PART P

CONTINGENCY PLANNING FOR RESPONSE TO RADIOACTIVE MATERIAL EMERGENCIES

Sec. P.1 - Purpose. This Part provides for preparedness and response to events involving actual or potential release of radioactive material by specifying the content and exercise of a licensee contingency plan.

Sec. P.2 - Scope.

a. Any person licensed to receive, possess, own, acquire, use, process, store, transfer or dispose of radioactive material is subject to this Part.

b. In addition to conforming to the licensing requirements in Part C of these regulations and the standards for protection in Part D of these regulations, a licensee with forms and quantities of radioactive material specified in this Part is required to evaluate and prepare to respond to an event involving possible release of radioactive material. Readiness to respond emphasizes immediate activities such as containment, rescue, notifications, and securing the scene of an event.

Sec. P.3 - Definitions. As used in this Part, these terms have the definitions set forth below.

"Accident" means any unintended event (including an operating error, equipment failure or other mishap) which could (1) result in a dose in excess of regulatory limits on site or for the public or (2) have consequences or potential consequences which cannot be ignored from the point of view of protection or safety (such as an actual or potential substantial degradation of the level of protection or safety of the facility or release of radioactive material in sufficient quantity to warrant consideration of protective actions).

"Alert" means an event may occur, is in progress, or has occurred that could lead to a release of radioactive material but that the release is not expected to require a response by offsite response organizations to protect persons offsite.

"Drill" means a supervised, hands-on instruction period intended to test, develop or maintain a specific emergency response capability. A drill may be a component of an exercise.

"Emergency" means an event requiring prompt action to mitigate a threat to the health and safety of workers and the public or a threat of damage to the environment.

"Emergency planning zone" means a geographic area surrounding a specific facility for which special planning and preparedness efforts are carried out to ensure that prompt and effective protective actions can reduce or minimize the impact of releases of radioactive material to public health and safety or to the environment.

"Evacuation" means the urgent removal of people from an area to avoid or reduce high level, short-term exposure.

"Event" means a situation reasonably discrete in time, location and consequences.

"Exercise" means a multi-faceted activity that tests the plans, procedures, adequacy of training, resources, and integrated capability of an emergency response system.

["General emergency" means an accident has occurred or is in progress which involves actual or imminent catastrophic reduction of facility safety systems with potential for loss of containment or confinement integrity or release of radioactive material that can be reasonably expected to exceed offsite protective action guides.[1/]]

"Immediate" means within not more than fifteen minutes or as otherwise specified in writing by the licensee.

"Incident" means any unintended event involving radioactive material for which the public dose is a fraction of regulatory limits and safety provisions are sufficient, but further degradation of safety systems could lead to an accident condition.

"Offsite response organization" means the non-licensee offsite organizations which may be needed to respond to an emergency, including, but not limited to, local fire, police, ambulance and hospital services.

"Projected dose" means a future dose calculated for a specified time period on the basis of estimated or measured initial concentrations of radionuclides or exposure rates and in the absence of protective actions.

"Protective action" means an action taken by members of the public to protect themselves from radiation from an accident involving radioactive material. Protective action may include sheltering, evacuation, relocation, control of access, administration of a radioprotective drug, decontamination of persons, decontamination of land or property, or control of food or water.

"Protective action guide" means a projected dose from an accidental release of radioactive material at which protective action is to be considered.

"Relocation" means the removal or, after a plume has passed, continued exclusion of people from contaminated areas to avoid chronic radiation dose.

"Sheltering" means the use of a structure for radiation protection from an airborne plume containing radioactive material.

[1/] *A definition of "general emergency" is provided for reference and completeness. It is unlikely that any state licensee would need to plan for a general emergency.*

"Site" means the physical area within the site boundary, including the area upon which the licensee conducts activities and any restricted area. The site boundary is that line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

"Site area emergency" means an event may occur, is in progress, or has occurred that could lead to a significant release of radioactive material and that could require a response by offsite response organizations to protect persons offsite.

Sec. P.4 - Dose Evaluation and Contingency Planning. Each application to possess radioactive material in unsealed form, on a foil or plated source, or sealed in glass in excess of the quantities in Part P, Appendix A, "Quantities of Radioactive Materials Requiring Consideration of the Need for a Contingency Plan for Responding to a Release", must contain either:

a. An evaluation, as described in P.5, showing that the projected dose to a person offsite due to a release of radioactive material would not exceed 0.01 Sievert (1 rem) total effective dose equivalent or 0.05 Sievert (5 rem) to the thyroid; or

b. A contingency plan, as prescribed in P.6, for responding to any event in which radioactive material could be released from the site.

Sec. P.5 - Evaluation of Potential Dose. In evaluating the total effective dose equivalent to an individual pursuant to P.4a. above, the applicant may take into account whether:

a. The radioactive material is physically separated so that only a portion could be involved in an alert or site area emergency;

b. All or part of the radioactive material, because of the way it is stored or packaged, is not subject to release during an alert or site area emergency;

c. The release fraction in the respirable size range is predicted to be lower than the release fraction shown in Part P, Appendix A, due to the chemical or physical form of the material;

d. The solubility in body fluids of the radioactive material is predicted to reduce the dose received;

e. Facility design or engineered safety features in the facility are predicted to cause the release fraction to be lower than shown in Part P, Appendix A;

f. Operating restrictions or procedures are predicted to prevent any release fraction equal to or larger than that shown in Part P, Appendix A.

Sec. P.6 - Contents of a Contingency Plan. A contingency plan for responding to an event in which radioactive material could be released from the site submitted pursuant to P.4b. above shall include the following

information, in separate sections having each page numbered and labeled with a revision date and revision number:

a. Facility description. A brief description of the applicant's facility and surroundings.

b. Types of accidents. An identification of each type of alert or site area emergency involving radioactive material for which actions by licensee staff or offsite response organizations will be needed to protect members of the public.

c. Classification of accidents. A method for classifying and declaring each alert or site area [or general] emergency as defined in P.3.

d. Detection of accidents. Identification of the means for detecting each type of alert or site area emergency in a timely manner.

e. Mitigation of consequences. A brief description of the means and equipment which are available for mitigating the consequences of each type of alert or site area emergency, including (1) those provided to protect workers onsite, (2) a description of the program for maintaining the equipment, (3) radiological exposure controls for onsite and offsite response personnel, and (4) readiness to carry out special efforts within any designated emergency planning zone as defined in P.3.

f. Assessment of releases. A brief description of the methods and equipment available to assess releases of radioactive material.

g. Responsibilities.

    i. The names and titles of the applicant's personnel responsible for developing, maintaining and updating the contingency plan.

    ii. A brief description of the responsibilities of the applicant's personnel who will respond if an alert or site area [or general] emergency were declared, including identification of personnel responsible for promptly notifying offsite response organizations, including the Agency.

    iii. A list of offsite response organizations, description of their responsibilities and anticipated actions, and copy of formal commitments, if any.

h. Notification, coordination and use of offsite response organizations.

    i. A brief description of the means, in the event of an alert or site area [or general] emergency, to promptly notify the offsite response organizations listed pursuant to P.6g.iii. above.

ii. A brief description of the arrangements made for requesting by telephone and effectively coordinating and using offsite organizations capable of augmenting the planned onsite response, including arrangements for backup communications and 24-hour capability.

iii. The assistance requested may include, but need not be limited to, medical treatment of contaminated or injured onsite workers.

iv. A description or drawing of designated locations from which control and assessment of an alert or site area emergency would be exercised (i.e., command center and control points).

v. Provisions for notification and coordination in case key personnel, parts of the facility, or some equipment are unavailable.

i. Information to be communicated.

i. A brief description of the information to be provided to offsite response organizations, including the Agency, in the event of an alert or site area [or general] emergency.

ii. The types of information to be provided shall include the declared status of the facility, a description of actual or potential releases of radioactive material, the names and telephone numbers of personnel designated as points of contact, who has been affected, and any recommendations for protective action.

iii. A brief description of the types of information to be provided to the public by facility staff and through offsite response organizations.

iv. If protective action by the public is part of the contingency plan, a description of how the public will be trained to perform the action (such as removal and disposition of contamination).

j. Training.

i. A brief description of the performance objectives and plans for initial and annual training that the applicant will provide to workers about how to respond to an emergency, including any special instructions and orientation tours that the applicant will provide for fire, police, medical and other emergency response personnel.

ii. Provisions for familiarizing radiation workers and non-radiation workers, including off-site responders, with site-specific hazards and emergency procedures.

iii. Provisions for adequately preparing site personnel for their responsibilities in the event of serious alert or site area emergency scenarios postulated for the specific site, including the use of drills, exercises and team training for such scenarios.

k. Drills and exercises. Specifications for:

i. Conducting quarterly communications checks with offsite response organizations that include the verification and updating of all necessary telephone numbers and other electronic communication addresses.

ii. Conducting at least one radiological/health physics, medical and fire drill every two years and conducting, between required biennial drills, at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities.

iii. Inviting offsite response organizations to participate in onsite exercises conducted pursuant to P.10 below.[2/]

iv. Using several alert or site emergency scenarios, including those involving many of the potential responders identified in the contingency plan and those postulated as most probable for the specific site, up to and including the maximum credible accident.

v. Ensuring that alert or site emergency scenarios are appropriately known or not known to exercise participants as prescribed in the contingency plan.

l. Safe condition. A brief description of the site-specific criteria for a safe condition and means of restoring the facility and surroundings to a safe condition after an alert or site area emergency.

Sec. P.7 - Comment from Offsite Response Organizations. Not less than 60 days prior to submittal of the contingency plan to the Agency, the applicant shall provide the contingency plan for comment to offsite response organizations expected to respond in case of an alert or site area emergency, including, but not limited to, local fire, ambulance, and hospital emergency response officials. Amendments to the plan shall also be provided to offsite agencies for comment before submittal to the Agency. The licensee shall provide each comment received within the 60 days to the Agency with the contingency plan or amendment.

Sec. P.8 - Hazardous Chemicals. The applicant shall certify to the Agency that it has met its responsibilities under the Emergency Planning and Community Right-to-Know Act of 1986, Title III, Pub. L. 99-499, if applicable to the applicant's activities at the proposed place of use of the radioactive material.

Sec. P.9 - Training. Each licensee required to submit a contingency plan pursuant to P.4b. shall provide training to facility staff and off-site response organization personnel at intervals not to exceed one year for each person who has a responsibility for responding to accidents postulated as most probable for the specific site.

Sec. P.10 - Conduct of Drills and Exercises. Each licensee that is required to submit a contingency plan pursuant to P.4b. shall:

[2/] *Participation of offsite response organizations in exercises, although recommended, is not required.*

a. Conduct drills and exercises at required intervals not to exceed two years to test the response to simulated emergencies;

b. Perform critiques of drills and exercises and ensure that such critiques evaluate the appropriateness of the contingency plan, emergency procedures, facilities, equipment, training of personnel, and overall effectiveness of the response;

c. Unless the Agency approves otherwise, ensure that the critique of each exercise is performed by individuals not having direct implementation responsibility for conducting the exercise; and

d. Correct deficiencies noted in the critique of each drill and exercise within a time period for corrective action which is specified to the Agency [cite appropriate state agency] in writing.

Sec. P.11 - Plan Implementation. Each licensee required to submit a contingency plan pursuant to P.4b. shall:

a. Comply with each provision and specification of the contingency plan submitted to the Agency [cite appropriate state agency]; and

b. Notify offsite response organizations, including the Agency [cite appropriate state agency], immediately and no later than one hour after the licensee declares an alert or site area emergency.[3/]

c. Promptly report any projected dose and protective action recommendation as prescribed in the contingency plan.

Sec. P.12 - Plan Revision. Each licensee that is required to submit a contingency plan pursuant to P.4b shall, with each page numbered and labeled with a revision date and revision number:

a. Update the contingency plan at intervals not to exceed one year, and provide the update to the Agency [cite appropriate state agency] and to affected offsite response organizations within 30 days after the update is completed; and

b. Obtain Agency [cite appropriate state agency] approval in writing before implementing changes to the plan except for updates to names, titles, and telephone numbers. For information purposes only, updates of individual names, titles, assignments of responsibility, and telephone numbers are to be reported to the Agency and to affected offsite response organizations within 30 days.

Sec. P.13 - Documentation and Recordkeeping. Each licensee required to submit a contingency plan pursuant to P.4b. shall retain records of contingency plan training, drills and exercises pursuant to P.6, and revisions and

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[3/] *The reporting requirements of P.11b above does not supersede or relieve a licensee from complying with the Emergency Planning and Community Right-to-know Act of 1986 (title III, Pub. L. 99-499), nor Part C of these regulations, nor the reporting requirements of other State or federal agencies.*

records of all notifications and reports pursuant to P.12 or Part C of these regulations in accord with the recordkeeping requirements of Part C of these regulations.

Part P

Appendix A

Quantities of Radioactive Materials Requiring Consideration of the Need for a Contingency Plan for Responding to a Release

Radioactive Material[1/]	Release Fraction	Quantity (GBq)	Quantity (Ci)
Actinium-228	0.001	148,000	4,000
Americium-241	0.001	74	2
Americium-242	0.001	74	2
Americium-243	0.001	74	2
Antimony-124	0.01	148,000	4,000
Antimony-126	0.01	222,000	6,000
Barium-133	0.01	370,000	10,000
Barium-140	0.01	1,110,000	30,000
Bismuth-207	0.01	185,000	5,000
Bismuth-210	0.01	22,200	600
Cadmium-109	0.01	37,000	1,000
Cadmium-113	0.01	2,960	80
Calcium-45	0.01	740,000	20,000
Californium-252	0.001	333	9 (20 mg)
Carbon-14 (Non-CO)	0.01	1,850,000	50,000
Cerium-141	0.01	370,000	10,000
Cerium-144	0.01	11,100	300
Cesium-134	0.01	74,000	2,000
Cesium-137	0.01	111,000	3,000
Chlorine-36	0.5	3,700	100
Chromium-51	0.01	11,100,000	300,000
Cobalt-60	0.001	185,000	5,000
Copper-64	0.01	7,400,000	200,000
Curium-242	0.001	2,220	60
Curium-243	0.001	110	3
Curium-244	0.001	148	4
Curium-245	0.001	74	2
Europium-152	0.01	18,500	500
Europium-154	0.01	14,800	400
Europium-155	0.01	111,000	3,000
Gadolinium-153	0.01	185,000	5,000
Gold-198	0.01	1,110,000	30,000

Radioactive Material[1/]	Release Fraction	Quantity (GBq)	Quantity (Ci)
Hafnium-172	0.01	14,800	400
Hafnium-181	0.01	259,000	7,000
Holmium-166m	0.01	3,700	100
Hydrogen-3	0.5	740,000	20,000
Indium-114m	0.01	37,000	1,000
Iodine-124	0.5	370	10
Iodine-131	0.5	370	10
Iridium-192	0.001	1,480,000	40,000
Iron-55	0.01	1,480,000	40,000
Iron-59	0.01	259,000	7,000
Krypton-85	1.0	222,000,000	6,000,000
Lead-210	0.01	296	8
Manganese-56	0.01	2,220,000	60,000
Mercury-203	0.01	370,000	10,000
Molybdenum-99	0.01	1,110,000	30,000
Neptunium-237	0.001	74	2
Nickel-63	0.01	740,000	20,000
Niobium-94	0.01	11,100	300
Phosphorus-32	0.5	3,700	100
Phosphorus-33	0.5	37,000	1,000
Polonium-210	0.01	370	10
Potassium-42	0.01	333,000	9,000
Promethium-145	0.01	148,000	4,000
Promethium-147	0.01	148,000	4,000
Ruthenium-106	0.01	7,400	200
Samarium-151	0.01	148,000	4,000
Scandium-46	0.01	111,000	3,000
Selenium-75	0.01	370,000	10,000
Silver-110m	0.01	37,000	1,000
Sodium-22	0.01	333,000	9,000
Sodium-24	0.01	370,000	10,000
Strontium-89	0.01	111,000	3,000
Strontium-90	0.01	3,330	90
Sulfur-35	0.5	33,30	900
Technetium-99	0.01	370,000	10,000
Technetium-99m	0.01	14,800,000	400,000
Tellurium-127m	0.01	185,000	5,000

Tellurium-129m	0.01	185,000	5,000
Terbium-160	0.01	148,000	4,000
Thulium-170	0.01	148,000	4,000

Radioactive Material[1/]	Release Fraction	Quantity (GBq)	Quantity (Ci)
Tin-113	0.01	370,000	10,000
Tin-123	0.01	111,000	3,000
Tin-126	0.01	37,000	1,000
Titanium-44	0.01	3,700	100
Vanadium-48	0.01	259,000	7,000
Xenon-133	1.0	33,300,000	900,000
Yttrium-91	0.01	74,000	2,000
Zinc-65	0.01	185,000	5,000
Zirconium-93	0.01	14,800	400
Zirconium-95	0.01	185,000	5,000
Any other beta-gamma emitter	0.01	370,000	10,000
Mixed fission products	0.01	37,000	1,000
Contaminated equipment, beta-gamma	0.001	370,000	10,000
Irradiated material, any form other than solid noncombustible	0.01	37,000	1,000
Mixed radioactive waste, beta-gamma	0.01	37,000	1,000
Packaged mixed waste,[2/] beta-gamma	0.001	370,000	10,000
Any other alpha emitter	0.001	74	2
Contaminated equipment, alpha	0.0001	740	20
Packaged waste, alpha[2/]	0.0001	740	20

1/ *For combinations of radioactive materials, the licensee is required to consider whether a contingency plan is needed if the sum of the ratios of the quantity of each radioactive material authorized to the quantity listed for that material above exceeds one.*

2/ *Waste packaged in Type B containers does not require a contingency plan.*