CALVERT CLIFFS NUCLEAR POWER PLANT

Emergency Response Plan

REVISION 35

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EMERGENCY RESPONSE PLAN

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EMERGENCY RESPONSE PLAN

ORGANIZATION

I. OPERATING ORGANIZATION

The first line of control of any emergency at Calvert Cliffs Nuclear Power Plan 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. 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 Vice President-Calvert Cliffs Nuclear Power Plant. Membership and specific responsibilities of the Plant Operations and Safety Review Committee and Nuclear Safety Review Board are detailed in plant 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:

III. EMERGENCY ORGANIZATION (Continued)

- Attachment 3-3, Emergency Organizations
- Attachment 3-4, Recovery Organizations
- Attachment 3-5, Center Interface: Unusual Event and Alert
- Attachment 3-6, Center Interface: Site 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. 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, and Plant General Manager-Calvert Cliffs Nuclear Power Plant may succeed the Shift Manager until they in turn are relieved by people assigned to the Emergency Director/Recovery Manager position as their primary responsibility. Transfer of authority and responsibility is by voice acknowledgment of relieving party.

III. EMERGENCY ORGANIZATION (Continued)

B. Plant General Manager-Calvert Cliffs Nuclear Power Plant

The Plant General 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 Plant General Manager-Calvert Cliffs Nuclear Power Plant. The General Supervisor – Nuclear Plant Operations reports to the Plant General 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.

- Fire Brigade Responders:

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

III. EMERGENCY ORGANIZATION (Continued)

E. 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 General Supervisor-Nuclear Plant Operations, or in this person's absence, the Shift Manager.

F. 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.

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

1. Dosimetry Team Leader and Dosimetry Team:

   Under the supervision of the Dosimetry Team Leader, the Dosimetry Team is responsible for dosimetry issuance and dose records maintenance.

2. Onsite Monitoring Team Leader and Onsite Monitoring Team and Assistants:

   Under the supervision of the Onsite Monitoring Team Leader, the Onsite Monitoring Team is responsible for monitoring radiation dose rates and radioactivity concentrations at assigned locations onsite. Assistants may support the Onsite Monitoring Team with monitoring and driving tasks.

III. EMERGENCY ORGANIZATION (Continued)

3. Center Monitors:

The Center Monitors are responsible for radiological monitoring in onsite emergency centers (Control Room/Technical Support Center, Operational Support Center/Nuclear Security Facility, and the South Service Building Cafeteria).

4. Emergency Work Permit Coordinator:

The Emergency Work Permit Coordinator is responsible for Emergency Work Permit preparation and team briefings.

G. 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

H. 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.

I. Engineering Director

The Engineering Director has authority and responsibility for providing direct mechanical, electrical, and instrument engineering support to Operational Support Center maintenance personnel. This function is supported in the Operational Support Center by an instrument/electrical systems engineer and a mechanical systems engineer. The

III. EMERGENCY ORGANIZATION (Continued)

I. Engineering Director (continued)

Engineering Director has authority and responsibility for providing engineering support in connection with the UFSAR, ISFSI SAR, the license, and modifications, and for overseeing activities of design 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 design engineer, electrical design engineer, civil design engineer, instrument/control design engineer and technician. If necessary, contractor services may be brought to bear by the Engineering Director. This action does not preclude the Technical Support Center Director from soliciting contractor engineering support. The Engineering Director reports to the Operational Support Center Director.

J. Safety Services

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

K. 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.

L. 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.

M. 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.

II. EMERGENCY ORGANIZATION (Continued)

N. 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 Plant General Manager.

Positions reporting to and coordinated by the Technical Support Center Director include:

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

O. 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 Plant General Manager.

P. 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 Plant General Manager.

III. EMERGENCY ORGANIZATION (Continued)

Q. 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 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 Monitoring Teams report to and are 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:

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

2. Offsite Monitoring Team Leader and Offsite Monitoring Team and Assistants:

   The Offsite Monitoring Team Leader directs the Offsite Monitoring Team in monitoring radiation dose rates and radioactivity concentrations at assigned locations offsite for use in offsite radiological assessment. Assistants may support the Offsite Monitoring Team with monitoring and driving tasks.

3. Radiological Assessment Specialists:

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

III. EMERGENCY ORGANIZATION (Continued)

R. 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 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.

S. Computer Support

Computer support personnel report to the Emergency Operations Facility Director, the Joint Information Center Director, the Technical Support Center Director, and the Operational Support Center Director. Computer support personnel have the authority and the responsibility for maintaining desk top computer applications.

T. Fitness-For-Duty Tester

Personnel provided at onsite or offsite emergency response facilities who 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.

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.

IV. RECOVERY ORGANIZATION (Continued)

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

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.

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 a Maryland Secretary) 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

IV. RECOVERY ORGANIZATION (Continued)

B. Support Managers and Directors (continued)

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.

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

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

f. Joint Information Center/Emergency Operations Facility Liaison: Coordinates Emergency Director/Recovery Managers review/approval of press releases and information flow between the EOF and JIC.

g. Computer Support: Provides support for IT equipment, phones, etc utilized at the JIC.

h. Joint Information Center Plant Parameters Communicator: Provides Plant Parameters, Radiological Monitoring System, and environmental data to the Joint Information Center personnel.

i. 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.

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 has authority and responsibility for coordination of all telecommunications and information technology activities.

C. 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.

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. Specific contractors are dependent on emergency situation needs.

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. These agencies include, but are not limited to:

A. Calvert Memorial Hospital
B Local fire and rescue
C. Naval Oceanographic Command Detachment
D. Emergency Medical Assistance Program 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 Emergency Operations Plan, 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 Emergency Operations Plan, Annex Q, Radiological Emergency 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
9. Department of Transportation

VII. PARTICIPATING GOVERNMENTAL AGENCIES (continued)

A. State of Maryland (continued)

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 Governor maintains responsibility for overall command of an emergency response. Major areas of action under his 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
   f. Public Information

VII. PARTICIPATING GOVERNMENTAL AGENCIES (continued)

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

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

VII. PARTICIPATING GOVERNMENTAL AGENCIES (Continued)

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 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, 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.

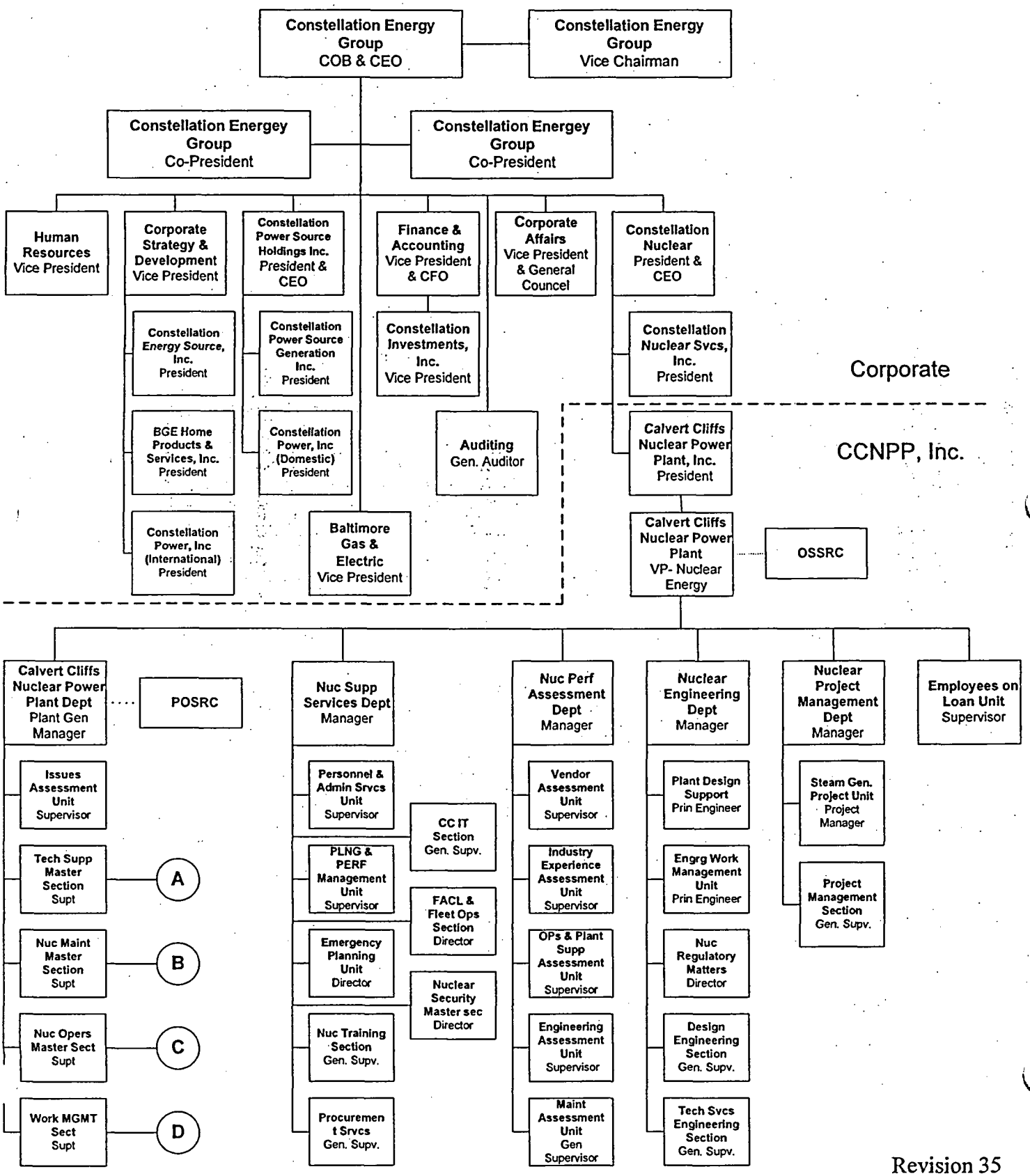
D. Support From Federal Agencies

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.

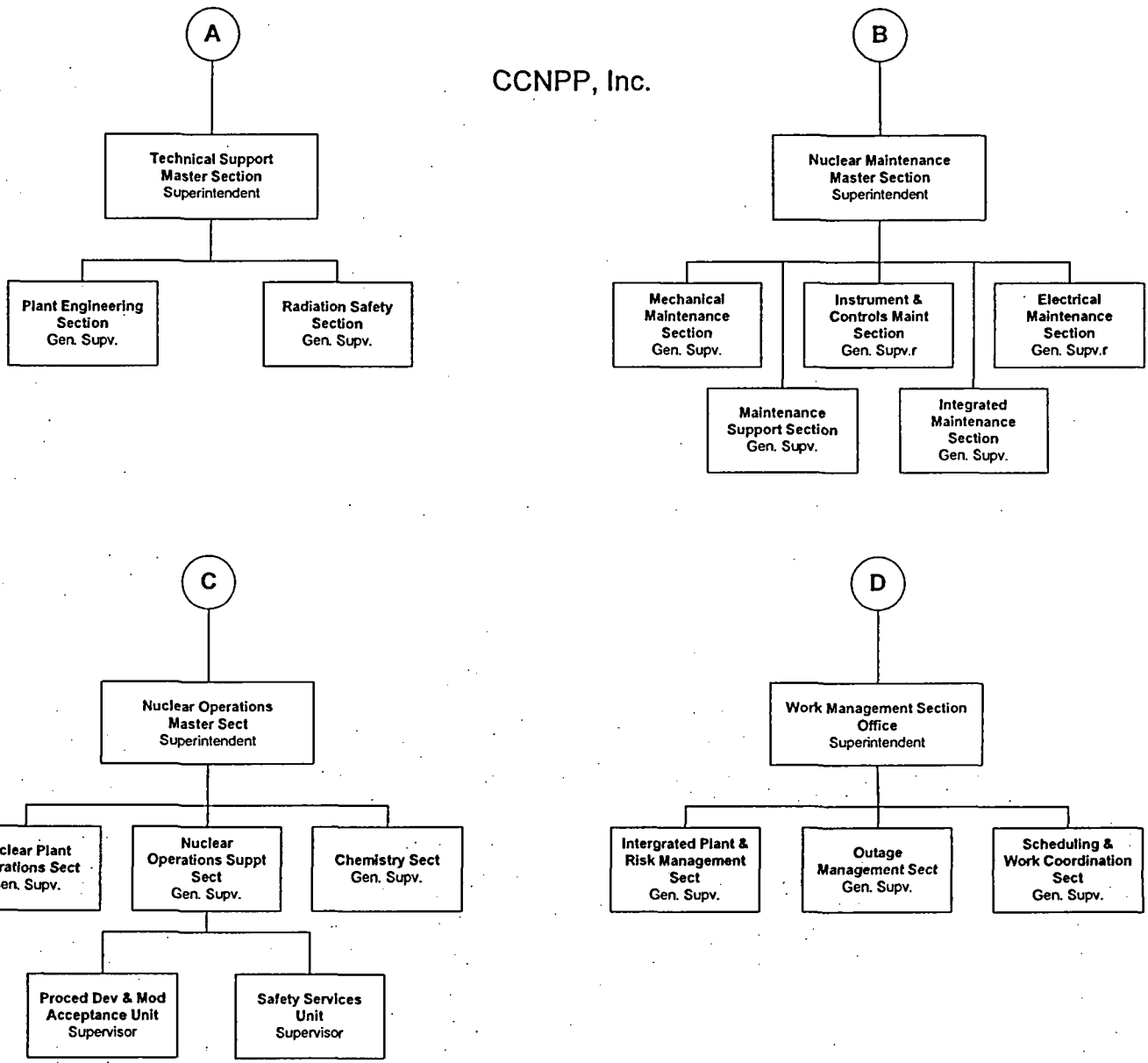
1. U.S. Nuclear Regulatory Commission - Region I, Office of Inspection & Enforcement, King of Prussia, Pennsylvania. The Directorate of Regulatory Operations will be notified of radiological incidents in accordance with 10CFR20.403, and will conduct appropriate investigative activities.
2. U.S. Department 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)

CCNPP, Inc.



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 b. Off-site surveys c. On-site surveys d. In-plant surveys e. Chemistry/radio-chemistry	Senior Health Physics (HP) expertise HP Technicians HP Technicians HP Technicians 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	HP Technicians	1(b)	6
Firefighting		Fire Brigade personnel	per Technical Specifications	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	--

ATTACHMENT 3-2

MINIMUM ON-SITE STAFFING REQUIREMENTS

Page 2 of 2

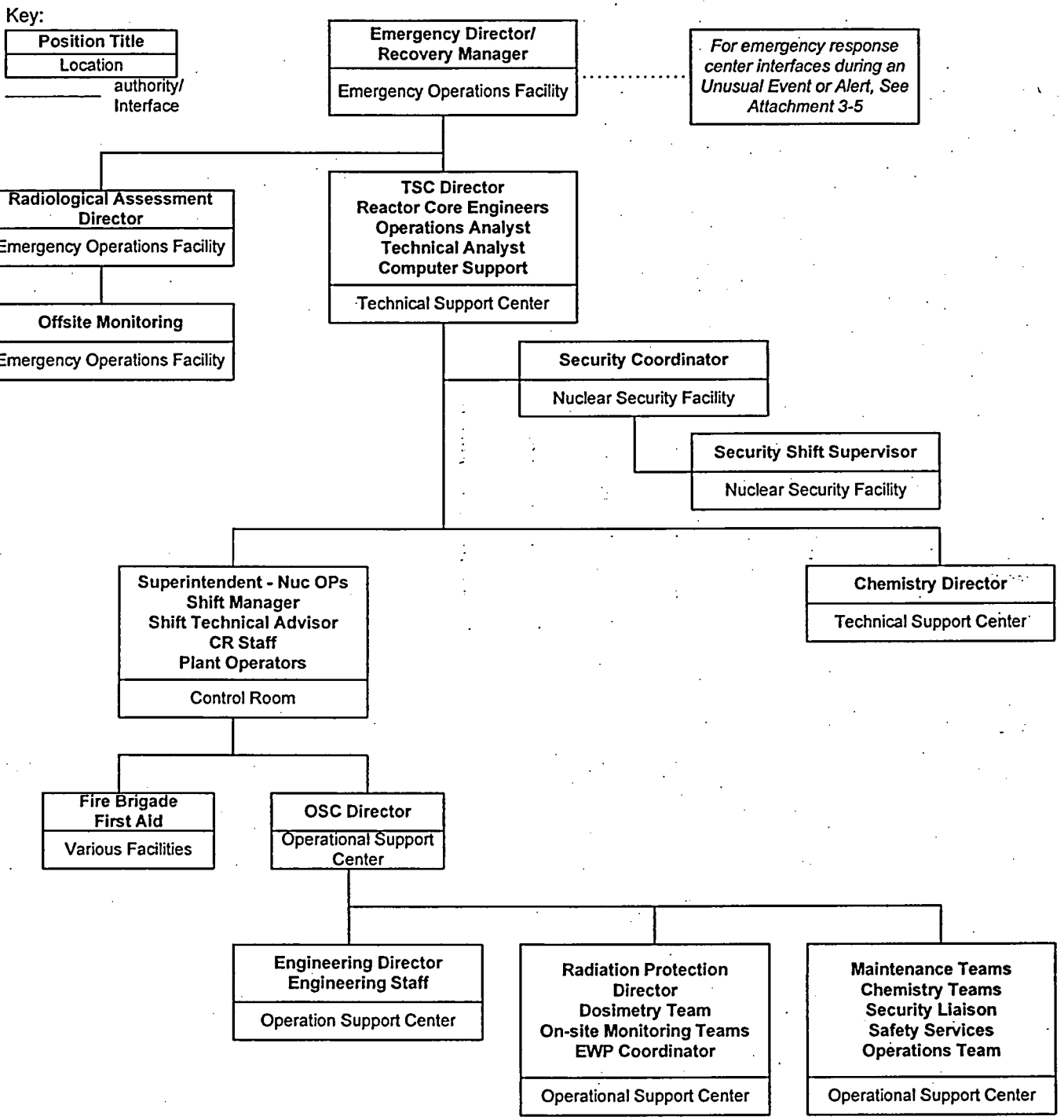
(a) Additions required for Alert, Site Emergency and General Emergency.

(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 Plant General Manager-Calvert Cliffs Nuclear Power Plant in Technical Support Center.

(d) Additions within approximately 30 minutes.

ATTACHMENT 3-3
EMERGENCY ORGANIZATION



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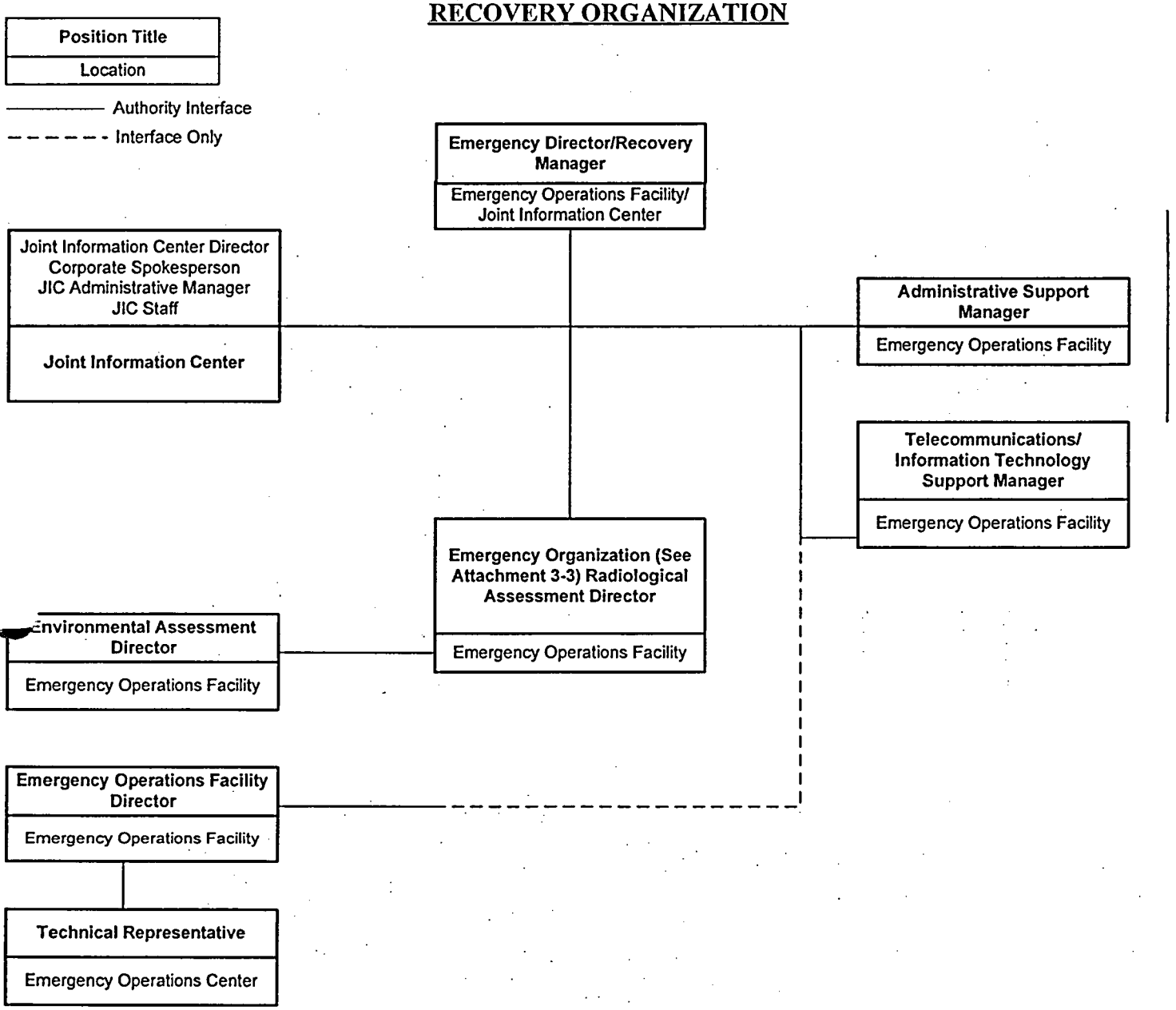
ATTACHMENT 3-4
RECOVERY ORGANIZATION



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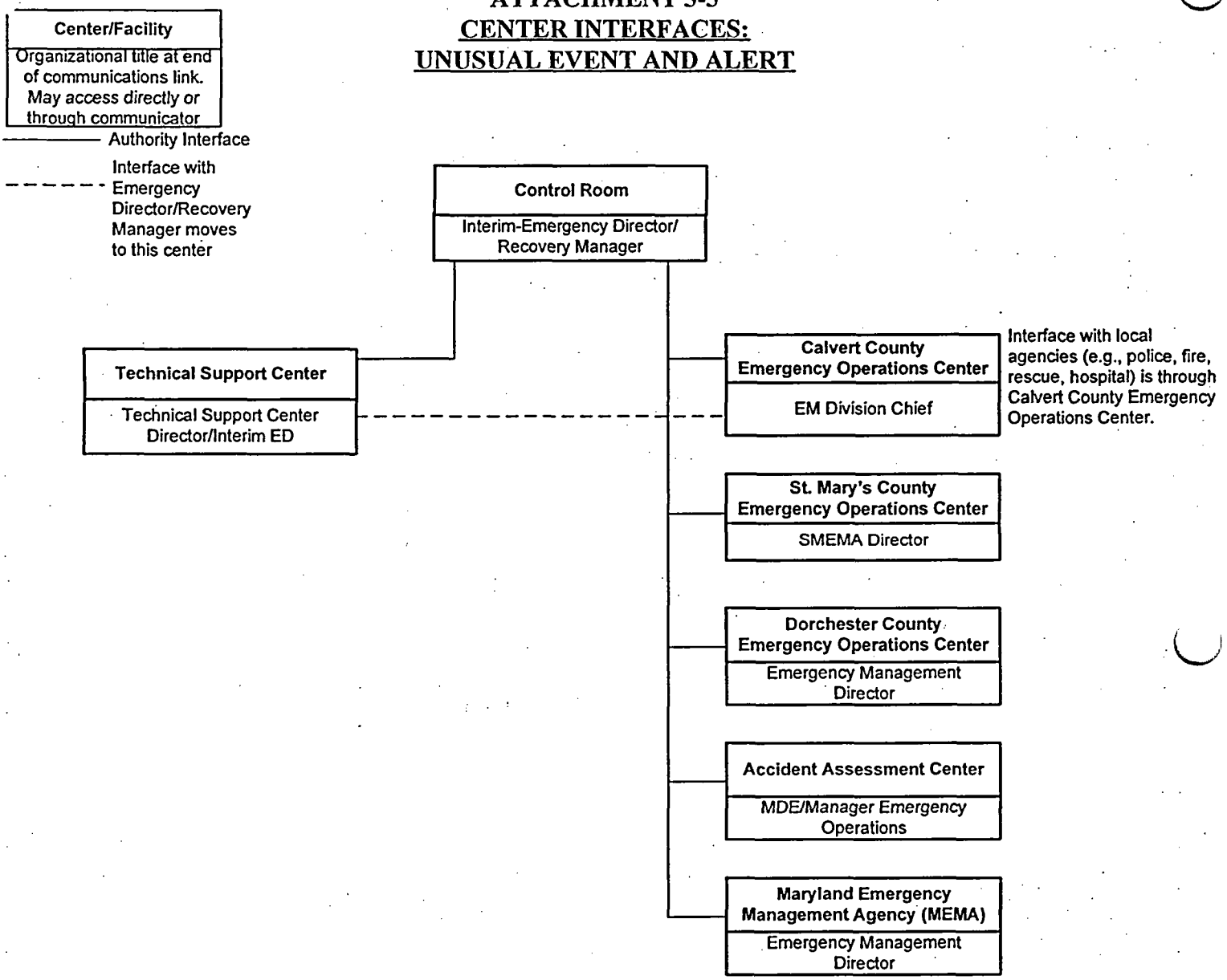
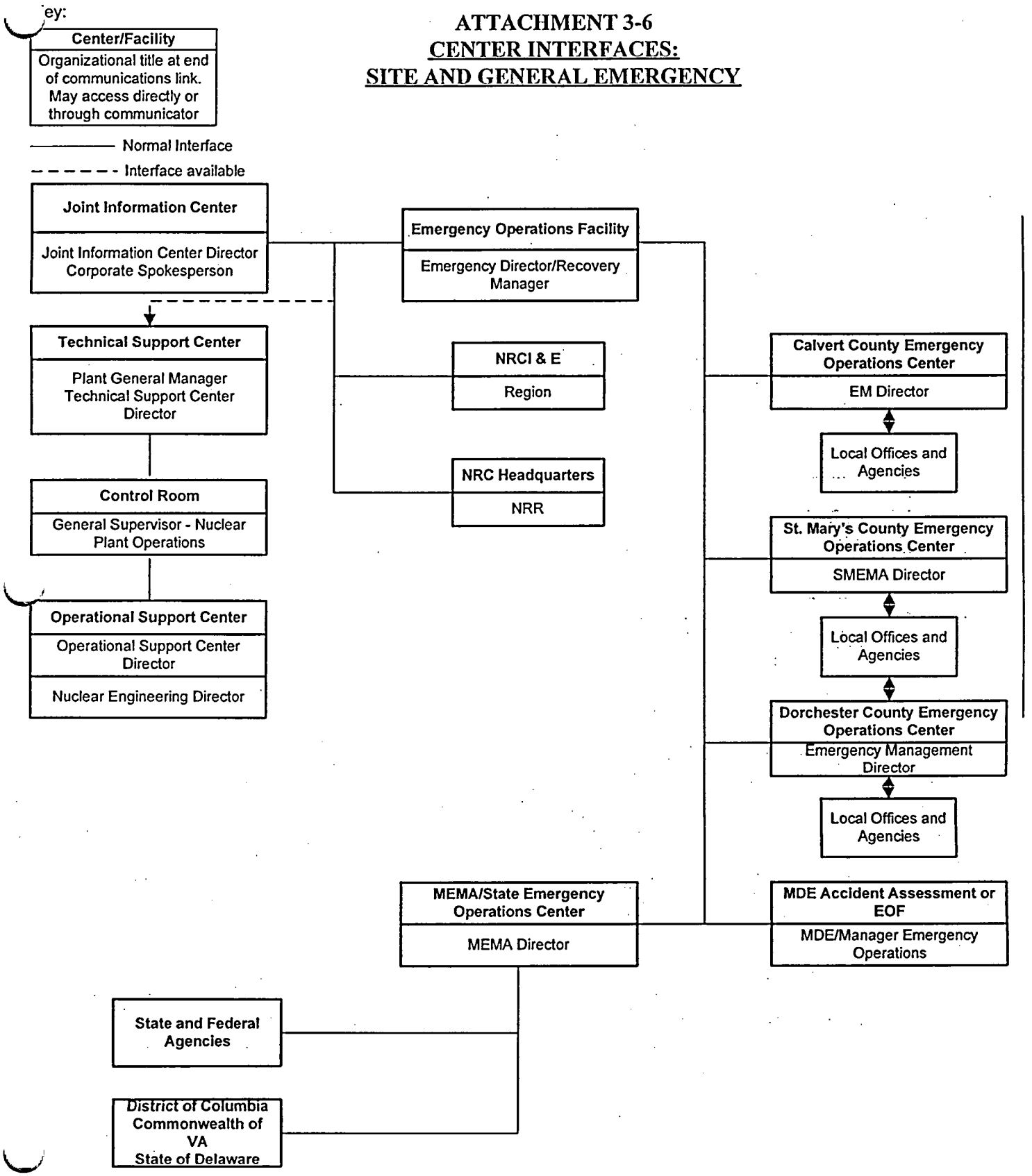
ATTACHMENT 3-5
CENTER INTERFACES:
UNUSUAL EVENT AND ALERT



ATTACHMENT 3-6
CENTER INTERFACES:
SITE AND GENERAL EMERGENCY



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

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 Location.

2. The Emergency Operations Facility is equipped for managing overall emergency response; coordinating radiological and environmental assessment (including receipt and analysis of field monitoring data and sample media coordination); determining recommended public protective actions; and coordinating emergency response activities with Federal, State and local agencies. When activated, it is staffed by Calvert Cliffs Nuclear Power Plant, Federal, State and local personnel designated to perform these functions. It is the location from which Calvert Cliffs Nuclear Power Plant provides overall resource management in response to emergencies having actual or potential environmental consequences.

I. FACILITIES (Continued)

B. Emergency Operations Facility (Continued)

3. Provision is made for acquisition, display, and evaluation of radiological, meteorological, and plant system data pertinent to determine off-site protective measures. For an emergency or exercise, access is restricted to only personnel assigned to the facility.

4. 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 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, 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 (on the first floor of the Nuclear Security Facility), 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 design 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

The Joint Information Center is established at the St. John Vianney Parish Center, Prince Frederick, Maryland. It contains facilities for Calvert Cliffs Nuclear Power Plant personnel to meet with NRC, State and County representatives for releasing emergency announcements to news media. Calvert Cliffs Nuclear Power Plant has contracted for exclusive property use within two hours of an Alert declaration at Calvert Cliffs Nuclear Power Plant.

I. **FACILITIES** (Continued)

E. Joint Public Information Center (Continued)

1. The St. John Vianney Parish Center consists of a large facility located on several acres of land. Access will be controlled by Calvert Cliffs Nuclear Power Plant, local and/or state law enforcement. On-site parking is available; additional parking is available at the Government Center. The parish center is weather-tight, heated, and has cooking and sanitary facilities. The Joint Information Center location in Calvert County is shown in Attachment 5-6, Joint Information Center Location, and its floor plan is shown in Attachment 5-7, Joint Information Center.

2. The Joint Information Center will be activated for a Site 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 5-8, Public Information Flow identifies the flow of public information after Joint Public Information Center activation.

I. FACILITIES (Continued)

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 offsite environment.

2. Off-site

The Laboratory Services Section, Technical Services Department, General Services Division, Constellation Generation Group maintains a fixed counting laboratory in the Fort Smallwood Road Shops Complex. It is available in about two hours. General capabilities include:

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

I. FACILITIES (Continued)

G. Decontamination (Continued)

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 safety procedures.

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. Agreements with other hospitals having similar capabilities are contained in the Maryland Emergency Operations Plan, Annex Q, Radiological Emergency Plan.

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.

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, 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 - MRI #1074-12 wind speed/direction sensors.

III. MONITORING INSTRUMENTATION (Continued)

A. Geophysical Phenomena Monitors (Continued)

- 10m to 60m - Temperature Gradient System with MRI Power Aspirated Radiation Shields and Rosemount Platinum Bulb sensors (10m & 60m ambient temperature).

- Ground level MRI #302B 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. The backup system utilizes near site meteorological data that provides information when the primary system is out of service. Use of near site meteorological station data as a back-up system is consistent with recommendations addressed in Safety Guide 23, as supplemented by Supplement 1 to NUREG-0737.

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 communication with the National Weather Service. 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 NRC modem access to meteorological parameters. 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 Offsite 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 Safety 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.

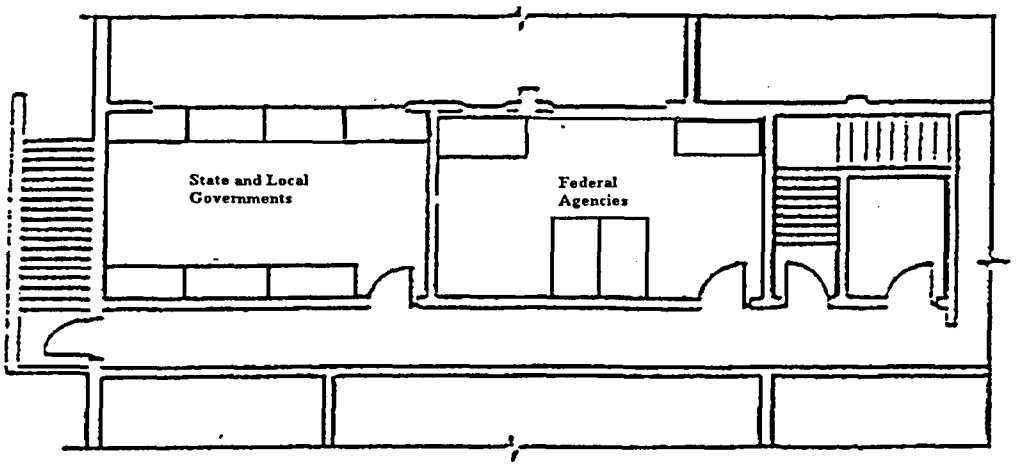
ATTACHMENT 5-1

FACILITY FUNCTIONAL OBJECTIVES

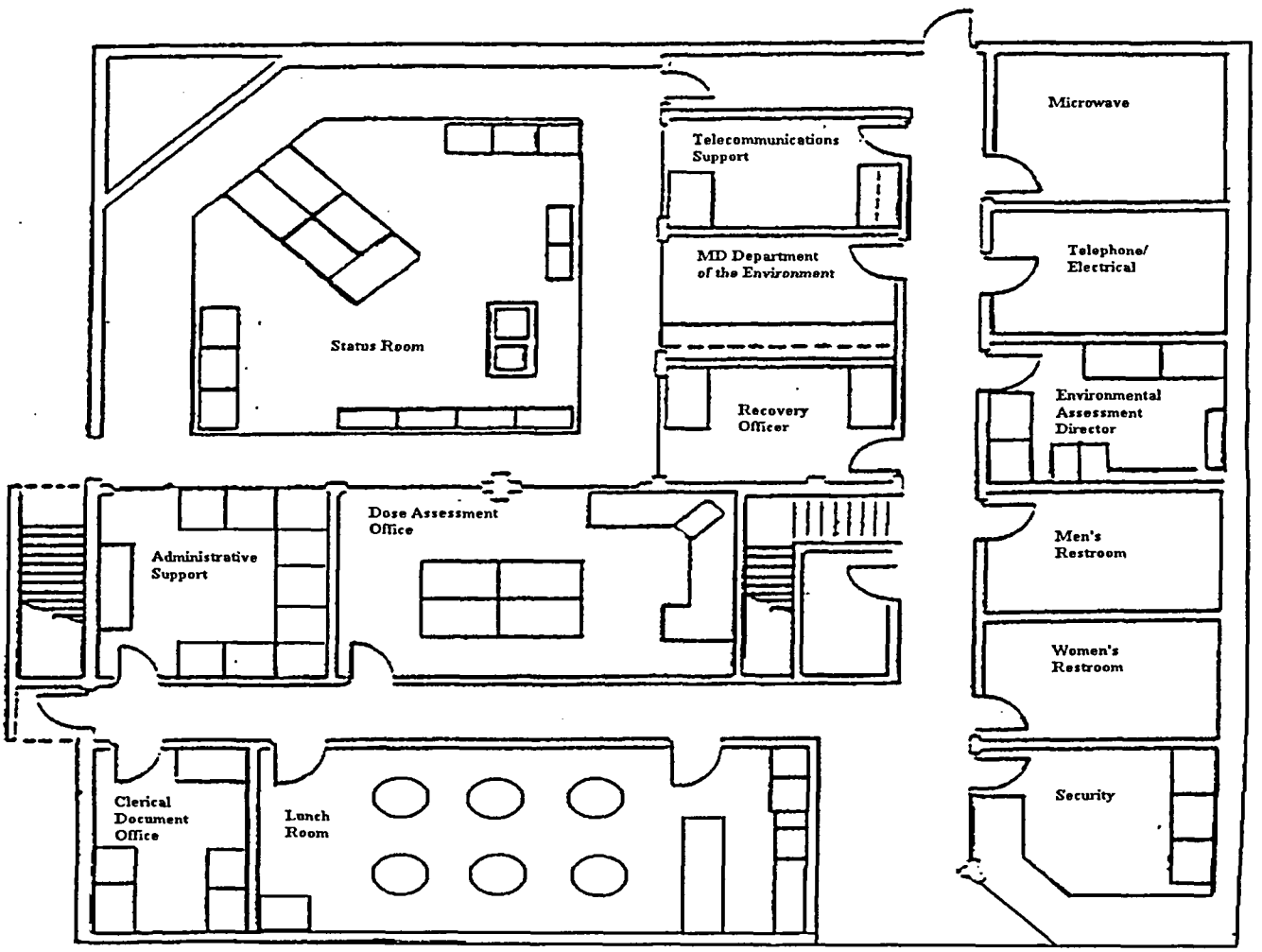
FACILITY NAME	FUNCTIONAL OBJECTIVES
Emergency Operations Facility (EOF)	1) Managing overall CCNPP response. 2) Coordinate response activities with Federal, State and County agencies. 3) Coordinate radiological and environmental assessment. 4) Determine recommended protective actions. 5) Receive and analyze of field monitoring data and coordination of sample media.
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 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.

ATTACHMENT 5-2

EMERGENCY OPERATIONS FACILITY



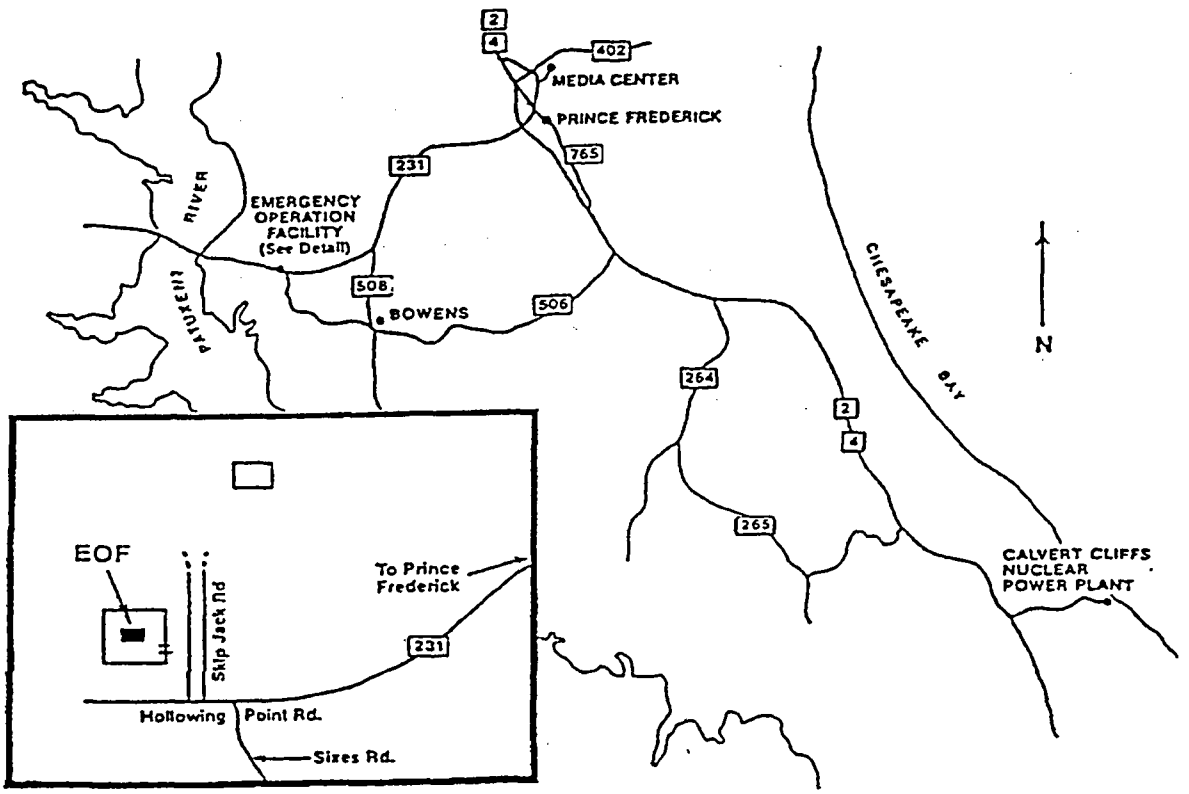
EOF MEZZANINE - PARTIAL FLOOR PLAN



EOF FIRST FLOOR - FLOOR PLAN

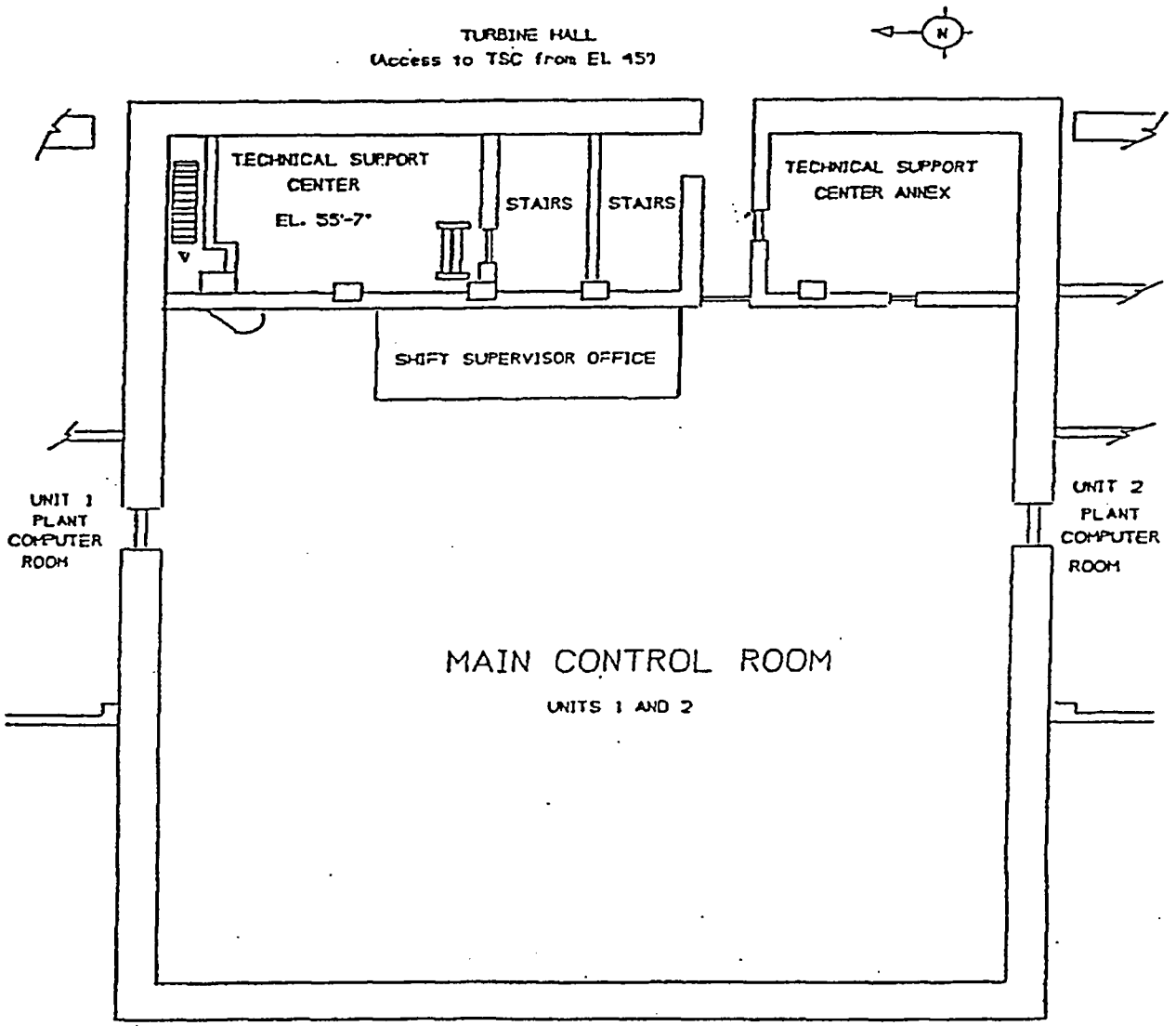
ATTACHMENT 5-3

EMERGENCY OPERATIONS FACILITY LOCATION



ATTACHMENT 5-4

TSC LOCATION RELATIVE TO CONROL ROOM



ATTACHMENT 5-5

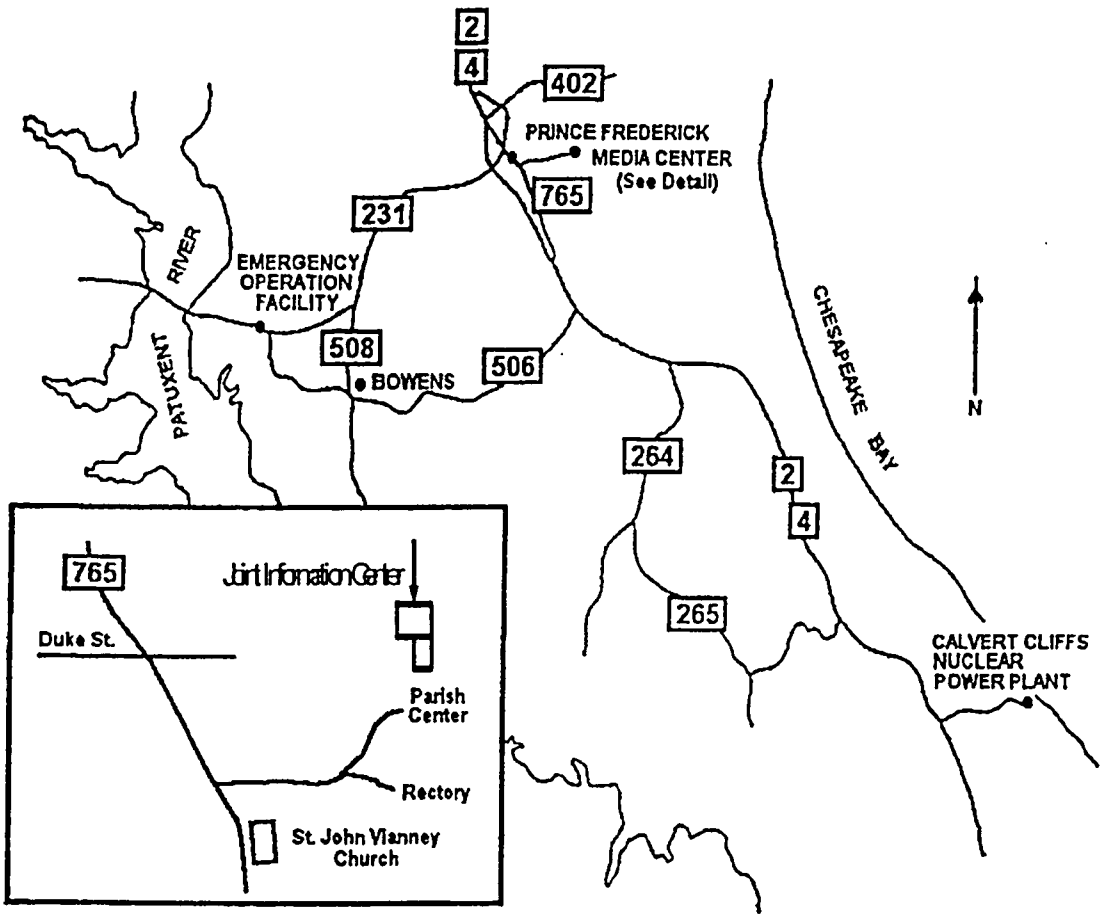
CHARACTERISTICS OF TECHNICAL SUPPORT CENTER VS. EMERGENCY OPERATION

(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

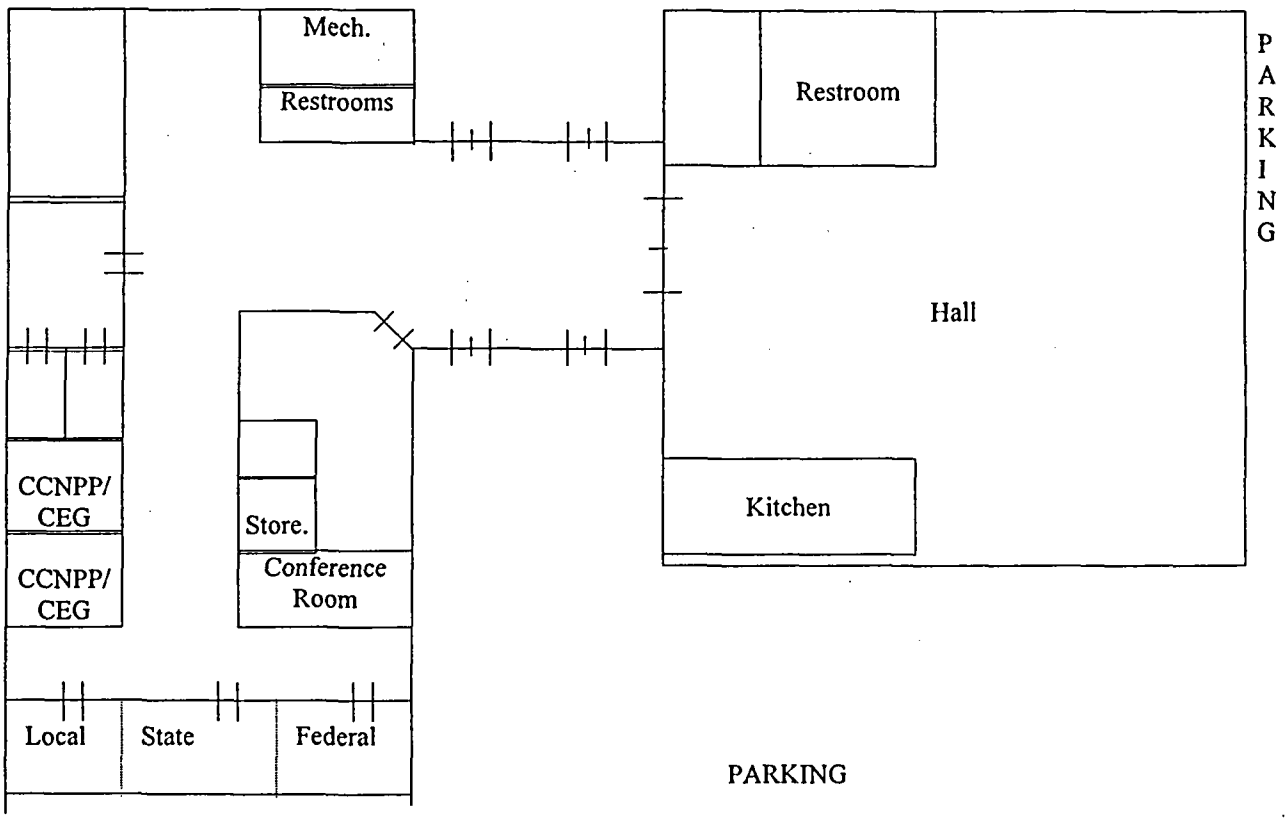
JOINT INFORMATION CENTER LOCATION



ATTACHMENT 5-7

JOINT INFORMATION CENTER

(St. John Vianney Parish Center)



ATTACHMENT 5-8

PUBLIC INFORMATION FLOW