U.S. NUCLEAR REGULATORY COMMISSION
STANDARD REVIEW PLAN
OFFICE OF NUCLEAR REACTOR REGULATION

SECTION 13.3 EMERGENCY PLANNING

REVIEW RESPONSIBILITIES

Primary - Industrial Security and Emergency Planning Branch (ISEPB)

Secondary - None

I. AREAS OF REVIEW

The applicant's emergency planning, as described in his safety analysis report (SAR), is reviewed by ISEPB. The review of this section of the SAR involves evaluation of evidence of preliminary planning (in the preliminary safety analysis report, PSAR) or substantive evidence of planning (in the final safety analysis report, FSAR) for emergency preparedness directed primarily at situations involving real or potential radiological hazards.

At the PSAR stage the review covers each of the seven sub-parts A-G of 10 CFR Part 50, Appendix E, Part II. Particular attention is given to the following areas, applicable to the sub-parts indicated.

With respect to sub-part B, the designation by the Governor of the state in which the facility is to be located of an agency that has the primary responsibility for planning for radiological emergency response in the (public) environs of the plant is verified and evidence of the arrangements that have been made by the applicant with this agency for the preparation of coordinated emergency response plans in the environs of the facility is reviewed.

With respect to sub-part C, one of the protective measures considered is the evacuation of persons from the exclusion area and from potentially affected sectors of the environs. An analysis of the implications for evacuation of the most severe design basis accident postulated is reviewed to assure that it includes explicit findings or information necessary for emergency planning.

With respect to sub-part E, the review includes a determination that at least two off-site hospital facilities are identified, with evidence that preliminary contacts have established agreements and potential capability to receive and treat individuals affected by radiological emergencies.

USNRC STANDARD REVIEW PLAN

Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to Revision 2 of the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555

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At the FSAR stage, a comprehensive emergency plan document is reviewed. The emergency plan should demonstrate implementation of the objectives and requirements of 10 CFR Part 50, Appendix E, Parts I, III, and IV.

II. ACCEPTANCE CRITERIA

At the PSAR stage, this section is considered acceptable (1) if it conforms to the requirements of 10 CFR Part 50, Appendix E, Part II, (2) if the emergency planning information, submitted in accordance with section 13.3 of Revision 2 of the "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants", is consistent with facility design features, analyses of postulated accidents, and characteristics of the proposed site location, and (3) if it provides reasonable assurance that appropriate protective measures can be taken in the event of a serious accident within and beyond the site boundary.

ISEPB considers that the last of the above is satisfied if preliminary planning and analysis shows that there is reason to expect that the emergency plans for the facility can be designed to meet, at minimum, the following objectives, based upon calculated radiological dose consequences of an airborne release following the most serious design basis accident:

1. Completion of evacuation of persons within the exclusion area within two hours from the onset of release. In this connection, ISEPB considers that the required assurance cannot be given if non-plant related activities, e.g. recreational activities, are permitted anywhere within the exclusion area where siting dose guidelines of 10 CFR Part 100 might be reached in less than two hours, as shown by calculation.

2. Completion of evacuation of persons within 45 sectors of the environs beyond the exclusion radius boundary within two hours from the onset of release, or within the times calculated as a function of distance for a potential dose to reach the upper limit of the range of protective action guide levels to be adopted as warranting evacuation as a protective measure for the general public, whichever is larger at each distance considered. ISEPB considers that the minimum range of acceptable distances within which this determination is to be made is the distance at which the referenced protective action guide level is reached in 8 hours from the onset of release.

3. Completion of initial accident assessment measures, including dose projection, and notification to offsite authorities within fifteen minutes or within the calculated time at which the dose at the exclusion radius would reach the lower limit of the range of protective action guide levels to be adopted (for evacuation), whichever is larger.

At the FSAR stage, the organization and content of a generally acceptable emergency plan for a nuclear power plant to implement the requirements of 10 CFR Part 50, Appendix E, Parts III and IV, is given in Appendix A to this standard review plan.

III. REVIEW PROCEDURES

At the PSAR stage, the review consists of an evaluation of the information submitted by comparison of this information with the foregoing Acceptance Criteria. The reviewer should determine that all of these criteria are satisfied, exercising his judgment as to the reasonableness and adequacy of the qualitative factors involved, in the light of emergency planning objectives.

The reviewer should gain familiarity with the proposed site, including the exclusion area, low population zone, demography, and land use factors, with the proposed plant design and layout, and with the calculated dose consequences of design basis accidents postulated by the applicant. To this end the reviewer should examine relevant sections of thePSAR, particularly Chapters 1.0, 2.0 and 15.0. This information may be supplemented by the use of United States Geological Survey grid maps, road maps, and a personal visit to the site by the reviewer.

With respect to the applicant's analysis and findings relative to emergency planning for evacuation, the reviewer should assess the credibility and adequacy of time factors presented by the applicant in the light of emergency operations experience and should analyze them to determine that the time estimates or allocationsfor sequential actions are consistent with the objectives and criteria set forth in II above. In addition he should assure that calculational methods and assumptions used by the applicant for dose projections are generally consistent with those found acceptable to the staff for purposes of demonstrating conformance with 10 CFR Part 100 siting criteria. Consultation with other members of the staff may be necessary to gain this assurance.

For cases in which the reviewer determines that there are site-related population, road network, or land use factors, or unique accident considerations which present potential problems for emergency planning, he may develop and recommend independent techniques to determine certain acceptable emergency plan design objectives for that site.

At the FSAR stage, the review consists of a careful examination of the applicant's emergency plan. The requirements of 10 CFR Part 50, Appendix E, Parts III and IV, and the elements of emergency planning set forth in Appendix A to this standard review plan should be used as checklists for detailed comparisons with the applicant's plan.

IV. EVALUATION FINDINGS

At the conclusion of the PSAR stage review, a finding of acceptability of the applicant's defined low population zone with respect to the definition in 10 CFR § 100.3(b), should be transmitted to the Accident Analysis Branch.

The evaluation finding for this section at the PSAR stage should be substantially equivalent to the following statement:

"The applicant has described his preliminary plans for coping with emergencies. An onsite Emergency Coordinator will direct the implementation of the Emergency Plan in accordance with detailed written emergency procedures. Initial contacts and

arrangements have been made with the following agencies: (listing by name). The (identity of state agency) has been identified as having primary responsibility for radiological emergency planning in the environs of the proposed facility.

"In-plant monitors will provide the first indication of a radiological emergency. Provisions will be made for surveys by portable meters and air sampling devices on a timely basis. The plant control room has been designed for continuous occupancy and will be the principal emergency control center. One alternate center will be designated. Emergency kits will be stored at the primary assembly area. Decontamination facilities and a first aid room will be provided. Arrangements have been initiated with area hospitals to treat contaminated injury cases. All plant personnel will receive training in emergency procedures and periodic drills will be conducted.

"Analyses have been performed to confirm the practicability of taking protective measures, including evacuation, within and beyond the site boundary during the expected lifetime of the plant, and appropriate criteria have been identified for the design of an acceptable emergency plan.

"We have reviewed the applicant's preliminary plans for coping with emergencies and consider that they meet the requirements of 10 CFR Part 50, Appendix E, and are acceptable."

The evaluation finding for this section at the FSAR stage should be substantially equivalent to the following:

"The applicant has formulated and submitted an Emergency Plan which describes the program for coping with emergencies within and beyond the site boundary. The plan includes a description of the organizational control extending from the on-site emergency organization to off-site agencies, specific emergency measures to be taken as indicated by defined accident assessment techniques, including protective measures, for persons subject to potentially excessive radiological exposures, and facilities and supplies needed for coping with emergencies, including redundant communications equipment. The plan also describes arrangements made for providing necessary medical attention for persons with contaminated injuries, and provisions for maintaining an adequate emergency preparedness posture throughout the expected lifetime of the plant through training, exercises, and drills.

The plan has been determined to be acceptably coordinated with the radiological response planning of the (state name and agency identification).

We have reviewed the applicant's Emergency Plan and consider that it meets the requirements of 10 CFR Part 50, Appendix E, is responsive to the specific requirements of the staff, and provides an adequate basis for an acceptable state of emergency preparedness. Details and procedures to implement the Emergency Plan require inspection and evaluation by the Directorate of Regulatory Operations prior to the issuance of an Operating License."

Modifications or additions to this statement may be necessary to highlight features of the review of emergency planning which are unique to the plant or site in question.

V. REFERENCES

1. Appendix A, "Emergency Plans for Nuclear Power Plants", attached hereto.

2. 10 CFR Part 50, Appendix E, "Emergency Plans for Production and Utilization Facilities".

3. Regulatory Guide 1.70, "Standard Format and content of Safety Analysis Reports for Nuclear Power Plants," Rev. 2.

APPENDIX A

STANDARD REVIEW PLAN 13.3

EMERGENCY PLANS FOR NUCLEAR POWER PLANTS

DISCUSSION

Regulatory concern for emergency planning is directed primarily at situations involving real or potential radiological hazards. Such hazards may place the health and safety of one or more persons in jeopardy. Emergency planning should aim to diminish the degree of jeopardy by preparing for timely action on the part of individuals who constitute a coordinated emergency organization. Although it is not practicable to develop a completely detailed response procedure for every conceivable type of emergency situation, advance planning can create a high order of preparedness and assure an orderly and timely decision-making process at times of stress as well as the availability of equipment, supplies, and essential services.

An important element of emergency planning for nuclear power plants is the recognition of a need to cope with a very broad spectrum of potential consequences. Federal, state, and local agencies as well as the applicant-licensee have responsible roles to play in both the planning and the implementation of emergency preparedness procedures. Federal interagency responsibilities for nuclear incident planning have been set forth in a Federal Register notice of January 24, 1973, by the former Office of Emergency Preparedness (now the Federal Disaster Assistance Administration). To a large extent, these responsibilities are directed toward a coordination of effort to provide assistance to state and local governments in their planning. This policy is based upon the recognition that state and local governments have the necessary authority to implement emergency measures in their jurisdictions. Although federal agencies can and will respond to emergencies arising from nuclear power plant activities if necessary, such response should be regarded primarily as backup and not a substitute for responsible action by licensees and state and local governments.

In the preparation of an emergency plan for a specific nuclear power plant, the applicant should be guided by the following criteria to clarify the scope, content, and purpose of the document which describes the plan. The emergency plan should incorporate sufficient detail so that other participating organizations and agencies with related plans may review it and determine that they are coordinated effectively with one another. Detail which can reasonably be expected to change from time to time, e.g., names and telephone numbers, equipment and supplies inventory lists, or step-by-step procedures or check lists which may be altered as a result of experience or test exercises, should not be incorporated in the plan. The document itself should not be considered as a primary working document to be used during an emergency. Implementing procedures documents, keyed to the plan, should be available for this purpose. The latter documents should not be necessary for

licensing review. However, they should be available for inspection by the Commission's Directorate of Regulatory Operations, and should be transmitted, if applicable, to appropriate state or local agencies.

The plan document should also clarify its scope relative to interfacing plans and procedures within the operating organization, e.g., emergency and off-normal operating procedures within the plant, radiation protection program and procedures, and security plans.

Although a part of the final safety analysis report, it is recommended that the plan be prepared as a separate document.

BRANCH RECOMMENDATIONS

A. Each applicant's emergency plan should include provisions for handling emergencies both within the site of his plant and in the environs of the site. Responsibility for planning and implementing all emergency measures for persons within the site boundaries rests with the licensee. Planning and implementation of emergency measures in the environs of the site arising from onsite activities should be coordinated with local, county, state, and federal agencies having emergency responsibilities and should be described in the applicant's emergency plan. Such planning should generally be increasingly definitive in its provisions for emergency measures as the regions of consideration get closer to the site and the plant itself.

B. The scope and content of a nuclear power plant emergency plan should be substantially equivalent to that outlined in the following section, entitled "Organization and Content of a Nuclear Power Plant Emergency Plan".

CONTENTS

ORGANIZATION AND CONTENT OF A NUCLEAR POWER PLANT EMERGENCY PLAN

(In the following, the decimal notation identifies recommended major subject matter headings for the organization of an emergency plan document. The text, including portions identified by alphabetic notation, gives specific guidance or recommendations as to the content of the section or sub-section.)

For clarity, certain terms are employed with specific definitions as follows:

Definitions:

Assessment actions - means all of those actions taken after an accident has occurred which are collectively necessary to make decisions to implement specific emergency measures.

Corrective actions - means emergency measures taken to ameliorate or terminate an emergency situation at or near the source of the problem.

Protective actions - means those emergency measures taken after an accident or an uncontrolled release of radioactive materials has occurred, for the purpose of preventing or minimizing radiological exposures to persons which would be likely to occur if the actions were not taken.

Population-at-risk - means those persons for whom protective actions are or would be taken.

Affected persons - means persons who have been radiologically exposed or physically injured as a result of an accident, to a degree requiring special attention as individuals, e.g., decontamination, first aid, or medical services.

Recovery actions - means those actions taken post-emergency to restore property to its pre-emergency condition as nearly as possible.

Protective action guides - means projected radiological dose, or dose commitment, values to individuals in the general population which warrant protective action following a contaminating event.

Emergency action levels - means radiological dose rates, specific contamination levels of airborne, waterborne, or surface-deposited concentrations of radioactivity, or specific instrument readings, which may be used to prescribe specific emergency measures.

1.0 Scope and Applicability

This section of the plan should define the unit, plant, station, or area to which the plan is applicable, and a summary of its inter-relationships with (1) its implementing procedures, (2) plant operating, radiological control, and industrial security procedures, (3) other emergency plans of the company, e.g., an overall corporate plan, and (4) emergency plans of other participating agencies, particularly the responsible State agency.

2.0 Summary of Emergency Plan

This should describe the key elements of overall emergency planning logic incorporating graded emergency classifications of increasing severity and their relationship to the participating status of onsite and offsite personnel and agencies.

3.0 Emergency Conditions

3.1 Classification System

An emergency plan should characterize several classes of emergency situations. The system of classification employed should consist of mutually exclusive groupings (to avoid ambiguity) but should cover the entire spectrum of possible situations. Each class should incorporate (1) a specific emergency organization alerting and mobilization procedure, and (2) a set of predefined preliminary actions to be taken by designated emergency organization personnel. Succinct descriptive rather than numerical or alphabetical classification designations are recommended to give better immediate clues to personnel as to the scope and character of the situation.

An acceptable classification scheme is described below in qualitative terms. This part of the emergency plan should describe the criteria for recognizing and declaring each class, including specific emergency action levels for the last three classes.

a. Personnel Emergency

Accidents or occurrences onsite may require emergency treatment of individuals. This classification applies to situations which have no potential for escalation to more severe emergency conditions. There may be no effect on the plant, nor does it necessarily involve immediate operator action to alter plant status. A personnel emergency does not activate the entire plant emergency organization but may activate teams such as first aid. It may also require special local services such as ambulance and medical.

Implementing procedures for the handling of this class of emergency may also be incorporated in the plant's radiation protection procedures and general industrial safety procedures.

Included in this class are injuries which may be complicated by contamination problems or excessive radiation exposures to onsite personnel.

The recognition of this class of emergency is primarily a judgment matter for plant staff supervisory or management personnel. Its importance as part of the classification scheme rests to some extent on its "negative" information content, viz, that the incident giving rise to an emergency is restricted in its scope of involvement. This section of the plan should designate the classification criteria, and enumerate discrete accident situations which would give rise to the use of this class.

b. Emergency Alert

Specific situations may arise that can be recognized as creating a hazards potential that was previously non-existent or latent. In and of itself the situation has not yet caused damage to the plant nor harm to personnel and does not necessarily require an immediate change in plant operating status. Inherently, then, this is a situation in which time is available to take precautionary and constructive steps to prevent the realization of an accident and to mitigate the consequences should it occur. An emergency alert situation may be brought on by either man-made or natural phenomena.

Emergency alert conditions imply a rapid transition to a state of readiness by the plant personnel, the possible cessation of certain routine functions or activities within the plant which are not immediately essential, and possible precautionary actions which the specific situation may require. Examples of situations which might be placed in this class are: threats to or breaches of plant security measures such as bomb threats or civil disturbance; severe natural phenomena in the plant environment such as floods, earthquakes, tsunamis, hurricanes, or tornadoes; emergency situations such as fires at adjacent facilities; release of a toxic or noxious gas in or near the plant; or flooding offsite caused by malfunction or failure in some part of the plant cooling water system. This section of the emergency plan should identify specific candidate situations for emergency alerts and the quantitative criteria that would guide the decision to implement each. Qualitative criteria should be added for other candidate situations to guide the decision of on-site supervisory personnel.

c. Plant (Unit) Emergency

This class incorporates physical occurrences within the plant requiring full plant staff emergency organization response. The initial information and assessment indicates that it is very unlikely that an offsite hazard will be created. However, substantial modification of plant operating status is a highly probable corrective action if this has not already taken place by the actions of automatic protective systems. Although it is judged that the emergency situation can be corrected and controlled by the plant staff, notification of corporate headquarters staff to put them on an alert status is prudent. In turn, notification of appropriate offsite agencies as to the nature and extent of the incident is advisable. Evacuation of the plant is not anticipated in this class although protective evacuations or isolations of certain plant areas may be necessary.

Examples of situations which might fall into this class are those accidents which have been analyzed in the FSAR as events which are predicted to have no radiological consequences offsite. Fires, explosions or explosive gas releases, or in-plant flooding conditions, may also fall into this class.

Activation levels for declaring plant emergencies should be based upon the recognition of an immediate need to implement in-plant emergency measures to protect or provide aid to affected persons in the plant and to mitigate the consequences of damage to plant equipment, coupled with a positive observation that (a) effluent and other radiological monitors do not indicate the possibility of a site emergency, and (b) there is no apparent breach of any fuel cladding, primary system boundary, or containment. This section should describe the alarm conditions or combinations of alarm conditions and the emergency action levels for initiating a plant emergency and their bases.

d. Site (Station) Emergency

This class involves an uncontrolled release of radioactive materials into the air, water, or ground to an extent that initial information and assessment indicates that protective actions offsite may be desirable. Mobilization and readiness of offsite emergency organizations is prudent. Protective actions are likely to include evacuation of plant areas other than control rooms and emergency stations, and should include provisions for evacuation of construction personnel during those periods when additional units are under construction on the same site. Assessment actions will include monitoring of the environment.

Situations which are likely to fall into this class include those accidents analyzed in the FSAR which are predicted to have small to moderate releases at the exclusion radius. It should be anticipated that site emergencies would not normally be preceded by a plant emergency although this evolution should not be excluded.

Emergency action levels declaring a site emergency should be defined in terms of instrument readings or alarms in the control room. To avoid false alarms or to minimize their frequency of occurrence, the levels may be defined so as to require corroborating evidence from two independent sources having input to the control room. Indications from effluent monitors should be included. Site emergencies should also be declared on the basis of evidence of apparent breaches in fuel cladding, primary system boundaries, or containment when otherwise a plant emergency would be declared. The bases and criteria used to define the instrument alarm levels should be described. Suitable criteria would be protective action guide values at a security fence, or exclusion area or site boundary and the bases would show how the effluent monitor readings relate to such values. Protective action guides selected for this purpose should be below the siting guideline values of 10 CFR Part 100 and should have the concurrence of state authorities. Federal agency guidance is available to assist in the selection of acceptable protective action guides.

e. General Emergency

This is an occurrence characterized by offsite consequences requiring protective action measures as a matter of prudence or necessity. Evacuation of the site may also be necessary under extreme circumstances. Emergency action levels for declaring a general emergency should be defined.

Two categories, short term and long term, should be recognized. The former is guided by direct radiation or inhalation hazards, while the latter is guided primarily by contamination hazards. General emergency action levels may be based upon confirmatory measurements taken in the field to the extent that it can be shown that they can be taken and evaluated rapidly enough to permit adequate time for the protective actions to be accomplished. The levels for severe short term situations require definition in terms of effluent and other onsite monitor indications. As in the previous case, the bases and criteria used to define the relevant instrument levels should be described.

3.2 Spectrum of Postulated Accidents

Accident analysis sections of safety analysis reports are primarily concerned with the design responses of a plant to postulated malfunctions or equipment failure and include estimates of the radiological consequences of discrete accidents. By contrast, emergency planning is concerned with individual and organizational responses to the continuum of potential accident situations which must include those discrete accidents which have been hypothesized. This section of the emergency plan should show that each is encompassed within the emergency characterization classes and provide a summary analysis of their implications for emergency planning. Implications to be considered include:

a. Instrumentation capability for prompt detection and continued assessment, including functional applicability, range, response time, locations of sensing and readout elements (including alarms), and backup or redundant capability.

b. Manpower requirements for assessment, including record keeping; for corrective actions; for protective actions including communications requirements; and for aid to affected persons.

c. The timing of and the time required for the implementation of each emergency measure which may be brought into play.

4.0 Organizational Control of Emergencies

Starting with the normal operating organization as a base, this section of the plan should describe the emergency organization that would be activated on the site and its augmentation and extension offsite. Authorities and responsibilities of key individuals and groups should be delineated. The communication links established for notifying, alerting, and mobilizing emergency personnel should be identified.

4.1 Normal Operating Organization

Both day and night shift operating staffs (crews) should be described, indicating clearly who is in the immediate onsite position of responsibility for the plant and station (normally a shift supervisor) and his authority and responsibility for declaring an emergency.

4.2 Onsite Emergency Organization

This section should describe the mobilization billets of plant staff personnel for controlling each class of emergency for both day and night shift situations.

4.2.1 Direction/Coordination

The position title of that person who is designated to take charge of emergency control measures onsite should be clearly identified. A specific line of succession for this function should also be given. A policy statement describing the scope of authority and responsibility vested in that role by the company (applicant) should be included. Functional responsibilities assigned to this individual should be described, and should include a summary of those preliminary assessment procedures that would be followed to prescribe or guide his decision to classify and declare an emergency.

4.2.2 Plant Staff Emergency Assignments

The plan should specify the functional areas of emergency activity to which members of the plant staff are assigned, including an indication of how the assignments are made for both day and night shifts, and for plant staff members both onsite and away from the site. Functional areas should include:

1. Plant systems operations
2. Radiological survey and monitoring
3. Fire fighting
4. Rescue operations
5. First aid
6. Decontamination
7. Security of plant and access control
8. Repair and damage control
9. Personnel accountability
10. Record keeping
11. Communications

4.3 Augmentation of Onsite Emergency Organization

This section should describe two categories of offsite supporting assistance to the plant staff emergency organization. These can be either directed, authorized, or requested by the company management to perform special emergency assistance functions.

4.3.1 Headquarters Support

Headquarters management, administrative, and technical personnel should be prepared to augment the plant staff, both in emergency planning and in the performance of certain functions required to cope with an emergency. The following special functions are considered appropriate for headquarters support and should be incorporated in the overall plan, although company policy and organizational features may dictate variations in modes of assigning responsibilities for these functions among headquarters personnel, plant staff personnel, and outside support organizations.

1. Environs monitoring.
2. Logistics support for emergency personnel, e.g., transportation, temporary quarters, food and water, sanitary facilities in the field, and special equipment and supplies procurement.
3. Technical support for planning reentry/recovery operations.
4. Notification of governmental authorities.
5. Public relations and information release, coordinated with governmental authorities, including steps taken to inform visitors to the plant or information center, and to occupants in the environs of the site, of how the emergency plans provide for notification to them and how they can expect to be advised as to what to do.

The emergency organization status of supporting headquarters personnel should be specified, relative particularly to the person directing the plant emergency organization.

In some instances, companies may provide for certain emergency supporting services to their plants by contract with private organizations. Where this is the case, the nature and scope of the support services should be characterized here. (The Commission may find it necessary to request evidence of the qualifications of such contractors.) Specific services by the contractors should be identified as such at the appropriate places in the emergency plan document.

4.3.2 Local Services Support

This section should identify the extension of the organizational capability for handling emergencies to be provided by ambulance, medical, hospital, fire, and police organizations. Evidence of the arrangements and agreements reached with such organizations should be included in an appendix and referenced here, along with references to the parts of the plan in which their functions are primarily described.

4.4 Coordination with Participating Agencies

This section should identify the principal state agency (designated state authority) and other governmental (local, county, state, and federal) agencies having planning and action responsibilities for emergencies, particularly for radiological emergencies, in the area in which the plant is located. If the boundary line between two political entities, e.g., counties or states, passes within the low population zone or approximately four miles of the site, agencies from both entities should be included. Subsections for each such agency should describe the following:

a. Identity of agency.

b. Summary of written agreement with agency which clearly defines the authority and responsibility of the agency for emergency preparedness planning, and for emergency response in the public domain, particularly relative to those of the licensee and to those of other agencies. (Copies of such agreements should be included in an appendix, along with a copy or summary of relevant parts of that agency's emergency plan.)

c. Activation of agency function, including titles and alternates of both ends of the communications links, and primary and alternate means of communication.

d. The designation and location of the emergency operations center of each agency.

e. Support of the agency function that may be provided by the company emergency organization, which may include (1) information on plant status, monitoring results, dose predictions, (2) recommendations or requests for specific actions, and (3) logistics support.

Typical agencies to be included here are: law enforcement agencies (not included above, e.g., state police/highway patrol), departments of health and environmental protection, civil defense and emergency/disaster control agencies, AEC regional operations offices, and the AEC regional office of Regulatory Operations.

5.0 Emergency Measures

Specific emergency measures should be identified in this section and related to action levels or criteria that specify when the measures are to be implemented. They should be organized with respect to each emergency classification. Preplanned action levels and criteria should be designed to assist and guide, or in some cases specify, the decision-making functions.

The planning represented by this section should lead to more detailed emergency procedures and assignments for executing tasks by appropriate members of the total emergency organization. Emergency measures begin with the activation of an emergency class and its associated emergency organization. The additional measures may be organized into assessment actions, corrective actions, protective actions, and aid to affected persons.

5.1 Activation of Emergency Organization

The emergency conditions classified in Section 3.1 involve the alerting or activation of progressively larger segments of the total emergency organization. This section should describe how the necessary communications steps are taken to alert or activate emergency personnel under each class, including, in particular, action levels for notification of offsite agencies.

5.2 Assessment Actions

Effective coordination and direction of all elements of the emergency organization require continuing assessment throughout the duration of an emergency situation. Assessment functions should be incorporated in explicit procedures for each emergency classification. They should be identified in this section and may include the following:

a. Surveillance of control room instruments and emergency control center monitors, radiological and meteorological, installed, pursuant to General Design Criteria 13 and 64 of 10 CFR Part 50, Appendix A.

b. Surveillance of containment integrity.

c. In-plant radiological surveys.

d. Site and site boundary surveys.

e. Environs surveys and monitoring.

1. Plume and other effluent surveillance for short term assessment. Planning should consider type of data sought; instrument and equipment requirements; monitoring team transportation facilities, e.g., aircraft, boats, vehicles; methods and accuracy of plume location; and potential use of fixed off-site monitoring facilities.

2. Contamination surveillance. Planning should consider the timing, frequency, and types of samples to be collected, such as soil, vegetation, food, milk and water supplies, and potential locations for reconcentration, e.g., in air intake filters.

f. Data reporting, reduction and analysis.

g. Interviewing evacuees or other witnesses of the accident.

h. Notification of assessment results for modification of emergency measures in progress, if necessary.

5.3 Corrective Actions

Many emergency situations involve actions which can be taken to correct or mitigate the situation at or near the source of the problem. This section should identify

those actions, such as fire control, and repair and damage control, which would be implemented when necessary. Emergency exposure criteria for personnel undertaking corrective actions should be included.

5.4 Protective Actions

This section should describe the nature of protective actions which the plan contemplates, the protective action levels, the area involved, and the means of notification to the population-at-risk. Protective actions to be taken offsite by other agencies should be described.

5.4.1 Protective Cover, Evacuation, Personnel Accountability

The emergency plan should provide for timely relocation of persons to prevent or minimize exposure to direct radiation or airborne hazards. The following items should be included:

1. Plant Site

   a. Action criteria.
   b. The means and the time required to notify persons involved. These should include:
      (1) Employees not having emergency assignments.
      (2) Working and non-working visitors.
      (3) Contractor and construction personnel.
   c. Control of public access areas on or passing through site or within exclusion area.
   d. Evacuation routes, transportation of personnel, and reassembly areas, including inclement weather and high traffic density alternatives.
   e. Missing persons check.
   f. Radiological monitoring of evacuees.

2. Off-Site Areas

   a. Action criteria including inclement weather alternatives.
   b. Company emergency organization responsibilities.
   c. Agency responsibilities.
   d. The means and the time required to notify and the expected response of persons involved. These should include:
      (1) Adjacent businesses, property owners, and tenants.
      (2) Nearby schools or recreational facilities.
      (3) General public, in the environs.

5.4.2 Use of Protective Equipment and Supplies

Additional protective actions which should be considered in emergency planning include measures for minimizing the effects of radiological exposures or contamination problems through the distribution of special equipment or supplies. Measures to be considered include:

1. Individual respiratory protection.
2. Use of protective clothing.
3. Individual thyroid protection.

For each measure which might be used, a description should be given of:

1. Criteria for issuance.
2. Location(s) of items.
3. Means of distribution to onsite and offsite persons.

5.4.3 Contamination Control Measures

Provisions should be made for preventing or minimizing ingestion of or exposure to contaminated areas or materials. (Control of in-plant contamination should be described in the facility radiological protection procedures and need not be repeated here.) Measures for the protection of onsite persons outside of fenced security areas and offsite persons should include:

1. Isolation or quarantine and area access control.
2. Control of the distribution of affected commercial agricultural products.
3. Control of public water supplies.
4. Means for providing advisory information regarding the use of potentially affected home food and water supplies.
5. Criteria for permitting return to normal use.

Action levels and responsibility for execution of each measure contemplated should be described.

5.5 Aid to Affected Personnel

This section of the emergency plan should describe measures which will be used to provide necessary assistance to persons injured or radiologically exposed. The following matters should be included:

5.5.1 Emergency Personnel Exposure Criteria

Exposure limits should be specified for voluntary entry or reentry of areas to remove injured persons and limits for emergency personnel who may provide first aid, decontamination, ambulance, or medical treatment services to injured persons.

5.5.2 Decontamination and First Aid

Capabilities for decontaminating personnel for their own protection and to prevent or minimize further spread of contamination should be included, along with a brief description of first aid capabilities of appropriate members of the emergency organization.

5.5.3 Medical Transportation

Arrangements for transporting injured personnel, who may also be radiologically contaminated, to medical treatment facilities should be specified.

5.5.4 Medical Treatment

Arrangements made for local and back-up hospital and medical services, and the capability for radiation exposure and uptake evaluations should be described.

For both hospital and medical services, the plan should incorporate assurance that the required services are not only available, but also that persons providing them are prepared and qualified to handle radiological emergencies. Written agreements with respect to arrangements made by the applicant, which should be included in the appendix, would facilitate this determination.

6.0 Emergency Facilities

This section of the emergency plan should identify, describe briefly, and give the locations of the following categories of items.

6.1 Emergency Control Centers

This should include the principal and, if provided for, alternate onsite location from which effective emergency control direction is given. One alternate offsite location under the jurisdiction of the applicant should also be described. Their descriptions should also specify prevailing wind direction and evacuation routes.

6.2 Communications Systems

Brief descriptions should be given of both internal and external communications systems that would perform vital functions in transmitting and receiving information throughout the course of an emergency.

6.3 Assessment Facilities

Many of the emergency measures described in Section 5.0 will depend upon the availability of monitoring instruments and laboratory facilities. This section should list monitoring systems that are to be used to initiate emergency measures as well as those used for continuing assessment. Organization of the listing should be as follows.

6.3.1 Onsite Systems and Equipment

1. Natural phenomena monitors, e.g., meteorological, hydrologic, seismic.
2. Radiological monitors, e.g., process, area, emergency, effluent, portable monitors and sampling equipment.
3. Non-radiological monitors, e.g., reactor coolant system pressure, temperatures, containment pressure, temperature, liquid levels, flow rates, status or lineup of equipment components.
4. Fire detection devices.

6.3.2 Environs Monitoring Facilities and Equipment

1. Natural phenomena monitors.
2. Radiological monitors.
3. Laboratory facilities, fixed and mobile.

Reference may be made to the applicable part of the safety analysis report for more detailed descriptions, if applicable.

6.4 Protective Facilities

Specific facilities mentioned in Section 5.4.1 which are intended to serve a protective function should be described, emphasizing those features of the facility which assure its adequacy with respect to capacity for accommodating the number of persons expected, and with respect to shielding, ventilation, and inventory of supplies. Such facilities might include fallout shelters or similar areas, and reassembly points. If design details have been provided elsewhere in the safety analysis report, a brief summary only need be given here, along with a reference to the detail.

6.5 First Aid and Medical Facilities

A summary description of onsite facilities should be provided. Offsite medical facilities should be described in the appendix, along with the agreements providing for their use.

7.0 Maintaining Emergency Preparedness

This section of the plan should describe the means to be employed to assure that the plan continues to be effective throughout the lifetime of the nuclear facility.

7.1 Organizational Preparedness

7.1.1 Training

This section should include a description of periodic training programs to be given to all categories of emergency personnel. Specialized training for the following categories should be included:

1. Directors or coordinators of the plant emergency organization.
2. Personnel responsible for accident assessment, including control room shift personnel.
3. Radiological monitoring teams.
4. Fire, and repair and damage control teams.
5. First aid and rescue team members.
6. Local services personnel.
7. Medical support personnel.

7.1.2 Drills

Periodic (at least annual) announced drills should be incorporated in the emergency plan. These should be pre-planned simulations of accidents to test the adequacy of timing and content of specific implementing procedures

and to test emergency equipment. Arrangements should be made for critiques of the drills. Coordinating drills should be made with participating agencies at least annually, testing at a minimum the communications links. An initial coordinated drill with participating agencies should be planned and carried out prior to fuel loading of the first unit at any site.

7.2 Review and Updating of the Plan and Procedures

Provision should be made for an annual review of the emergency plan and for updating and improving procedures based upon training, drills, and changes onsite or in the environs. Means for maintaining all coordinate elements of the total emergency organization informed of revisions to the plan or relevant procedures should be described.

7.3 Emergency Equipment and Supplies

The operational readiness of all items of emergency equipment and supplies should be assured. The plans and schedules for performing maintenance, surveillance testing, and inventory of emergency equipment and supplies should be described.

8.0 Recovery

This section should describe general plans, including applicable criteria, for restoring property as nearly as may be possible to its pre-emergency status.

9.0 Appendix

The appendix should include the following items:

1. Copies of agency agreement letters and copies or summaries of interfacing emergency plans.

2. Plots of calculated time-distance-dose for the most serious design basis accident as required by Revision 2 of the "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants".

3. Listings by title of written procedures which implement the plan.

4. Listings by category of protective equipment and supplies.

The written procedures themselves and detailed cataloguing of protective equipment and supplies should be available at the plant site for inspection at any time by a representative of the Commission's Directorate of Regulatory Operations.

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