

BALTIMORE GAS AND ELECTRIC COMPANY

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ARTHUR E. LUNDVALL, JR.
VICE PRESIDENT
SUPPLY

June 10, 1980

Mr. Robert Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docket Nos. 50-317
50-318
License Nos. DPR-53
DPR-69

Dear Mr. Reid:

Forwarded by this letter are ten copies of the revised upgraded Emergency Response Plan for Calvert Cliffs, Units 1 and 2. This Plan was originally submitted in January 1980, in accordance with the Commission's then stated requirements for upgrading of emergency plans. The January Plan was reviewed and discussed at a public meeting held by the NRC Emergency Preparedness Review Team in the plant vicinity on February 27, 1980, and was reviewed in accordance with Draft NUREG 0654, dated January 1980. As a result of that review, a number of additional proposed requirements were made by your staff and the FEMA representatives for further upgrading of the Plan.

The revised Plan forwarded by this letter has been written to the requirements of NUREG 0654 with very few exceptions. These exceptions, where they occur, represent Baltimore Gas & Electric Company's best judgement as to improvements which are consistent with the local geography or demography or are consistent with the wishes and plans of the local and State representatives responsible for implementation of the off-site portions of the Plan. As one of the petitioning utilities for separate rulemaking on the subject of alerting persons within the plume exposure pathway EPZ, the 15 minute notification requirement has been omitted from our Plan pending the final rule of 10 CFR Part 50. It is our intent to conform to the requirements on prompt notification according to the outcome of our petition and the final rulemaking. Similarly, our Emergency Control Center presently functions as our Emergency Operation Facility but varies from the requirements outlined in NUREG 0654 such as the availability of data link instrumentation which will be installed concurrently with that of the NRC data link installation. The other variations from NUREG 0654 are under study and consideration. Attached with this letter is a summary of the relationship of the Plan to the Draft NUREG 0654. Deviations are consistent with the explanations in our letter of May 13, 1980, which comments on the overall NRC/FEMA emergency planning program, with particular emphasis on NUREG 0654.

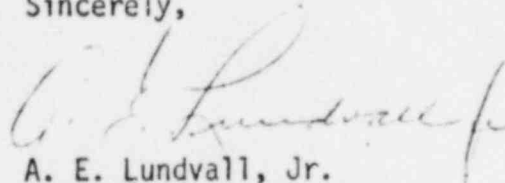
Until we receive indication of the acceptability of the Plan forwarded by this letter, the Calvert Cliffs Nuclear Power Plant, Units 1 and 2

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will continue to operate under its existing approved Site Emergency Plan. We will, however, continue to upgrade the Emergency Response Plan Implementation Procedures in accordance with lessons learned at TMI and in accordance with the revised Plan.

Since we intend to test this Plan and its associated implementation procedures with a full exercise involving plant, local, and State personnel following our receipt of your formal acceptance, your prompt attention to this submittal is appreciated.

Sincerely,

A handwritten signature in cursive script, appearing to read "A. E. Lundvall, Jr.", written in dark ink.

A. E. Lundvall, Jr.
Vice President-Supply

AEL/ETR/gfc

ENCLOSURE

ATTACHMENT TO BG&E LETTER TO HAROLD DENTON, NRC

SUMMARY RELATIONSHIP OF CCNPP EMERGENCY RESPONSE PLAN TO DRAFT NUREG 0654

This summary consists of copies of pages 27 through 69 (excluding three pages of referenced tables) of NUREG 0654, modified to include the specific sections, figures, tables and appendices where in the revised CCNPP Emergency Response Plan meets the Evaluation Criteria. The format of NUREG 0654 was retained to assist reviewers and allow for a more expeditious evaluation.

II. Planning Objectives and Evaluation Criteria

A. Assignment of Responsibility (Organization Control)

Planning Objective

To assure that primary responsibilities for emergency response in nuclear facility operator, State and local organizations within the Emergency Planning Zones have been assigned, that the emergency responsibilities of the various supporting organizations have been specifically established, and that each principal response organization is staffed to respond and to augment its initial response on a continuous basis.

Evaluation Criteria

Applicability and Cross Reference to Plan

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.

Sect. 1.2
3.3
3.4
Fig. 3.2-1
3.2-3
App.A Fig. 1

b. Each organization and suborganization having an operational role shall specify its concept of operations, and its relationship to the total effort.

Sect. 1.2
3.2
3.3
3.4

c. Each plan shall illustrate these interrelationships in a block diagram.

Fig. 3.2-1, 3.2-2, 3.2-3
App. A, Fig. 1

d. Each organization shall identify a specific individual by title who shall be in charge of the emergency response.

Sect. 3.2.1

e. Each organization shall provide for 24-hour per day emergency response, including 24-hour per day manning of communications links.

Sect. 3.2.1.3

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

Evaluation Criteria

Applicability and Cross
Reference to Plan

2.a. Each organization shall specify the functions, and responsibilities for major elements and key individuals by title, of emergency response including the following: Command and Control, Warning, Notification Communications, Public Information, Accident Assessment, Public Health and Sanitation, Social Services, Fire and Rescue, Traffic Control, Emergency Medical Services, Law Enforcement, Transportation, Protective Response (including authority to request Federal assistance and to initiate other protective actions), and Radiological Exposure Control. The description of these functions shall include a clear and concise summary such as a table of primary and support responsibilities using the agency as one axis, and the function as the other.

Sect. 3.2.2
3.2.2.2
3.2.2.5
3.3.3
4.5.4
4.5.5
5.2.3
App. B
App. C
App. F
ERPIP 2.0

b. Each plan shall describe the legal basis for such authorities.

NA

3. Each plan shall include written agreements referring to appropriate legal instruments such as legislation, among 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.

Sect. 3.4.2
App. D
App. F

4. Each emergency organization shall be capable of continuous (24-hour) operations for a protracted period. The individual in the emergency organization who will be responsible for assuring continuity of resources (technical, administrative, and material) shall be specified by title.

Sect. 3.2.1.1
3.3.1.1
ERPIP 2.0

B. Onsite Emergency Organization

Planning Objective

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

Evaluation Criteria

Applicability and Cross
Reference to Plan

1. Each operator 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.

Sect. 3.1
3.2
3.2.2
Table 3.2-1

2. Each operator shall designate an individual as emergency coordinator who shall be onsite 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 off-site emergency measures.

Sect. 3.2.1.1
4.1
6.1.1.3

3. Each operator shall provide a line of succession for the emergency coordinator position as well as the specific conditions for higher level utility officials assuming this function.

Sect. 3.2.1.1
6.1.1.2
6.1.1.3

4. Each operator 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 make recommendations to authorities responsible for offsite emergency measures.

Sect. 3.2.1.1
3.3.1.1
6.1.3

B. Onsite Emergency Organization (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

5. Each operator shall specify the positions or title and qualifications to be met 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 capabilities and staffing on-shift and available within one-half hour following the declaration of the emergency class shall be as indicated in Table B-1.

Sect. 3.2
3.2.2
6.1
Table 3.2-1

6. Each operator shall specify the interfaces 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 near-site emergency operations center.

Sect. 3.2
3.2.1.7
3.3
3.4
Fig. 3.1-1 thru 3.1-5
Fig. 3.2-1
Fig. 3.2-2
Fig. 3.2-3
App. A

7. Each operator shall establish the framework for a long term augmented facility operator emergency organization. The Recovery Organization recommended by the Atomic Industrial Forum, which would come into play several hours after the initiation of an accident, ("Nuclear Power Plant Emergency Response Plan" dated October 11, 1979), is an acceptable framework.

Sect. 7.2
Fig. 7.2-1
7.2-2

8. Each operator 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:

Sect. 3.3
7.2
Fig. 3.2-1
Table 3.2-1

B. Onsite Emergency Organization (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

8. (continued)

- | | |
|---|--|
| a. logistics support for emergency personnel, e.g., transportation, temporary quarters, food and water, sanitary facilities in the field, and special equipment and supplies procurement; | Sect. 3.3.1.1
3.3.1.2
7.2.3
Fig. 3.2-1 |
| b. technical support for planning and reentry/recovery operations; | Sect. 3.2.1.4
7.2.2
7.2.3 |
| c. management level interface with governmental authorities; and | Sect. 3.3.1.1 |
| d. release of information to news media during an emergency (coordinated with governmental authorities). | Sect. 5.2.3 |
| 9. Each operator shall specify the contractor and private organizations who may be requested to provide technical assistance to and augmentation of the emergency organization. | Sect. 3.3.1.3
Table 3.3-1
App. B |
| 10. Each operator shall specify the services to be provided by local agencies for handling emergencies, i.e., police, ambulance, medical, hospital, and firefighting organizations shall be specified. The operator 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. | Sect. 3.3.2
3.4
4.5.4
4.5.5
App. B
App. C |

C. Emergency Response Support and Resources

Planning Objective

To assure that arrangements for requesting and effectively using assistance resources have been made, that arrangements for State and local staffing of the operators near-site Emergency Operations Facility have been made, and that other organizations capable of augmenting the planned response have been identified.

Evaluation Criteria

Applicability and Cross
Reference to Plan

1. Each State and operator shall make arrangements for support with the U.S. Department of Energy (DOE) Regional Coordinating Office responsible for implementing the DOE Radiological Assistance Plan (RAP) and the Interagency Radiological Assistance Plan (IRAP) as follows:

- a. specify persons authorized to request RAP/IRAP assistance;
- b. make arrangements for using RAP/IRAP resources (teams and equipment); and
- c. identify the available RAP/IRAP resources relied upon.

Sect. 3.3.1

Sect. 3.4.3.2

App. D

2. Each principal organization shall plan to dispatch representatives to the operators near-site Emergency Operations Facility. The operator shall provide for the dispatch of a representative to principal offsite governmental emergency operations centers.

Sect. 3.2.1.4

C. Emergency Response Support and Resources (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

3. Each organization shall identify radiological laboratories and their capabilities and expected response times which can be used in an emergency.

Sect. 3.3.1.3
3.4.1.7
Table 3.3-1
App. B

4. Each organization shall identify nuclear and other facilities, organizations or individuals which can be relied upon in an emergency to provide assistance.

Sect. 3.3.1.2
3.3.2
3.4.1.7
Table 3.3-1

D. Emergency Classification System

Planning Objective

To assure that a standard emergency classification and action level scheme is in use by the nuclear facility operator, including facility system and effluent parameters; and to assure that State and local response organizations, will rely on information provided by facility operators for determinations of initial off-site response measures.

Evaluation Criteria

Applicability and Cross
Reference to Plan

1. An emergency classification and emergency action level scheme as set forth in NUREG-0610 must be established by the facility operator. (See Appendix 1.) The specific instruments, parameters or equipment status shall be shown for establishing each emergency class, both in the in-plant emergency procedures and in the plan itself.

Sect. 2.1 - Except for
removal of Unusual Events
and inserting Personnel
Emergency.

2. The initiating conditions shall include the example conditions found in NUREG-0610 and all postulated accidents in the Final Safety Analysis Report (FSAR).

Sect. 2.1
2.2
Table 2.2-1
Table 2.2-2

3. Each State and local organization shall establish an emergency classification and emergency action level scheme consistent with that established by the facility operator.

N/A

E. Notification Methods and Procedures

Planning Objective

To assure that procedures have been established for notification, by the facility, of State and local response organizations and for notification of emergency personnel by all response organizations; to assure that the content of initial and followup messages to response organizations and the public have been established; and to assure that means to provide early warning and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

Evaluation Criteria

Applicability and Cross
Reference to Plan

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 NUREG-0610. These procedures shall include means for verification of messages.

Sect. 3.2.1.7
3.2.1.8
3.3.3
4.1.1
4.1.2
4.1.3
4.1.4

Fig. 3.2-1 thru 3.2-3

2. Each organization shall establish procedures for notifying, alerting, and mobilizing emergency response personnel.

App. A
Sect. 3.3.3
ERPIP

E. Notification Methods and Procedures (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

- | | |
|--|--------------------------------------|
| 3. The operator 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. | ERPIP's - Consistent with State Plan |
| 4. Each operator shall make provisions for followup messages from the facility to offsite authorities which shall contain the following information if it is known and appropriate: | ERPIP's - Consistent with State Plan |
| a. location of incident and name and telephone number (or communications channel identification) of caller; | ERPIP's |
| b. date/time of incident; | ERPIP's |
| c. class of emergency; | ERPIP's |
| d. type of actual or projected release (airborne, waterborne, surface spill), and estimated duration/impact times; | ERPIP's |
| e. estimate of quantity of radioactive material released or being released and the height of release; | ERPIP's |
| f. chemical and physical form of released material, including estimates of the relative quantities and concentration of noble gases, iodines and particulates; | ERPIP's |
| g. prevailing weather (wind velocity, direction, temperature, atmospheric stability data; form of precipitation, if any); | ERPIP's |
| h. actual or projected dose rates at site boundary; projected integrated dose at site boundary; | ERPIP's |

E. Notification Methods and Procedures (continued)

<u>Evaluation Criteria</u>	<u>Applicability and Cross Reference to Plan</u>
i. projected dose rates and integrated dose at about 2, 5 and 10 miles, including sector(s) affected;	ERPIP's
j. estimate of any surface radioactive contamination;	ERPIP's
k. emergency response actions underway;	ERPIP's
l. recommended emergency actions, including protective measures;	ERPIP's
m. request for any needed onsite support by offsite organizations;	ERPIP's
n. prognosis for worsening or termination of event based on plant information.	ERPIP's
5. State and local government organizations shall establish a system for disseminating the information contained in initial and followup messages received from the operators.	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 plume exposure pathway Emergency Planning Zone. (See Appendix 3.) It shall be the operator's responsibility to ensure 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.	State Plan and ERPIP's
7. Each organization shall provide written messages intended for the public, consistent with the operator's classification scheme. In particular, messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas shall be prepared and included as part of the State and local plans. Such messages should include the appropriate aspects of sheltering, thyroid blocking or evacuation.	State Plan and ERPIP's

F. Emergency Communications

Planning Objective

To assure that provisions exist for prompt communications among principal response organizations, to emergency personnel and to the public.

Evaluation Criteria

Applicability and Cross
Reference to Plan

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 operators, local and State response organizations. Such systems should be selected to be compatible with one another. Each plan shall include:

- | | |
|--|--|
| a. provision for 24-hour per day notification to and activation of the State/local emergency response network including 24-hour per day manning of communication link; | Sect. 3.2.1.7
Sect. 3.2.1.8
App. A Fig. 1 |
| b. provision for communications with contiguous State/local governments within the Emergency Planning Zones; | Sect. 3.2.1.8
Sect. 5.3
App. A |
| c. provision for communications with Federal emergency response organizations; | Sect. 5.3
App. A |
| d. provision for communications between the nuclear facility and the operators near-site Emergency Operations Facility, State and local emergency operations centers, and field assessment teams; | Sect. 5.3
App. A |
| e. provision for alerting or activating emergency personnel in each response organization; and | Sect. 3.2.1.7
Sect. 3.2.1.8
App. A and ERPIP's |
| f. provision for communication by the operator with NRC headquarters and NRC Regional Office Emergency Operation Centers and the operators near-site Emergency Operations Facility and radiological monitoring team assembly area. | App. A |

F. Emergency Communications (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

2. Each organization shall conduct periodic testing of the communications system.

Sect. 6.1.2

G. Public Information

Planning Objective

To assure that accurate and timely information is provided to the public on how they will be notified and what their initial actions should be; to assure that the principal points of contact with the news media for dissemination of information (including physical location or locations) are established in advance; and to establish procedures for coordinated dissemination of information to the public.

Evaluation Criteria

Applicability and Cross
Reference to Plan

1. Each organization shall provide for periodic 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:

Sect. 4.4.3.2(5)

- a. educational information on radiation
- b. contact for additional information
- c. respiratory protection
- d. sheltering
- e. evacuation routes

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.

2. The public information program describing this system is acceptable if the permanent and transient adult population within about 10 miles of the site is provided an adequate opportunity to become aware of this information annually. The program should include provision for written material that is likely to be available in a residence during an emergency.

Sect. 4.4.3.2(5)

G. Public Information (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

3.a. Each organization shall designate the principal points of contact and physical locations for use by news media during an emergency.

Sect. 5.2.3

b. Each operator shall provide space for the news media at the nearsite Emergency Operations Facility.

Sect. 5.2.3

4.a. Each principal organization shall designate a spokesperson who should have access to all necessary information.

Sect. 5.2.3

b. Each organization shall establish arrangements for timely exchange of information among designated spokespersons.

Sect. 5.2.3

5. Each organization shall conduct 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.

Sect. 6.1

H. Emergency Facilities and Equipment

Planning Objective

To assure that adequate emergency facilities and equipment to support the emergency response are provided.

Evaluation Criteria

Applicability and Cross Reference to Plan

- | | |
|---|--|
| 1. Each operator shall establish a technical support center and an onsite operational support center (assembly area) in accordance with NUREG-0578 and in the NRC letter to all power reactor licensees dated October 30, 1979. | Sect. 5.2.1
Sect. 5.2.2 |
| 2. Each operator shall establish a principal and an alternate operators nearsite 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 most cases, the principal operators nearsite Emergency Operations Facility should be within one mile of the reactor. This facility shall have sufficient space to accommodate representatives from Federal, State and local governments, as appropriate. | Sect. 5.1.2
5.1.3 |
| 3. Each organization shall establish an emergency operations center to carry out response functions. | N/A |
| 4. Each organization shall provide for activating and staffing the facilities and centers in a timely manner. | Sect. 2.2.4
Table 2.2-3
Sect. 3.0
Table 3.2-1 |
| 5. Each operator shall identify and establish onsite monitoring systems that are to be used to initiate emergency measures in accordance with NUREG-0610, as well as those to be used for continuing assessment. | Sect. 2.2.3
Table 2.2-2 |

H. Emergency Facilities and Equipment (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

The equipment shall include:

- | | |
|--|---|
| a. geophysical phenomena monitors, (e.g., meteorological, hydrologic, seismic); | Sect. 5.4.1.1
Table 5.4-1
5.4-2 |
| b. radiological monitors, (e.g., process, area, emergency, effluent, and portable monitors and sampling equipment); | Sect. 5.4.1.2
Table 5.4-3
5.4-4 |
| c. process monitors, (e.g., reactor coolant system pressure and temperature, containment pressure and temperature, liquid levels, flow rates, status or lineup of equipment components); | Sect. 2.2.3
Sect. 5.4.1.3
Table 2.2-2 |
| d. fire and combustion products detectors. | Sect. 5.4.1.4 |
| 6. Each operator shall make provisions for offsite monitoring equipment including: | |
| a. geophysical phenomena monitors; | Sect. 5.4.2.1 |
| b. radiological monitors including ratemeters 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. | Sect. 5.4.2.2 |
| c. laboratory facilities, fixed or mobile. | Sect. 5.4.2.3 |
| 7. Each organization shall provide for offsite radiological monitoring equipment and shall identify offsite meteorological capability in the vicinity of the nuclear facility. | Sect. 5.4.1.2
5.4.2.1
5.4.2.2
5.4.2.3
Fig. 5.4-1
5.4-4 |

H. Emergency Facilities and Equipment (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

8. Each operator shall provide meteorological instrumentation and procedures which satisfy the criteria in Appendix 2, and provisions to obtain representative real-time meteorological information from other sources.

Sect. 5.4.1.1
5.4.2.1

9. Each operator shall provide for an onsite Operations Support Center (assembly area) which shall have adequate capacity, shielding, ventilation, and inventory of supplies, including, for example, respiratory protection, protective clothing, portable lighting and communications equipment.

Sect. 5.2.2

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.

Sect. 6.3.1
6.3.2
ERPIP's

11. Each plan shall, in an appendix, provide for an inventory of emergency kits by general category (protective equipment, communications equipment, radiological monitoring equipment and emergency supplies).

Table 5.1-1
5.1-2
5.1-3
ERPIP's

12. Each organization shall establish a central point (preferably associated with the operators near-site Emergency Operations Facility), for the receipt and analysis of all field monitoring data.

Sect. 5.1

I. Accident Assessment

Planning Objective

To assure the adequacy of methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition.

Evaluation Criteria

Applicability and Cross Reference to Plan

1. Each operator 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 or other information which correspond to the example initiating conditions of NUREG-0610. Such parameter values and the corresponding emergency class shall be included in the appropriate facility emergency procedures.

Sect. 2.i
2.2.1
2.2.2
2.2.3

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-0578, as elaborated in the NRC letter to all power reactor licensees dated October 30, 1979

Sect. 4.2.1

3. Each operator shall establish methods and techniques to be used for determining:

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.

App. G

b. the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors.

App. G

I. Accident Assessment (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

4. Each operator shall establish the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various meteorological conditions.

App. G

5. Each operator shall have the capability of acquiring meteorological information sufficient to meet the criteria of Appendix 2. There shall be provisions for access to meteorological information by at least the nearsite Emergency Operations Center, the Technical Support Center, the Control Room and an offsite NRC center.

Sect. 5.4.1.1
5.4.2.1
Table 5.4-1

6. Each operator shall establish the methodology for determining the release rate/projected doses if the instrumentation used for assessment are offscale or inoperable.

App. G

7. Each organization shall have a capability to detect and measure radioiodine concentrations in air in the vicinity of the site as low as 5×10^{-8} uCi/cc (microcuries per cubic centimeter) under field conditions in any kind of weather. Interference from the presence of noble gas and background radiation shall not decrease the stated minimum detectable activity.

I. Accident Assessment (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

8. Each organization shall describe the capability and resources for field monitoring within the plume exposure Emergency Planning Zone

Sect. 5.4.1.1

9. Each organization shall 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.

Sect. 3.2.1.1 Activation

3.2.2.2

4.1

Fig. 3.2-1 Notification

App. A

App. A Communications

Sect. 5.3

App. G Monitoring Equip.

Sect. 5.4.1.1 Meteorological

5.4.2.1 Meteorological

5.4.1.2 Radiological

5.4.2.2 Radiological

Sect. 5.4 Tables

Estimated deployment time

10. Each organization shall establish means for relating the various measured parameters (e.g., contamination levels, water and air activity levels) to dose rates for key isotopes 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.

Sect. 4.1.4

4.4.3.2

App. G

J. Protective Response

Planning Objectives

To assure that a range of protective actions is available for the plume exposure pathway for emergency workers and the public, guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in use, and that protective actions for the ingestion exposure pathway appropriate to the locale have been developed.

Evaluation Criteria

Applicability and Cross
Reference to Plan

1. Each Operator 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:

- a. Employees not having emergency assignments;
- b. Visitors;
- c. Contractor and construction personnel;
- d. Other persons who may be in the public access areas on or passing through the site or within the owner controlled area.

Sect. 3.2.1.7
App. A Fig. 1 and ERPIP's
App. A Fig. 1 and ERPIP's
App. A Fig. 1 and ERPIP's
App. A Fig. 1 and ERPIP's

2. Each Operator 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.

Sect. 4.4.3
Table 4.4-2

3. Each Operator shall provide for radiological monitoring of people evacuated from the site.

Sect. 4.4.4
4.4.5
ERPIP's

J. Protective Response (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

4. Each Operator 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 this offsite location.

Sect. 4.4.3
4.5.3
ERPIP's

5. Each Operator 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 on-site individuals continuously thereafter.

Sect. 4.4.3
ERPIP's

6. Each Operator shall, for individuals on-site, make provisions for:

a. Individual respiratory protection;

Sect. 4.4.1
4.4.2
4.4.3
5.5

b. Use of protective clothing;

c. Use of radioprotective drugs, (e.g., individual thyroid protection).

Paragraph (4), Pg. 4.4-19
Sect. 4.4.4

7. Each Operator shall establish a mechanism for recommending protective actions to the appropriate State and local authorities. These shall be based on Emergency Action Levels corresponding to projected dose to the population-at-risk, in accordance with NUREG-0610 and with the recommendations set forth in Table 5.1 of the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA-510/1-75-001). As specified in NUREG-0610, prompt notification shall be made directly to the offsite authorities responsible for implementing protective measures within the plume exposure Emergency Planning Zone.

Sect. 4.4.3.2
App. A
App. G
ERPIP's

J. Protective Response (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

8. Each Operator's plan shall contain time estimates for evacuation within the plume exposure EPZ. These shall be in accordance with "Request for Evacuation Time Estimates for Areas Near Nuclear Power Plants", (Appendix 4).

Submitted results of study to NRC.

9. Each State and local organization shall establish a capability for implementing protective measures based upon protective action guides and other criteria. This shall be consistent with the recommendations of EPA regarding exposure resulting from passage of radioactive airborne plumes, (EPA-520/1-75-001) and with those of HEW/FDA regarding radioactive contamination of human food and animal feeds as published in the Federal Register of December 15, 1978 (43 FR 58790).

N/A

Recommendations from plant only
Sect. 4
App. G-1 and G-3

10. The organization's plans to implement protective measures for the plume exposure pathway shall include:

a. Maps showing evacuation routes, sectors (see Table J-1), relocation centers in host areas, shelter areas, hospital and other medical facilities;

Fig. 1.2-1
4.4-3

b. Population distribution around the nuclear facility. This shall be in a format described in Table J-1;

Fig. 4.4-1
4.4-4

c. Means for notifying all segments of the transient and resident population;

Sect. 4.4.3
ERPIP's

d. Means for protecting those persons whose mobility may be impaired due to such factors as institutional confinement;

N/A

e. Provisions for the use of radio-protective drugs, particularly for emergency workers, including quantities, storage, and means of distribution;

N/A

Sect. 4.4.3.2

J. Protective Response (continued)

<u>Evaluation Criteria</u>	<u>Applicability and Cross Reference to Plan</u>
10. (Continued)	
f. State and local organizations' plans should include the method by which decisions by the State Health Department for administering radioprotective drugs to the general population are made during an emergency and the predetermined conditions under which such drugs may be used by offsite emergency workers; ¹	N/A
g. Means of relocation;	N/A
h. Relocation centers in host areas which are at least 5 miles, and preferably 10 miles, <u>beyond</u> the boundaries of the plume exposure emergency planning zone;	N/A
i. Projected traffic capacities of evacuation routes under emergency conditions;	N/A
j. Control of access to evacuated areas and organizational responsibilities for such control;	N/A
k. Identification of and means for dealing with potential impediments to use of evacuation routes, and contingency measures;	N/A
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.)	N/A

1/ See DHEW Federal Register notice of December 15, 1978 (43 FR 58798) entitled "Potassium Iodide as a Thyroid-Blocking Agent in a Radiation Emergency." Other guidance concerning the storage, stockpiling, and conditions for use of this drug by the general public, is now under development by the Bureau of Drugs, DHEW.

J. Protective Response (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

m. The bases for the choice of recommended protective actions from the plume exposure pathway during emergency conditions. This shall include expected local protection afforded¹ in residential units for direct and inhalation exposure, as well as evacuation time estimates.

Sect. 4.4.3.2
App. G-3

11. Each State shall specify the protective measures to be used for the ingestion pathway, including the methods for protecting the public from consumption of contaminated food-stuffs. This shall include criteria for deciding whether dairy animals should be put on stored feed. The plan shall identify procedures for detecting contamination, for estimating the dose commitment consequences of uncontrolled ingestion, and for imposing protection procedures such as impoundment, decontamination, processing, decay, product diversion, and preservation. The plan shall include maps for recording survey and monitoring data, key land use data (e.g. farming), dairies, food processing plants, water sheds, water supply intake and treatment plants and reservoirs. The maps shall start at the facility and include the areas which process food products originating in the ingestion pathway Emergency Planning Zone (EPZ).

N/A

^{1/}The following reports may be considered in determining protection afforded.

- (1) "Public Protection Strategies for Potential Nuclear Reactor Accidents: Sheltering Concepts with Existing Public and Private Structures" (SAND 77-1725).
- (2) "Examination of Offsite Radiological Emergency Measures for Nuclear Reactor Accidents Involving Core Melt" (SAND 78-0454).
- (3) "Protective Action Evaluation Part II, Evacuation and Sheltering as Protective Actions Against Nuclear Accidents Involving Gaseous Releases" (EPA 520/1-78-001B).

K. Radiological Exposure Control

Planning Objectives

To assure that means for controlling radiological exposures, in an emergency, are established for emergency workers and the affected population.

Evaluation Criteria

Applicability and Cross
Reference to Plan

1. Each Operator shall establish onsite exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Actions Guides for:

- a. removal of injured persons;
- b. undertaking corrective actions;
- c. performing assessment actions;
- d. providing first aid;
- e. performing personnel decontamination;
- f. providing ambulance service;
- g. providing medical treatment services.

Sect. 3.2.2.2
3.2.2.4
4.5.1
4.5.2
4.5.3
4.5.4
4.5.5

2. Each Operator 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 should be worked out in advance for permitting onsite volunteers to receive radiation exposures in the course of carrying out lifesaving activities. These procedures shall include expeditious decision-making and a reasonable consideration of relative risks.

Sect. 3.2.2.2
4.5.2
ERPIP's

K. Radiological Exposure Control (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

3.a. Each organization shall make provision 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.

Sect. 3.2.2.2

b. Each organization shall provide for maintaining dose records.

Sect. 3.2.2.10

4. Each State and local organization shall establish the decision chain for authorizing emergency workers to incur exposures in excess of the EPA General Public Protective Action Guides (i.e., EPA PAGs for emergency workers and lifesaving activities).

N/A

5.a. Each organization shall specify action levels for determining the need for decontamination.

Sect. 4
ERPIP's

b. Each organization shall establish the means for radiological decontamination of emergency personnel, supplies, instruments and equipment, and for waste disposal.

Sect. 4.4.4	Tables 5.1-1
4.4.5	5.1-2
4.5.3	5.1-3
5.1.1	
5.1.2	

6. Each Operator shall provide onsite contamination control measures including:

a. area access control;

Sect. 3.2.2.2

b. drinking water and food supplies;

c. criteria for permitting return of areas and items to normal use.

Sect. 4.4

K. Radiological Exposure Control (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

7. Each Operator shall provide the capability for decontaminating relocated onsite personnel, including provisions for extra clothing and decontaminants suitable for the type of contamination expected, with particular attention given to radioiodine contamination of the skin.

Sect. 4.5.3
5.1.2
5.1.3
Tables 5.1-1
5.1-2
5.1-3
ERPIP's

8. Each organization shall describe the means for registering and monitoring of evacuees at relocation centers in host areas.

N/A
ERPIP's

L. Medical and Public Health Support

Planning Objectives

To assure that arrangements are made for medical services for contaminated individuals.¹

Evaluation Criteria

Applicability and Cross
Reference to Plan

1. Each organization shall describe arrangements for local and backup hospital and medical services and the capability for evaluation of radiation exposure and uptake, including assurance that persons providing these services are adequately prepared to handle contaminated individuals.

Sect. 4.5.3
4.5.4
4.5.5
App. B

2. Each Operator shall provide for onsite first aid capability.

Sect. 3.2.2.4
4.5.3

3. Each State shall develop maps showing the physical location of all public, private and military hospitals and other emergency medical services facilities within the State or contiguous States considered capable of providing medical support for any victims of a radiological accident. These emergency medical services should be able to radiologically monitor contaminated personnel, and have facilities and trained personnel able to care for victims of radiological accidents.

N/A

4. Each organization shall describe arrangements for transporting victims of radiological accidents to medical support facilities.

Sect. 4.5.4
App. B

1/ The availability of an integrated emergency 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 Plans, 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), should be a part of and consistent with overall State or local disaster control plans and should be compatible with the specific overall emergency response plan for the facility.

M. Recovery and Reentry Planning and Postaccident Operations

Planning Objective

To assure that general plans for recovery and reentry are developed.

Evaluation Criteria

Applicability and Cross
Reference to Plan

- | | |
|--|---|
| 1. Each organization shall develop general plans and procedures for recovery and describe the means by which decisions to relax protective measures are reached. This process should consider both actual and potential conditions. | Sect. 3.2.2.6
3.2.2.7
3.2.2.9
7.1
7.2 |
| 2. Each operator plan shall contain the position/title, authority and responsibilities of individuals who will fill key positions in the facility recovery organization. This organization shall include technical personnel with responsibilities to develop, evaluate and direct recovery and reentry operations. The recovery organization recommended by the Atomic Industrial Forum's "Nuclear Power Plant Emergency Response Plan" dated October 11, 1979, is an acceptable framework. | Sect. 3.2.2.6
3.2.2.7
7.2.2
7.2.3 |
| 3. Each operator 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. | Fig. 3.2-1
App. A Fig. 1
Sect. 3.2.1.7
3.2.1.8 |
| 4. Each plan shall establish a method for periodically estimating total population exposure. | App. G |

N. Exercises and Drills

Planning Objective

To assure that periodic exercises are conducted to evaluate major portions of emergency response capabilities, that the results of exercises form the basis for corrective action for identified deficiencies and that periodic drills are conducted to develop and maintain key skills.

Evaluation Criteria

Applicability and Cross
Reference to Plan

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. Each organization shall conduct an emergency response exercise prior to adoption of the Plan (and prior to issuance of an Operating License (OL)) and at least once every 12 months (plus or minus 3 months) thereafter to demonstrate the effectiveness of the Plan. 1/,2/,3/

Sect. 6.1.2

1/ Each State shall conduct at least one exercise within each 12-month period. The number of exercises needed to assure adequacy of State response capability for those States with more than one nuclear facility site is open and under review by NRC and FEMA. Both agencies solicit public comments on this point.

2/ NRC and FEMA urge the organizations to invite participation by volunteers and members of the public whenever possible.

3/ The organizations should invite participation in exercises by Federal response organizations periodically. The required frequency for joint exercises with Federal response organization is yet to be established; both NRC and FEMA solicit public comment on this question.

Evaluation Criteria

Applicability and Cross
Reference to Plan

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 shall 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.

Sect. 6.1.2

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 evaluated by the drill instructor. Each organization shall conduct drills, in addition to the annual exercise at the frequencies indicated below:

a. Communication Drills

Sect. 6.1.2

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 annually. Communications between the nuclear facility, State and local emergency operations centers, and field assessment teams shall be tested annually.

N. Exercises and Drills (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

Operator

State

Local

b. Fire Drills

Fire drills shall be conducted in accordance with the plant (nuclear facility) technical specifications.

Sect. 6.1.2
App. C

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.

Sect. 6.1.2
App. B

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, grass, soil and air).

Sect. 6.1.2
ERPIP's

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.

Sect. 6.1.1.6
ERPIP's

(2) Analysis of inplant liquid samples with actual elevated radiation levels shall be included in Health Physics drills by operators.

Sect. 6.1.1.6
ERPIP's
To be consistent with
Regulatory Guide 8.8 "ALARA"

N. Exercises and Drills (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

3. The scenarios^{4/} for use in exercises and drills shall include but not be limited to, the following:

Sect. 6.1.2

- a. The basic objective(s) of each drill and exercise.
- 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.
- f. Arrangements for qualified observers.

4/ The NRC and FEMA are developing a series of scenarios which can be used in exercising the plans. The organizations will be able to select an exercise scenario from this list on a rotating basis.

N. Exercises and Drills (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

4. Qualified observers from Federal, State or local governments will observe 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. 5/

Sect. 6.1.2

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.

Sect. 6.1.2

5/ NRC and FEMA will publish guidance for use by observers in evaluating exercises.

0. Radiological Emergency Response Training

Planning Objective

To assure that radiological emergency response training is provided to those who may be called upon to assist in an emergency.

Evaluation Criteria

Applicability and Cross
Reference to Plan

1. Each organization shall make provisions for the training of appropriate individuals

Sect. 6.1.1

a. Each facility to which the plan 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/

Sect. 6.1.1.11

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.

Sect. 6.1.1.11

2. The training program for members of the onsite emergency organization shall 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.

Sect. 6.1.1
ERPIP's

1/ Training for hospital personnel, ambulance/rescue, police and fire departments shall include the procedures for notification, basic radiation protection, and 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.

0. Radiological Emergency Response Training (continued)

Evaluation Criteria

Applicability and Cross
Reference to Plan

3. Training for individuals assigned to operator first aid teams shall include courses equivalent to Red Cross Multi-Media.

Sect. 6.1.1.9

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 (including the scope, nature and frequency) shall be provided in the following categories:

Sect. 6.1.1

a. Directors or coordinators of the response organizations;

Sect. 6.1.1

b. Personnel responsible for accident assessment;

Sect. 6.1.1

c. Radiological monitoring teams;

Sect. 6.1.1

d. Police and fire fighting personnel;

Sect. 6.1.1

e. Repair and damage control teams (onsite);

Sect. 6.1.1

f. First aid and rescue personnel;

Sect. 6.1.1

g. Local support services personnel including Civil Defense/Emergency Service personnel;

Sect. 6.1.1

h. Medical support personnel;

Sect. 6.1.1

i. Operator's headquarters support personnel;

Sect. 6.1.1

5. Each organization shall provide for the initial and annual retraining of personnel with emergency response responsibilities.

Sect. 6.1.1

2/ If State and local governments lack the capability and resources to accomplish this training, they may look to the Operator and the Federal government 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.

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

Planning Objective

To assure that responsibilities for plan development, review and distribution of emergency plans are established and that planners are properly trained.

Evaluation Criteria

Applicability and Cross Reference to Plan

- | | |
|--|-------------------------------------|
| 1. Each organization shall provide for the training of individuals responsible for the planning effort. | Sect. 6 |
| 2. Each organization shall identify by title the individual with the overall authority and responsibility for radiological emergency response planning. | Sect. 6.1.3 |
| 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. | Sect. 6.1.3 |
| 4. Each organization shall update its plan 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. | Sect. 6.2 |
| 5. The emergency response plans and approved changes to the plans shall be forwarded to all organizations and individuals with responsibility for implementation of the plans. Revised pages shall be dated and marked to show where changes have been made. | Sect. 6.1.3
Item (4), Pg. 6.1-14 |
| 6. Each plan shall contain a detailed listing of supporting plans and their source. | State Plan and Appendices |

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

Evaluation Criteria

Applicability and Cross Reference to Plan

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.

ERPIP's

8. Each plan shall contain a specific table of contents and an index.

Table of Contents and this cross reference.

9. Each operator shall arrange for and conduct independent audits of the emergency preparedness program at least every two years. The audit shall include the emergency plan, its implementing procedures and practices, training, readiness testing, and equipment. Management controls shall be implemented for evaluation and correction of audit findings. The result of the audit shall be documented, reported to appropriate organizational management and retained for a period of five years.

Sect. 6.2.1