security and fire fighting personnel;	6.I.B.4	EP-1-306, Calvert Cliffs Emergency Response Organization Training
e. Repair and damage control/correctional action teams (onsite);	6.I.B.5	EP-1-306, Calvert Cliffs Emergency Response Organization Training
f. First aid rescue personnel;	6.I.B.6	EP-1-306, Calvert Cliffs Emergency Response Organization Training
g. Local support services personnel including Civil Defense/Emergency Service personnel;	6.I.B.7	EP-1-306, Calvert Cliffs Emergency Response Organization Training
h. Medical support personnel;	6.I.B.8	EP-1-306, Calvert Cliffs Emergency Response Organization Training
i. Licensee's headquarters support personnel;	6.I.B.9	EP-1-306, Calvert Cliffs Emergency Response Organization Training
j. Personnel responsible for transmission of emergency information and instructions.	6.I.B.10	EP-1-306, Calvert Cliffs Emergency Response Organization Training
5. Each organization shall provide for the initial and annual retraining of personnel with emergency response responsibilities.	6.I	EP-1-306, Calvert Cliffs Emergency Response Organization Training

P. **Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans**

Planning Standards

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
1.	Each organization shall provide for training of individuals responsible for the planning effort.	6.I.D	CNG-EP-1.01-1003, EP Staff Training
2.	Each organization shall identify by title the individual with the overall authority and responsibility for radiological emergency response planning.	6.III	
3.	Each organization shall designate an Emergency Planning Coordinator with responsibility for the development and updating of emergency plans and coordination of these plans with other response organizations.	6.III	
4.	Each organization shall update its plan and agreements as needed, review and certify it to be current on an annual basis. The update shall take into account changes identified by drills and exercises.	6.V.A. 6.V.C.	EP-1-100, Preparation and Control of the Emergency Response Plan CNG-EP-1.01-1002, Control of Emergency Preparedness Program Activities
5.	The emergency response plans and approved changes to the plans shall be forwarded to all organizations and appropriate individuals with responsibility for implementation of the plans. Revised pages shall be dated and marked to show where changes have been made.	6.V.B App. B 6.V.C.	CNG-EP-1.01-1002, Control of Emergency Preparedness Program Activities

P. **Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
6.	Each plan shall contain a detailed listing of supported plans and their source.	Section 7	
7.	Each plan shall contain as an appendix listing, by title, procedures required to implement the plan. The listing shall include the section(s) of the plan to be implemented by each procedure.	Table of Contents App. E	
8.	Each plan shall contain a specific table of contents. Plans submitted for review should be cross-referenced to these criteria.	T of C App. E	
9.	Each licensee shall arrange for and conduct independent reviews of the emergency preparedness program at least every 12 months. (An independent review is one conducted by any competent organization either internal or external to the licensee's organization, but who are not immediately responsible for the emergency preparedness program). The review shall include the emergency plan. It implementing procedures and practices, training, readiness testing, equipment, and interfaces with State and local governments. Management controls shall be implemented for evaluation and correction of review findings. The result of the review, along with recommendations for improvements, shall be documented, reported to appropriate licensee corporate and plant management, and involved Federal, State and local organizations, and retained for a period of five year.	6.V.F 6.VI	

P. **Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans** (continued)

Evaluation Criteria		Applicability and Cross Reference	
		ERP	IMPLEMENTING DOCUMENTS
10.	Each organization shall provide for updating telephone numbers in emergency procedures at least quarterly.	6.V.E	

APPENDIX F

ON-SHIFT STAFFING ANALYSIS REPORT

In December 2012, the site approved the Calvert Cliffs Nuclear Power Plant On-Shift Staffing Analysis Report produced in accordance with NEI 10-05, Revision 0, Assessment of On-Shift Emergency Response Organization Staffing and Capabilities by EP Consulting, LLC. The On-Shift Staffing Analysis Report is currently imaged in the Electronic Document Management System (EDMS). The record type is OSSAR.