Advanced Nuclear Fuels, Inc. AITN: W. Malody, Manager Corporate Licensing 2101 Horn Rapids Road Richland, WA 99352-0130 Docker# 70-1257 PH- GBidinger SMM-1227

Allied Corporation Allied Chemical Co. ATTN: J. C. Bishop Plant Manager P.O. Box 430 Metropolis, IL 62960 Docket # 40-3392 PM - Spennington

Babcock & Wilcox Co. Naval Nuclear Fuel Division ATTN: C. C. Boyd Nuclear Safety and Licensing Officer P.O. Box 785 Lynchburg, VA 24505-0785. Docket 70-27 PM-Bidinger

SUB-526

Babcock & Wilcox Co. Lynchburg Research Center ATTN: Arne F. Olsen Senior License Administrator P.O. Box 11165 Lynchburg, VA 24506-1165 DOCKETTO-824 PM-Soong

Babcock & Wilcox Co. Commercial Nuclear Fuel Plant ATTN: J. P. Watters License and Control Administrator P.O. Box 11646 Lynchburg, VA 24506-1646

Docket# 70-1201 PMDM Caushey)

Combustion Engineering, Inc. ATTN: H. E. Eskridge, Supervisor Nuclear Licensing, Safety, & Accountability P.O. Box 107 Hematite, MO 63047 SNM-38

Oocket # 70-36 PM - Bidinger B712090319 B71120 NMSS LIC30 24-04206-01 PDR Combustion Engineering, Inc. C-E Power Systems ATTN: R. E. Sheeran H. V. Lickenberger Vice resident, Nuclear Fuels 1000 Prospect Hill Road Windsor, CT 06095-0500 Docket # 70-1100 PM - Bidinger

Energy Systems Group ATTN: Dr. M. E. Remley, Director Nuclear Safety and Licensing 6633 Canoga Avenue Canoga Park, CA 91303 SNM-21 Docket # 70-25 PM- DMC Caughers GA Technologies, Inc. ATTN: Dr. K. E. Asmussen, Manager Licensing and Nuclear Material Control P.O. Box 85608 San Diego, CA 92138 Docket # 70-734 PM- EShur General Electric Co. ATTN: H. Preston Winslow, Manager Licensing and Nuclear Matls. Management P.O. Box 780 Wilmington, NC 28402 Docket # 70-1113 PM-GBidinger Nuclear Fuel Services ATTN: J. A. Long General Manager P.O. Box 218 Erwin, TN 37650-9718 Docket # 70-143 PM-ASoona Sequoyah Fuels Corporation SUB-10/0 ATTN: Dr. John C. Stauter Director, Nuclear Licensing and Regulation Kerr-McGee Center Oklahoma City, OK 73125 Docket 40-8027 PM- Provenche UNC, Inc. UNC Naval Products Division ATTN: William F. Kirk, Manager Nuclear and Industrial Safety 67 Sandy Desert Road Uncasville, CT 06382-0981 Docket 70-371 SNM Westinghouse Corporation ATTN: A. J. Nardi, Manager NES License Administrator P.O. Box 355 Pittsburg, PA 15230-0355 Docker - no- 1151 PM- Bidinopr



TO ALL NRC LICENSEES HAVING RADIOLOGICAL CONTINGENCY PLANS

Gentlemen:

On April 20, 1987, the Nuclear Regulatory Commission published a notice of Proposed Rulemaking (52 FR 12921) entitled, "Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees." The primary purpose of the rulemaking is to codify the requirements relating to radiological contingency plans, which were required by order in February 1981. The rule is to be issued in final form in 1988.

I am enclosing a draft report, "Standard Format and Content for Emergency Plans for Fuel-Cycle and Materials Licensees." This report is an update of NUREG-0762 to conform it with the emergency plans that will be required by the final rule. The staff anticipates that the final rule will be quite similar to the proposed rule (copy enclosed) except for a change in the manner of accident classification.

Your comments on the enclosed draft report are solicited. Your comments must be in our hands by December 23, 1987, in order to be considered in preparing the final rule. Comments received after that date will be considered only in preparing the final Standard Format and Content guidance document. Questions concerning the draft NUREG should be directed to Dr. Justin Long at (301) 427-4223 or to Mr. John Hickey at (301) 427-4205. Your cooperation will be appreciated.

Sincerely,

Original Signed by Richard E. Cunningham

Richard E. Cunningham, Director Division of Industrial and Medical Nuclear Safety Office of Nuclear Material Safety and Safeguards

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STANDARD FORMAT AND CONTENT FOR EMERGENCY PLANS FOR FUEL-CYCLE AND MATERIALS LICENSEES

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PREFACE

On April 20, 1987, the NRC published a Notice of Proposed Rulemaking to establish in its regulations a formal basis for emergency plans for fuel-cycle and materials licensees. The plans had earlier been required by order. The final rule is scheduled to be issued in March 1988.

The Standard Format and Content guidance (NUREG-0762) applicable to the plans required by order has been revised to conform to the requirements in the forthcoming rule. Comments on this draft Standard Format and Content are desired before the rule is issued. Comments should be sent to:

> Justin T. Long Division of Industrial and Medical Nuclear Safety Mail Stop 396-SS U.S. Nuclear Regulatory Commission Washington, DC 20555

Telephone 301-427-4223

STANDARD FORMAT AND CONTENT FOR EMERGENCY PLANS FOR FUEL-CYCLE AND MATERIALS LICENSEES

DRAFT REPORT FOR COMMENT

0.0 INTRODUCTION

The information specified in the following pages should be included in the licensee's emergency plan to comply with the requirements of 10 CFR 30.32(g)(3), 40.31(i)(3), or 70.22(i)(3), as the case may be. The licensee may include additional information by incorporation or by specific reference. The licensee is encouraged to have a single emergency plan to meet the requirements of state agencies or the Community Right-To-Know Act as well as to comply with the regulations of the Nuclear Regulatory Commission (NRC). Additional material to meet these other requirements may therefore be included in the licensee's emergency plan submitted to the NRC. This additional material will be reviewed by the NRC only to ensure that it does not interfere with the NRC's requirements.

Detailed descriptive information of processes, materials storage areas and containers, ventilation, process controls, activity locations, vessels, and confinement of radioactive or other hazardous materials may be necessary to evaluate the adequacy of the emergency plan. This information need not be a part of the plan itself but should be submitted as a supplement if such information is not already available as a part of other license submittals.

Licensees who prepared Radiological Contingency Plans in accordance with the guidance in NUREG-0762 will find that some requirements have been omitted here, and some new features have been added. Plans prepared in a format that corresponds with that contained herein will be more readily approved by the NRC.

An effective response to an emergency comprises WHAT is to be done (procedures), BY WHOM (response personnel), and WITH WHAT (equipment in designated locations). The emergency plan reflects, in general terms, the thinking done in preparing to cope with an emergency, but the details of the actual response are contained in the emergency plan implementing procedures.

The implementing procedures are the heart of the emergency response. They must be crisp, precise, and easily understood. Each procedure should pertain to a narrow, specific response action. Throughout this Standard Format and Content document, the applicant will be asked to describe procedures, but the procedures are not to be submitted for NRC approval. The reason for this practice is that the details contained in the procedures may need to be changed from time to time. If each change in a procedure required NRC approval, frequent and time-consuming license amendments would be required. Therefore, the license is issued on the basis of the descriptions of procedures in the emergency plan, and details of the procedures may be changed within the scope of these descriptions. However, this practice makes it necessary for the applicant to give close attention to the way the implementing procedures are described. In preparing the implementing procedures, the applicant should be aware that the NRC may review them at the plant during the licensing process, and will subsequently review them during plant inspections to ensure currency, workability, and conformance with commitments made in the emergency plan.

The licensee may change the plan without prior NRC approval if the changes do not decrease the effectiveness of the plan. These changes shall be furnished to NRC within six months after the changes are made and should be in the form of a license amendment application. If the date of the plan is a license commitment, the change dates should be formatted as a revised page for insertion into the referenced section of license conditions in the current license.

1.0 FACILITY DESCRIPTION

The information in this section is to provide perspective about the plant and the licensed activity such that the adequacy and appropriateness of the licensee's emergency planning, emergency organization, and emergency equipment can be evaluated.

1.1 Description of Licensed Activity

Present briefly the principal aspects of the overall licensed activity. The following should be included: a general description of licensed and other activities conducted at the plant site; the location of the plant; and the type, form, and quantities of radioactive and other hazardous materials normally present.

1.2 Description of Area Near the Site

Include a description of the principal characteristics of the site at which licensed activities are conducted. Indicate the site on a general area map (approximately 10-mile radius) and upon a United States Geological Survey 7.5' topographical map(s)--(approximately 1-mile radius). Provide a site plan or aerial photograph indicating onsite structures and near-site structures (about 1-mile radius). On this photograph or site plan, include the following:

- Location of population centers (office buildings, schools, arenas, stadiums, etc.);
- (2) Location of facilities that could present potential protective action problems (prisons, nursing homes, hospitals);
- (3) Identification of primary routes for access of emergency equipment or for evacuation as well as potential impediments to traffic flow (rivers, drawbridges, railroad grade crossings, etc.);

- (4) Locations of any offsite emergency support organizations (fire station, police station, hospital with capability for handling contaminated/injured personnel (specify whether qualified to handled radioactive contamination, etc.);
- (5) the sites of potential emergency significance (LPG terminals, pipelines, etc.).

1.3 Description of Facility and Site

Provide a detailed site plan and a concise description of the facility features that affect emergency response, e.g., location of communications and assessment centers, location of assembly and relocation areas, identification of process and storage areas for radioactive and other hazardous materials. The arrangement of structures and major equipment items should be indicated on plan and elevation drawings in sufficient number and detail to provide a reasonable understanding of the general layout of the plant. Any additional features of the plant likely to be of special interest because of their relationship to safety should be identified.

2.0 TYPES OF ACCIDENTS

Emergency planning is concerned with individual and organizational responses to a range of potential accidents, including those accidents that have been hypothesized but that have a very low probability of occurrence.

2.1 Description of Postulated Accidents

Briefly describe accidents that could result in the release of significant amounts of radioactive or other hazardous material in terms of their relation to the process and the physical location where the accident couldoccur. Describe how the accident could happen (equipment malfunction, instrument failure, human error, etc.), possible complicating factors, and the possibility of onsite and offsite consequences.

2.2 Detection of Emergency Conditions

Describe the means provided to detect and alert the licensee's operating staff to any abnormal operating condition or to any other danger to the continued safe operation of the facility (e.g., fire or natural hazards such as would result in a severe weather warning). Describe the means for detecting accidental releases of radioactive or other hazardous materials, the method or device used to provide an alarm, and the response anticipated to the alarm. Examples are smoke detectors, process alarms, and criticality alarms. Indicate at what stage of the emergency the abnormal condition would be detected. Also indicate if the area of the event is under continuous visual observation.

3.0 CLASSIFICATION AND NOTIFICATION OF ACCIDENTS

Accidents should be classified according to the scheme that is described in the rule. In its emergency plan and in coordination meetings with offsite authorities, the licensee should convey the concept that fuel-cycle and materials plants do not present the same degree of hazard (by orders of magnitude) as are presented by nuclear power plants. Thus, the classification scheme for these facilities has been redefined.

3.1 Classification System

Identify the classification (Unusual Event, Alert, or Site Area Emergency) that is expected for each of the accidents postulated in Section 2. Relate the classification to the accident description and detection means described in Section 2.2.

An Unusual Event is defined as a situation in which no release of radioactive or other hazardous material is imminent but that could require nonroutine actions or augmentation of staff. This classification is not required by NRC regulations applicable to fuel-cycle and materials licensees but provides for minor incidents that are not expected to require offsite assistance or protective actions. Examples of such situations are a power outage, tornado watch, explosic or gunshots near the site, etc.

An Alert i defined as an incident that has led or could lead to a release of radioact we or other hazardous material, but the release is not expected to require a response by an offsite agency to protect persons offsite. An Alert refracts mobilization of the licensee's emergency response organization, e oner on alert status or on full mobilization, but does not indicate an expectation of offsite consequences. However, it may require offsite response organization is a fire.

A Site Area Emergency is defined as an incident that has led or could lead to a release of radioactive or other hazardous material and that could require a response by an offsite response organization to protect persons offsite.

Although it is highly unlikely that a Site Area Emergency will occur at a fuel-cycle or materials licensee plant, the licensee must be prepared to make the required notifications in such a manner that offsite response organizations can take appropriate actions, such as recommending sheltering of persons in the affected area.

The Nuclear Regulatory Commission (NRC) intends that licensees be allowed to have a single emergency plan that can apply to all licensee needs and regulatory requirements. To this end, it should be understood that a licensee may wish to include in the emergency plan some incidents that do not fall within the requirements of the NRC. For example, the licensee may wish to include industrial accidents or fires unrelated to the licensee's work with nuclear materials. The licensee may include these incidents, if any, in the emergency plan. The classification of emergencies involving potential or actual releases of nonradioactive hazardous materials should be coordinated with the local emergency planning committee established under the provisions of Sec. 301(c) of the Emergency Planning and Community Right-To-Know Act of 1986 (Title III of the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499).

3.2 Notification and Coordination

3.2.1 Unusual Event

The purpose of declaring an Unusual Event is to ensure that licensee management is cognizant of a potential hazard and prepared to respond to that hazard should it materialize. The licensee should describe how and by whom the following actions will be taken:

(1) Decision to declare an Unusual Event.

- (2) Notification to the NRC if required by regulation or license condition.
- (3) Decision to escalate to Alert, if appropriate.
- (4) Decision to terminate the Unusual Event.

3.2.2 Alert

The purpose of declaring an Alert is to ensure that emergency personnel are alerted and at their emergency duty stations to mitigate the consequences of the accident, that the emergency is properly assessed, that offsite officials are notified, and that steps can be taken to escalate the response quickly if necessary. The licensee should describe how and by whom the following actions will be taken:

- (1) Decision to declare an Alert.
- (2) Activation of onsite emergency response organization.
- (3) Notification to offsite response authorities, if required by local or state regulations, within one hour of declaration of an Alert, or as specified by local or state regulations.
- (4) Notification to the NRC immediately after notification of offsite authorities, and in any case within one hour of the declaration of an Alert.
- (5) Decision to initiate any onsite protective actions.
- (6) Decision to escalate to Site Area Emergency, if appropriate.
- (7) Decision to terminate the emergency or enter Recovery Mode.

3.2.3 Site Area Emergency

The purpose of declaring a Site Area Emergency is to ensure that the public is adequately protected, that offsite officials are amply informed in order to carry out their obligation with respect to this protection, and to obtain augmentation of licensee response forces if necessary. The licensee should describe how and by whom the following actions will be taken:

- (1) Decision to declare a Site Area Emergency.
- (2) Activation of onsite emergency response organization.
- (3) Notification to state and local offsite response authorities of the status and reason for the emergency within 15 minutes after the declaration of a Site Area Emergency.
- (4) Notification to the NRC immediately after notification of the appropriate offsite response organizations and not later than one hour after the licensee has declared a Site Area Emergency.
- (5) Decision to escalate to a General Emergency, if appropriate.
- (6) Decision to initiate any onsite protective actions.
- (7) Decision to terminate the emergency or enter Recovery mode.

3.3 Information to be Communicated

The licensee should be prepared to provide clear, concise information to offsite response organizations. The communication should avoid technical terms and jargon and should be so couched as not to give an under- or overvaluation of the seriousness of the incident. Describe the types of information that will be communicated with respect to facility status, releases of radioactive or other hazardous materials, and recommendations for protective actions, if any, to be taken by offsite response organizations. A standard reporting form should be developed o facilitate timely notification. Provide assurance that the information and that it is periodically reaffirmed with these agencies.

4.0 RESPONSIBILITIES

In this chapter, describe the emergency organization to be activated for the possible events onsite and its augmentation and support offsite. Delineate the authorities and responsibilities of key individuals and groups, and identify the communication chain for notifying, alerting, and mobilizing the necessary personnel.

4.1 Normal Plant Organization

Provide a brief description of the plant organization and identify those individuals that have the responsibility and authority to declare an emergency and to initiate the appropriate response.

4.2 Onsite Emergency Response Organization

Describe the onsite emergency organization for controlling each emergency class, including periods when normal operations are not being conducted. Use organization charts and tables when appropriate.

4.2.1 Direction and Coordination

Designate the position of the person and alternate(s) who have the overall responsibility for implementing and directing the emergency procedures. Discuss this person's duties and authority, including control of the situation, termination of the emergency condition, and coordination with the staff and offsite personnel who augment the staff or require information concerning the event, as well as authority to delegate responsibilities. Indicate what emergency responsibilities, if any, cannot be delegated by the person in overall charge of emergency response.

4.2.2 Plant Staff Emergency Assignments

Specify the organizational group or groups that are assigned to the following functional areas of emergency activity, including the personnel assignment rationale for working and nonworking hours. For each group, describe its duties, authority, and interface with other groups and outside assistance.

The functional groups should provide capability in the following areas:

- Plant systems operations;
- Fire control;

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- Personnel accountability;
- Rescue operations;
- First aid;
- Communications;
- Radiological survey and assessment;
- Decontamination of personnel;
- Plant security and access control;
- Repair and damage control;
- Facility and equipment decontamination;
- Post-event assessment;
- Recordkeeping.

4.3 Local Offsite Assistance to Facility

Describe provisions and arrangements for assistance to onsite personnel during and after an emergency. Indicate location of local assistance with respect to the facility if not previously stated. Identify the services to be performed, means of communication and notification, and type of agreements that are in place for:

- Medical treatment facilities;
- First aid personnel and ambulance service;
- Fire fighting;
- Law enforcement assistance.

Describe the measures that will be taken to ensure that offsite agencies maintain an awareness of their respective roles in emergency response and have the necessary periodic training, equipment, and supplies to carry out their emergency response functions.

4.4 Coordination with Participating Government Agencies

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Identify the principal state agency and other government (local, county, state, and federal) agencies or organizations having responsibilities for radiological or other hazardous material emergencies in the vicinity of the facility. For each agency or organization, describe:

- Its authority and responsibility in a radiological or hazardous material emergency and its interface with others, if any;
- Its specific response capabilities in terms of personnel and resources available;
- Its location with respect to the facility.

Typical agencies to be included are the local emergency planning committee established under the Emergency Planning and Community Right-To-Know Act of 1986 and state departments of health, environmental protection, and/or emergency/disaster control. Assure that the licensee will meet at least annually with each offsite response group to review items of mutual interest.

0 EMERGENCY RESPONSE MEASURES

Specific emergency response measures should be identified for each emergency class and related to action levels or criteria that specify when the measures are to be effected. Response measures include assessment actions, corrective actions, onsite and offsite protective actions, exposure control, authorization of emergency exposures in excess of Part 20 limits, and aid to injured onsite persons.

5.1 Activation of Emergency Response Organization

Describe the means used to activate the emergency response organization for each class of emergency during both working and nonworking hours. Include a description of the message authentication scheme. Identify the activation levels for each class and relate them to the responsibilities identified in Chapter 4. In this and subsequent sections, describe the specific written procedures to be used.

5.2 Assessment Actions

For each class of emergency, discuss the actions to be taken to determine the extent of the problem and to decide what corrective actions may be required. Describe the types and methods of onsite and offsite sampling and monitoring that will be done in case of a release of radioactive or other hazardous material. Describe provisions for projection of offsite radiation exposures.

5.3 Corrective Actions

For the events identified in Chapter 2, describe briefly the means and equipment provided for mitigating the consequences of each type of accident. Include the mitigation of consequences to workers onsite as well as to the public offsite. In the event of a warning of impending danger, describe the criteria that will be used to decide on a process and/or facility shutdown and the steps that will be taken to ensure a safe, orderly shutdown of equipment. Mitigating actions could include actions to reduce or stop the release and actions to protect persons (e.g., evacuation, shelter, decontamination).

Means for limiting releases could include:

- sprinkler systems and other fire-suppression systems;
- fire detection systems;
- fire fighting capabilities;
- filtration or holdup systems;
- use of water sprays on vapor releases of uranium hexafluoride;
- automatic shutting off of process or ventilation flows.

5.4 Onsite Protective Actions

The nature of protective actions, the criteria for implementing those actions, the area involved, and the notification procedures to onsite persons should be described in the plan. In order to prevent or minimize exposure to radiation, radioactive materials, and other hazardous materials, the plan should provide for timely relocation of onsite persons, effective use of protective equipment and supplies, and use of appropriate contamination control measures.

5.4.1 Personnel Evacuation and Accountability

This segment of the emergency plan should include the following:

- Action criteria;
- The means and time required to notify persons involved;
 Evacuation routes, transportation of personnel, and assembly areas;
- Search and rescue;
- Monitoring of evacuees for contamination by or exposure to radiation and selection for contamination by or exposure to radiation and selection for medical attention, if required; and
- Criteria for control point and assembly area evacuation.

5.4.2 Use of Protective Equipment and Supplies

Effective use of protective equipment and supplies, including the proper onsite distribution or availability of special equipment, is an important measure for minimizing the effects of exposure to or contamination by radioactive materials. Measures that should be considered are:

- Individual respiratory protection;
- Use of protective clothing; and
- Communications equipment associated with any self-contained breathing apparatus.

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

- Criteria for issuance if appropriate;
- Locations of emergency equipment and supplies;
- Inventory lists indicating the emergency equipment and supplies at each specified location; and
- Means for distribution of these items.

5.4.3 Contamination Control Measures

Describe provisions for preventing further spread of radioactive materials and for minimizing radiation exposures from radioactive materials unshielded or released by abnormal conditions. Onsite protective actions should be described and should include:

- Isolation and area access control;
- Criteria for permitting return to normal use.

Action criteria for implementation of the measures planned should be described.

5.5 Exposure Control in Radiological Emergencies

This section covers means for controlling radiological exposures for emergency workers.

5.5.1 Emergency Radiation Exposure Control Program

5.5.1.1 Radiation Protection Program

Describe an onsite radiation protection program to be implemented during emergencies, including methods to comply with exposure guidelines. Identify individual(s), by position or title, who can authorize workers to receive emergency doses. Procedures shall be provided in advance for permitting onsite volunteers to receive radiation doses in the course of carrying out lifesaving and other emergency activities. Procedures should provide for expeditious decision-making and a reasonable consideration of relative risks.

5.5.1.2 Exposure Guidelines

Specify onsite exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Actions Guides (EPA 520/1-75/001), viz., less than 75 rems planned whole-body exposures for lifesaving actions and less than 25 rems where it is desirable to enter a hazardous area in order to control fires, eliminate further escape of effluents, or to protect facilities. Note the criteria for exposure to low-enriched uranium based on its chemical toxicity. Exposure guidelines should be provided for:

- Removal of injured persons;
- Undertaking corrective actions;
- Performing assessment actions;
- Providing onsite first aid;
- Performing personnel decontamination;
- Providing ambulance service; and
- Providing offsite medical treatment.

5.5.1.3 Monitoring

Describe provisions for a capability to determine the doses and dose commitments from any internally deposited radioisotopes received by emergency personnel involved in any nuclear accident, including volunteers. Include provisions for distribution of dosimeters, both self-reading and permanent record devices, and means for assessing inhalation exposures. Describe provisions for assuring that dose and dose commitment records are maintained for emergency workers involved in any nuclear accident. (Detailed guidance for developing bioassay programs and environmental sampling programs is being prepared by the NRC and is scheduled to be available to the public in February 1988.)

5.5.2 Decontamination of Personnel

Specify action levels for determining the need for personnel decontamination. Describe the means for radiological decontamination of emergency personnel, supplies, instruments, and equipment, and the means for collecting and handling radioactive wastes. Describe provisions for surveying and decontaminating relocated onsite personnel, including provisions for extra clothing and decontaminates suitable for the type of contamination expected.

5.6 Medical Transportation

Specify how injured personnel, who may also be radiologically contaminated, will be transported to medical treatment facilities.

5.7 Medical Treatment

Describe arrangements made for local and backup hospital and medical services and their capabilities for the evaluation and treatment of radiation contaminatio and exposure to individuals. For both hospital and medical services, the Plan should incorporate assurance not only that the required services are available but also that persons providing the services are prepared and qualified to handle radiological emergencies.

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6.0 EMERGENCY RESPONSE EQUIPMENT AND FACILITIES

In this chapter, describe the onsite equipment and facilities designated for use during emergencies. Provide sufficient detail to allow the NRC staff to determine the adequacy of the equipment to perform its function during an emergency.

6.1 Control Point

Describe the principal and alternate location(s) from which control and assessment for the emergency will be exercised. Identify the criteria used to predeternine the number and location of control points in order to ensure that at least one will be habitable during any emergency. Indicate the means for identifying the control point that will be used in a given emergency. Specify the criteria for evacuating a control point and re-establishing control from an alternate location.

6.2 Communications Equipment

6.2.1 Onsite Communications

Describe the primary and any alternate onsite communication system(s) that would be required to perform vital functions in transmitting and receiving onsite information throughout the course of an emergency and subsequent recovery.

6.2.2 Offsite Communications

Identify a backup means for offsite communications, other than commercial telephone, for notification of emergencies or requests for assistance.

6.3 Onsite Medical Facilities

Describe the facilities and medical supplies at the site designated for emergency first-aid treatment and decontamination of onsite individuals.

6.4 Emergency Monitoring Equipment

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List and describe the dedicated emergency equipment that will be available for personnel and area monitoring as well as that for assessing the release of radioactive materials to the environment. The description should include the purpose to be served. The location for all monitoring equipment should be described. Include similar descriptions of routine effluent monitors and meteorological measurement systems, if present. Describe how those are to be used to assess the magnitude and dispersion of releases. Include information in Section 6.2 by cross-reference if appropriate.

7.0 MAINTENANCE OF EMERGENCY PREPAREDNESS CAPABILITY

7.1 Written Emergency Plan Implementing Procedures

Identify the means for assuring that written emergency plan implementing procedures will be prepared and distributed to all affected parties. Assure that these procedures will clearly state the duties, responsibilities, action levels, and actions to be taken by each group or individual in responding to an emergency condition. Describe provisions for approval of the procedures, making and distributing changes to the procedures, and ensuring that each person responsible for an emergency response function has easy access to a current copy of each implementing procedure that pertains to his or her function(s).

7.2 Training

Describe the topics and general content of training programs used for annual training of the onsite emergency response staff. Specify the training afforded to those personnel who prepare, maintain, and implement the emergency plan. Assure that the implementing procedures include schedules, training lesson plans, and the frequency of retraining, and the estimated number of hours of initial training and retraining that will be provided. Include the training requirements for each position in the emergency organization. Describe training to be provided in the use of protective equipment, such as respirators. Describe the annual training program given to onsite personnel who are not members of the emergency response staff so that they are aware of what actions they may have to take following the declaration of an emergency.

7.3 Drills and Exercises

Describe provisions for the conduct of periodic drills and exercises to test the adequacy of timing and content of implementing procedures, to test emergency equipment and instrumentation, and to ensure that the emergency personnel are familiar with their duties. Preplanned descriptions of accidents should be used to prepare scenarios appropriate to the objectives of each drill and exercise. The procedures should include a requirement for the use of one or

more nonparticipating observers during exercises to evaluate the effectiveness of the personnel, the procedures, and the readiness of equipment and instrumentation, and to recommend needed changes.

7.3.1 Annual Exercises

Assure that an exercise will be held annually and that offsite response organizations will be invited to participate in the annual exercise in order to ensure coordination with offsite assistance organization(s), including testing of procedures and equipment for notification of and communication with local and state agencies. Assure that the NRC Regional Office will be notified before an exercise is held so that inspectors may observe if they wish. Assure that exercise scenarios are not known by exercise participants.

7.4 Exercise Critiques

Assure that a critique will be prepared for each exercise by one or more of the nonparticipating observers and that it will evaluate the appropriateness of the emergency plan, procedures, facilities, equipment, personnel training, and overall effectiveness. Describe how deficiencies identified by the critique will be timely corrected. (See Chapter 8 for records of exercises and exercise critiques.)

7.5 Review and Updating of the Plan and Procedures

Discuss the program to be used to annually review and audit the licensee's emergency preparedness program, including the emergency plan and its implementing procedures, to ensure that they are adequate. Describe the minimum qualifications of the person(s) that will be used for the annual audit and assure that the audits will be made by person(s) not having direct responsibility for implementing the emergency response program. The emergency plan and implementing procedures should be reviewed after each exercise, based on the evaluation of the exercise. Consideration should also be given to a review of the emergency plan and its revision, if necessary, whenever changes occur in processes, kinds of material at risk, or plant organization. Assure that offsite letters of agreement are reviewed annually and renewed at least every four years.

7.6 Maintenance and Inventory of Emergency Equipment, Instrumentation, and Supplies

Describe the plans for assuring that the equipment and instrumentation are in a working condition and that the stock of supplies is maintained. Provision should be made for monthly checking that the specified inventory is intact and in operating condition, including instrumentation operation and calibration, demand respirators, self-contained breathing apparatus, fire fighting equipment and gear, supplemental lighting, and communications equipment. The procedures should include timely corrective actions to be taken when deficiencies are found during these checks.

7.7 Verification of Emergency Telephone Numbers

Provide assurance that emergency telephone numbers will be verified at least quarterly.

8.0 RECORDS AND REPORTS

8.1 Records of Incidents

Describe the assignment of responsibility for reporting and recording incidents of abnormal operation, equipment failure, and accidents that led to a plant emergency. Provide a detailed description of the records that will be kept. The records should include the cause of the incident, personnel and/or equipment involved, extent of injury and/or damage (onsite and offsite) resulting from the incident, corrective actions taken to terminate the emergency, and the action taken or planned to prevent a recurrence of the incident. The records should also include the onsite and offsite support assistance requested and received. The title(s) of the personnel responsible for maintaining the records should be identified. The minimum retention time for each record should be specified. Those records unique to a radiological contingency, not covered by existing Commission regulations or license conditions, should be retained until the license is terminated.

8.2 Records of Preparedness Assurance

Provide a description of the records that will be kept to confirm the maintenance of preparedness to respond to emergencies. These records should include:

- Training and retraining;
- Drills, exercises, and related critiques;
- Inventory and locations of emergency equipment and supplies;
- Mairtenance, surveillance, calibration, and testing of emergency equipment and supplies;
- Agreements with offsite support organizations; and
- Reviews and updates of the emergency plan and notification of all personnel and offsite agencies affected by an update of the plan or its implementing procedures.

10.0 COMPLIANCE WITH COMMUNITY RIGHT-TO-KNOW ACT

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Provide assurance that the licensee is in compliance with Title III of the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499, entitled "Emergency Planning and Community Right-To-Know Act of 1986," with respect to any hazardous materials possessed at the plant site. 9.0 RECOVERY

9.1 Plant Restoration

Describe plans for restoring the facility to a safe status. Although it is not possible to detail specific plans for every type of incident, the plans should include the general requirements for (1) assessing the damage to and the status of the facility's capabilities to contain radioactivity, (2) determining the actions necessary to reduce any ongoing releases of radioactive or other hazardous material and preventing further incidents, and (3) accomplishing the tasks to meet any required restoration action.

Specifically, the plans should include the requirements for checking and restoring to normal operations all safety-related equipment involved in the incident (e.g., criticality alarms, radiation monitoring instruments, respiratory protection equipment, fire-suppression and fire fighting equipment, containments, and air filters).

During any plant restoration operations, personnel exposures to radiation must be maintained within 10 CFR Part 20 limits and as low as reasonably achievable.

NUREG-0762

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Rev. 1

STANDARD FORMAT AND CONTENT

FOR EMERGENCY PLANS

FUEL-CYCLE AND MATERIALS LICENSEES

Draft Report for Comment

November 1987

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ABSTRACT

This report is issued as guidance to those fuel-cycle and major materials licensees who are required by the NRC to prepare and submit an emergency plan. This Standard Format has been prepared to help ensure uniformity and completeness in the preparation of those plans.

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Services. U.S. Nuclear Regulatory Commission, Washington, DC 20555.

Copies of NUREG-0782. -0767. -0810. -1179. -1189. and -1198. the technical reports referenced in this notice. may be purchased through the U.S. Government Printing Office by calling (202) 275-2060 or by writing to the U.S. Government Printing Office. P.O. Box 37082. Washington. DC 20013-7082. Copies may also be purchased from the National Technical Information Service. U.S. Department of Commerce. 5285 Port Royal Road. Springfield. VA 22161.

Copies of the above NUREG reports and also comments received by the Commission on the proposed rule are available for inspection or copying for a fee in the NRC Public Document Room. 1717 H Street NW., Washington. DC 20555.

FOR FURTHER INFORMATION CONTACT: Dr. Stephen A. McGuire. Regulation Development Branch. Office of Nuclear Regulatory Research. U.S. Nuclear Regulatory Commission. Washington. DC 20555 (telephone: (301) 443-7900).

SUPPLEMENTAR' INFORMATION:

Background

During the Commission's deliberations concerning nuclear power plant emergency preparedness after the Three Mile Island accident, the Commission directed the staff to evaluate the need to change the emergency preparedness regulations for fuel cycle and other radioactive material licensees.

In late 1980, the staff reevaluated previously submitted emergency plans for radioactive releases for fuel fabrication plants and found some apparent weaknesses. For example, some plans did not have arrangements for the prompt notification of offsite response organizatior.

Upon noting these weaknesses, the NRC staff prepared orders requiring 62 licensees to submit comprehensive onsite radiological contingency plans (46 FR 12566). These orders, which were issued in February 1981, required some licensees, based on their licensed possession limits, to plan for actions that would be needed in the event of an accident. The actions would be those necessary to: protect workers, limit the release of radioactive materials, and mitigate adverse consequences of the accident. The orders were issued to operators of fuel processing and fabrication plants. UF, production plants, and radioactive material users authorized to possess large quantities of radioactive materials in unsealed form. The licensees selected were those

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 30, 40, and 70

Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: In 1981, the Nuclear Regulatory Commission (NRC) issued orders to require certain NRC fuel cycle and other radioactive material licensees to submit emergency plans to the NRC. The NRC is now proposing to amend its regulations to place a requirement for such emergency plans in its regulations. The proposed rule would require the approximately 30 licensees subject to the orders to revise their existing emergency plans which include, among other things, descriptions of the means and equipment to mitigate the consequences of an accident and to promptly notify offsite response organizations if an accident occurs that might result in a significant release of licensed radioactive material.

DATES: Comment period expires July 20. 1987. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except as to comments received on or before this date.

ADDRESSES: Submit written comments to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch.

A free single copy of the draft Regulatory Analysis, including the environmental assessment and finding of no significant impact (NUREG-1140), may be obtained by writing to the Distribution Section, Document Control Branch, Division of Information Support suthorized to possess quantities of radioactive materials that could as a result of a severe accident potentially result in a radiation exposure in excess of 1 rem effective dose equivalent to someone offsite. As a result of these orders, about half of the affected licensees reduced their authorized possession limits for radioactive material, thus no longer requiring them to submit contingency plans to NRC.

On June 3, 1981, the Commission published in the Federal Register (46 FR 29712] an advance notice of proposed rulemaking on emergency preparedness for certain fuel cycle and other radioactive material licensees. In this advance notice. the Commission proposed to codify the radiological contingency planning requirements set forth in the Commission's orders, as well as consider requiring offsite emergency plans. The Commission noted in the advance notice that it would use factors such as possession limits, potential for accidental criticality, chemical toxicity of radioactive materials, and potential radiation hazards for all of the NRC licensees whose radioactive material possession limits were such that severe accidents could result in offsite radiation doses exceeding the lower end of the protective action guides established by the EPA

Public Comments on the Advance Notice of Proposed Rulemaking

The Commission received 18 responses to its advance notice of proposed rulemaking. Comments were received from five Federal agencies, four State agencies, five corporations, one university, one laboratory, one nonprofit Federal corporation, and the Conference of Radiation Control Program Directors. The following discussion summarizes the major comments and gives the Commission's response to each comment.

Comment: Many commenters questioned the need for the suggested regulations. One Agreement State said there is ". . . little likelihood of a serious accident; those incidents which have occurred have been handled adequately without pre-existing plans. using existing resources and guidelines." Commenters said that many of the facilities that would be covered do not have the potential to exceed the EPA s protective action guide dose of 1 rem under any credible accident conditions. Uranium mills, UF. conversion plants, and low-level waste burial grounds were cited by commenters as examples. Another example where emergency plans were not considered necessary was the case in which the radioactive materials are spread among many

different buildings so that release of a large proportion due to a single event is not credible. Several commenters said NRC already requires them to be adequately prepared to respond to an emergency, and that there is no need for additional regulations. The Agreement States of New Mexico and Washington said they were already adequately prepared for any credible accident and saw no need for a regulation. On the other hand, the State of New York saw a need to reevaluate the adequacy of its existing emergency planning.

One commenter said the need for the regulation should be tested against past accident experience to determine the urgency and realism of the proposal. Another commenter said that, compared to nuclear power plants, fuel cycle and byproduct material licensees have much less radioactive material, do not have a large energy source to act as a driving force and do not concentrate their radioactive materials in a single location. Thus the consequence of an accident would be much smaller, and there would never be a need to evacuate or shelter people.

Response: The NRC has carefully analyzed accident source terms. potential release fractions, and radiation doses attributable to a range of accidents at fuel cycle and other radioactive material licensees. The details are given in "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees." NUREG-1140. Specific conservative accident scenarios have been considered for specific types of licensees, and release fractions and doses have been calculated based on these scenarios. The accident history of different types of facilities has been considered. As a result of the analysis. some facilities, such as uranium mills and depleted uranium metal processors. are excluded from needing an emergency plan for responding to a release.

On the other hand, the analysis does indicate that, at a few licensed facilities. offsite doses due to an accident might theoretically exceed the lower end of the range of doses for which the EPA recommends that protective actions to protect the public be considered. In addition, in a few cases an accident could cause significant exposure to chemically toxic soluble uranium. The NRC would especially like to receive comments or he accident scenarios presented in the analysis. The NRC is particularly interested in comments concerning the conservatism in the analysis as it pertains to specific classes of facilities.

Comment: A second major comment was that the need for emergency plans should be evaluated on a case-by-case basis. Several examples were given where the licensed possession limits might indicate the need for a plan, but the actual circumstances would make a large release impossible. For example, a radiopharmaceutical manufacturer said that it uses only a small quantity of its iodine-125 at one time. The rest is stored in lead containers in a fume hood, the air from which is filtered three times before release. Commenters said the remoteness of the site should be a factor taken into consideration. In the case of one uranium mill, the nearest residence is 22 miles away. The comment was made that case-by-case review of the need for plans is feasible because so few licensees would be affected.

Response: The proposed rule would allow licensees the opportionity to demonstrate that an emergency plan for responding to a release would not be needed because no reasonably forseeable accident could result in doses to the public approaching the protective action guides.

Comment: Several commenters thought FEMA review of State and local emergency response capabilities was unnecessary because possible accidents would be so much smaller than at nuclear power plants. It was said that simpler, less complex review and evaluation processes were better. Several Agreement States objected to a FEMA review of their programs. Other commenters thought FEMA could make valuable contributions.

Response: The NRC has considered the nature and depth of the needed offsite coordination in the previously mentioned Regulatory Analysis and concluded that written site-specific State and local plans reviewed by FEMA are not needed because the accidents can be responded to as part of the community's general emergency response capabilities. These necessary capabilities (e.g., fire, ambulance, police support) are routinely used for emergencies of all sorts. The small potential doses, small areas affected. and small numbers of people involved are factors indicating that the community's normally existing emergency response capabilities are adequate and that additional response capabilities are not necessary.

Comment: Some commenters thought failure of uranium mill tailing dams should be included.

Response: The NRC has considered these events and concluded that they should not be included because radiation doses associated with such accidents are so low that EPA protective action guides would not be exceeded even over a very long time (months or years), nor would the licensed materials present a chemical toxicity hazard. A complete explanation is presented in "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees," NUREG-1140.

Comment: Many commenters thought the NRC should provide a document describing the contents of the licensee's emergency plans and the nature of the preparedness needed.

Response: The NRC agrees and plans to revise its reports, NUREG-0762, "Standard Format and Content for Radiological Contingency Plans for Fuel Cycle and Materials Licensees," and NUREG-0810, "Standard Review Plan for the Review of Radiological Contingency Plans for Fuel Cycle and Materials Facilities." The revised reports will be published, possibly as Regulatory Guides, concurrently with the final rule.

Comment: Several commenters thought the suggested regulations would be burdensome and expensive to both licensees and to States and that the cost would greatly exceed the benefits.

Response: The NRC believes that the rule will not be excessively expensive or burdensome to States or local governments. States and local governments will not be expected to write specific plans for specific facilities or have other special emergency preparedness. The NRC believes that the normally available capabilities of States and local governments for responding to industrial emergencies and the normally available radiological health capabilities of States will be adequate to deal with accidents at fuel cycle and other radioactive material licensees. These radiological emergencies would involve small (not life threatening) doses, small areas, and small numbers of people. The potential risks are much lower than the risks from accidents involving chemical plants or the shipping of hazardous chemicals, to which States and local governments routinely respond. In other words, the response to radiological accidents at fuel cycle and other radioactive materials licensees can and should be handled by State and local governments as part of their normal emergency response capability without additional resources. Thus, an adequate level of emergency preparedness should not be a financial burden to State and local governments.

With regard to benefits, the benefits are admittedly small because of the low probability of exceeding protective action guide doses and the low probability that a dose of a few rems would have harmful consequences. Although costs to licensees were found to exceed potential benefits (see Regulatory Analysis. Section 3), the Commission concludes that the protection provided by engineered safety features should be bolstered by the ability to mitigate the consequences of an accident and reduce potential releases of radioactive materials.

Comment: Several commenters thought NRC should provide funding to States for State planning.

Response: The NRC sees no need for funding for State planning because a need for site-specific State planning beyond the emergency preparedness capabilities normally present has not been identified.

Comment: Several commenters objected to the way in which EPA's protective action guides were applied. They said the whole body guide was actually a 1 rem to 5 rem range, whereas the NRC arbitrarily selected 1 rem.

Response: The NRC considers 1 rem as the point at which planning should begin. The potential releases are relatively small, and the areas and numbers of people involved are small. Thus, it is practical to consider actions at the lower end of the protective action guide range.

Comment: Other commenters said that the ICRP Publication 26 methodology should be used to determine the protective action guides for redioactive materials that are inhaled and deposited in the body.

Response: The ICRP Publication 28 methodology was used.

Comment: One commenter said Part 72 spent fuel storage licensees should be covered under the regulation.

Response: The need for licensee emergency procedures for accidental releases by Part 72 licensees is being considered in a separate rulemaking published for public comment on May 27, 1986 (51 FR 19106).

Comment: One commenter said sealed sources should be covered under this regulation.

Response: The NRC considers that there is no need to include most sealed sources in this rulemaking because sealed source accidents are alreedy adequately dealt with in other parts of the regulations. (See, for example, §§ 20.402(a), 20.403, 30.33(a)(2), 34.25, 34.32(g) and (h), and 70.60). In addition, based on the history of accidents involving sealed sources at licensed facilities, the NRC finds that additional emergency preparedness beyond that now existing at these facilities is not warranted. However, the NRC has included in its rulemaking foils, plated sources, thinwindow sealed sources (such as those sometimes used for americium-241) and sealed sources using low-melting temperature metal such as aluminum. The NRC is continuing to study this matter and specifically requests experimental information or other analyses on whether these types of sealed sources should be included in the rule.

Comment: The comment was made that a large number of byproduct material licensees do not list the specific radionuclides they will possess, but only a total curie limit for classes of nuclides. for example those with atomic numbers 3 through 83. (This approach is recommended in Regulatory Guide 10.5, "Applications for Type A License of Broad Scope," Item 8A and Item 8D.) This makes it impossible to determine, based on possession limits, whether extensive emergency preparedness is really appropriate.

Response: The NRC will not require emergency plans for a facility unless a significant accidental release of radioactive materials is credible. If a licensee would be covered by the rule because the licensee is authorized to possess material it does not possess and has no intention of possessing in the future, the solution is for the licensee to request a license amendment to reduce the licensed possession limit. If the licensee actually possesses or may possess in the future enough material to be covered by the regulation, but there are site-specific reasons why s significant release is not credible, the proposed rule would allow the licensee to demonstrate this.

The Proposed Rule

The Commission is proposing amendments to 10 CFR Parts 30, 40, and 70 on emergency preparedness. The proposed rule would cover fuel cycle and other radioactive material licensees that may have the potential for a significant accidental release of NRClicensed materials. These proposed regulations would require certain licensees to maintain emergency plans for responding to such accidents.

Licensees Needing Plans

The criteria selected for establishing whether a licensed facility would be required to establish and maintain special emergency plans for significant accidental releases are whether a credible severe accident could theoretically deliver a radiation dose of 1 rem effective dose equivalent. 5 rems to the thyroid, or soluble aranium intake exceeding 2 milligrams to a member of the public.

The EPA recommends that actions to protect the public be considered if projected whole body doses due to an accident are in the range of 1 to 5 rems. taking into account the practicality of the actions that would be taken. The proposed rule uses the 1-rem low end of the dose range as the criteria for establishing whether a licensed facility needs an emergency plan for responding to a release. In addition, conservative assumptions have been used to estimate the doses which could result from an accident. Doses that would result from an actual accident should realistically be far below the calculated doses on which the regulation is based.

The EPA's draft protective action guides apply to radiation received uniformly over the body. These guidelines are not applicable if the radiation dose is not uniform or if only some body organs receive the radiation dose. To account for radionuclides that are deposited nonuniformly in the body. such as those possessed by fuel cycle and other radioactive material licensees, the effective dose equivalent from these radionuclides is used to replace the whole body dose equivalent.

The effective dose equivalent is defined as the sum of the external ' radiation dose equivalent plus the dose equivalent to each body organ due to radioactivity deposited within the body multiplied by a risk weighting factor for the organ. The weighting factors are taken from "Recommendations of the International Commission on Radiological Protection," ICRP Publication 28. Pergamon Press, Oxford, 1977.

The conservative accident scenarios and dose calculations which form the technical basis for the proposed rule are described in detail in the previously mentioned "Regulatory Analysis of Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees." NUREG-1140.

Except for radioiodine doses, which are calculated for infants, doses are calculated for an average adult. Doses to infants and older children would be slightly different due to differences in their metabolisms. Unfortunately, doses to age groups younger than adults have not been calculated for the modern ICRP Publication 26 dosimetric models except for a few radionuclides. The NRC considers the differences between adult doses and child doses to be insignificant in comparison with the other uncertainties in the analysis. The NRC also considers that the inherent conservatism in its accident dose calculations and its use of the 1-rem

lower end of the range for protective action consideration provide an adequate margin of safety. Public comments on this item are specifically requested.

For most licensees who would be required to establish and maintain a plan, the degree of risk is small. For most licensees, even worst-case doses to an individual on the plume centerline resulting at any distance are less than 5 or 10 rems. Realistically, actual doses that anyone would receive should be far lower. Finally, the probability of a serious radiological accident is small. less than 10⁻⁴/yr, and the probability of a serious accident simultaneous with highly adverse meteorology is less than 10⁻³/yr. Details are provided in the Regulatory Analysis, NUREG-1140, Sections 2.4, 2.5, and 3.

The rupture of a large heated cylinder of UF, is an exception in that both the probability and the consequences due to the chemical toxicity of the released material could be of greater concern than the radiation doses from any plausible accident at fuel cycle or other radioactive material facilities. As part of the analysis for this proposed rulemaking, the rupture outdoors of a hot cylinder containing 14 tons of UF. was analyzed, and predictions were made concerning the consequences of such a rupture. These predictions have been compared with the results of the actual release that occurred during the January 4, 1986, accident at the Sequoyah facility ("Rupture of a Model 48Y UF, Cylinder and Release of Uranium Hexafluoride," NRC Report NUREG-1179, February 1986). The quantity and duration of the release were quite close to what was predicted. Also, it appears that the actual onsite and offsite consequences were also quite close to what was predicted. "Assessment of the Public Health Impact from the Accidental Release of UFs at the Sequoyah Fuels Corporation Facility at Gore, Oklahoma," NRC Report NUREG-1189, March 1988.)

Airborne releases due to a severe accident at these licensed facilities are likely to occur rapidly with little warning. The only types of accidents identified in NUREG-1140 for which protective action guide doses or the 2milligram soluble uranium intake could theoretically be exceeded are a fire, a UFs cylinder rupture, and a criticality accident. Public input is sought on other types of accidents that might lead to significant releases of licensed materials. Releases from a fire could start even before the fire is detected or shortly thereafter. Plume travel time to nearby people is likely to be no more than a few minutes. Releases would

usually end within half an hour to an hour when the local fire department has controlled the fire. As a result. protective actions must be taken very quickly to be effective.

In view of two factors-(1) realistically, radiation doses and soluble uranium intakes should generally be low compared to protective action guides and (2) the fast-moving nature of the accidents of concern-evacuation planning is not necessary, appropriate. or feasible. In particular, evacuation of neighborhoods before plume arrival will generally not be possible. Instead the emphasis of emergency preparedness should be on ending the accident as quickly as possible, reducing the quantity of material released, protecting workers onsite, and promptly restoring the facility to a safe condition. Offsite. it would be appropriate for police and fire personnel to move people out of areas of dense smoke or fumes or get them to seek shelter indoors. Such actions are routine for fires and chemical releases and would be expected whether there were an emergency plan or not.

The proposed amendments to Parts 30, 40 and 70 would require that licensees authorized to possess in excess of certain quantities of byproduct materials, source materials, and special nuclear materials must submit emergency plans for responding to releases or an evaluation that shows that offsite doses due to a release of radioactive materials under reasonable and plausible circumstances would not exceed 1 rem effective dose equivalent. a thyroid dose of 5 rems, or a soluble uranium intake exceeding 2 milligrams. The proposed rule would also cover any future plutonium fuel fabrication plants.

The table of quantities in Part 30 that would require evaluation of the need for an emergency plan was taken from "A Regulatory Analysis of Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees." NUREG-1140. The table lists quantities that might theoretically deliver an effective dose equivalent of 1 rem in the event of a severe accident. The quantities were calculated by assuming that the most exposed member of the public would inhale a fraction of 10-* of those materials. External doses from cloudshine and groundshine are then added to the internal dose. The 1-rem effective dose equivalent is a 50-year dose commitment calculated by the methods of ICRP Publications 26, 28, and 30.

The table in Part 30 includes all nuclides, except for I-129, listed on 20 or more of NRC's approximately 9,000 byproduct material licenses. (I-129 was

not included in the table because seituration would prevent the thyroid from absorbing enough I-129 to reach the 5-rem protective action guide for thyroid dose. Thus, 1-129 is too weakly radioactive to be significant to emergency planning.) The table also includes all betagamma emitters listed on any license for which the quantity to deliver a 1-rem effective dose equivalent would be less than 10.000 curies. The table also includes all alpha emitters listed on any license for which the quantity to theoretically deliver a 1-rem effective dose equivalent would be less than 2 curies.

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The quantities in the table in Part 30 are different from quantities previously published in NUREG-0767, "Criteria for Selection of Fuel Cycle and Major Materials Licensees Needing Radiological Contingency Plans." Federal Register Notices with Orders to Licensees (46 FR 12566), and an Advance Notice of Rulemaking (June 3, 1981; 46 FR 29712). The main reasons for the differences are: (1) Dosimetric models from ICRP Publications 26, 28, and 30 have been used instead of the older models from ICRP Publication 2: and (2) release fractions have changed as the result of further study. The Intercept fraction remains 10" for nondepositing radionuclides. In addition, two new pathways, external radiation from groundshine and from cloudshine, are included.

In Part 40, emergency plans would be required only for handling significant quantities of uranium hexafluoride. It was concluded in NUREG-1140 that uranium and thorium in chemical forms less volatile than uranium hexafluoride would not require emergency plans because plausible releases could not cause doses exceeding 1 rem effective dose equivalent, the threshold dose for requiring an emergency plan. The dose threshold would not be exceeded because the low volatility of uranium and thorium compounds, other than uranium hexafluoride, causes low release fractions and because the low specific activities of uranium and thorium result in low doses from a given weight of material.

The chemical toxicity of uranium and thorium are also not of concern except for the highly soluble uranium from a uranium hexafluoride release. Other compounds of uranium or thorium would not cause as large an intake due to lower quantities released and are not as acutely toxic as the very soluble uranium compound created by the uranium hexafluoride release.

In Part 70, plans would be required for potential releases of plutonium and releases due to criticality accidents in addition to uranium bexafisoride releases. The analyses for criticality accidents and plutonium releases are included in NUREG-1140.

Hazardous Chemical Releases

The NRC also considered requiring emergency planning for NRC-licensed facilities with nonradioactive hazardous chemicals. Certain NRC-licensed facilities that would be required to have an emergency plan for redioactive materials might also have nonradioactive hazardous chemicals. The issue of offsite emergency planning, preparedness, and response for release of hazardous chemicals is addressed by the Superfund Amendments and Reauthorization Act of 1988. Pub. L. 99-499, enacted October 17, 1986. (Single copies are available without charge by visiting or writing: Senate Document Room, Hart Senate Office Building, Room B-04, Washing on, DC 20510.) Title III of that Act, independently entitled. "Emergency Planning and Community Right-To-Know Act of 1986," establishes a comprehensive and detailed program under the auspices of EPA and FEMA for community involvement, planning, training, emergency notification, response, and enforcement in the event of an offsite release of hazardous, extremely hazardous, and toxic chemicals. All facilities with a threshold quantity of any of several hundred listed chemicals are subject to the Act. By interim final rule, the EPA established threshold planning quantities and associated reportable quantities (November 17. 1986, 51 FR 41570).

The Act requires each State to establish local emergency planning committees in each area with a facility possessing in excess of the threshold quantities of hazardous chemicals. Facility operators are required to notify the emergency coordinator of the local emergency committee immediately upon a release of a reportable quantity of a listed hazardous chemica! Notification to the local coordinator of the release of an unlisted chemical is required as well if the chemical is subject to the entirely separate reportable quantities requirement of Superfund. The Act is to be fully implemented by October 16, 1988. Failure to immediately report a release may cause the facility owner or operator to be subject to an EPA fine of up to \$25,000 (and imprisoned for up to two years if the violation is willful).

The Act also requires that each local emergency planning committee prepare an emergency plan for facilities under its jurisdiction. Plans must include the following: "(1) Identification of facilities subject to the requirements . . . (2)

Methods and procedures to be followed by facility owners and operators and local emergency and medical personnel to respond to any release . . . (3) Designation of a community response coordinator and facility emergency coordinators . . . (6) Procedures providing reliable, effective, and timely notification by the facility response coordinators and the community response coordinator to persons designated in the emergency plan and to the public that a release has occurred ... (5) Methods for determining the occurrence of a release and the area or population to be affected by such release . . . (6) A description of emergency equipment and facilities in the community and at each facility . . . and identification of the persons responsible for such equipment and facilities . . . (7) Evacuation plans . . . (8) Training programs, including schedules for training of local emergency response and medical personnel . . . and (9) Methods and schedules for exercising the emergency plan."

The Act requires facility owners and operators to promptly provide local emergency planning committees with any information the committees need to develop and implement the emergency plans. Failure to provide requested information may result in an EPA fine of no more than \$25,000 per day.

The Act presently does not cover redipactive materials because these are not listed in the Statutory reference (Chemical Emergency Preparedness Program, USEPA, November 1985. Revision 1, 9223.9-1A. available from EPA). However, a comparison of the content of a licensee's radiological emergency plan as would be required by this proposed rule indicates that the information likely to be requested from facility owners and operators by local emergency response committees if radiological hazards were covered would be contained in plans that meet the NRC's proposed rule.

A preliminary review of the EPA reference listed chemicals indicates that any NRC materials licensee that would be subject to radiological emergency planning for releases of redioactive materials will likely be subject to the new law. It is also highly likely that several hundred, if not thousands, of other materials licensees, that would not be subject to radiological emergency planning, will be subject to the new law. The new law is more comprehensive. detailed, and demanding than any program contemplated or recommended by the NRC staff for offsite emergency planning for nonradiological chemical

hazards. State and local participation in the emergency response program is mandatory, and the issuance of other permits and licenses to a chemical facility operator is not made contingent upon facility compliance. Rather, facility compliance is expected because of heavy civil penalties for failure to abide by the recordkeeping, reporting and notification provisions of the Act.

The NRC staff, accordingly, believes that the obligation of NRC to ensure adequate emergency planning and response for release offsite of hazardous chemicals can be met by requiring that applicants for licenses and for license renewals who would be subject to the radiological emergency planning requirements being proposed demonstrate and maintain substantial compliance with the Emergency Planning and Community Right-To-Know Act of 1986. Therefore, the proposed rule would require NRC licensees having the potential for significant offsite releases of radioactive materials to also demonstrate compliance with the requirements of the Emergency Planning and Community Right-To-Know Act of 1986 with respect to hazardous chemicals they may possess.

Licensees that would not be required by the rule to have an emergency plan for licensed material also would not be required to demonstrate to NRC compliance with the Emergency Planning and Community Right-to-Know Act of 1986. The proposed rule is directed toward and would affect only those licensees with the potential for a significant release of licensed radioactive material, taking into account both the radioligical and chemical toxicity of the licensed material. Undoubtedly, many NRC licensees who would not be covered by the proposed rule possess in excess of the threshold quantities of some hazardous chemical. The NRC in this rulemaking has not made a finding that those hazardous chemicals do not require emergency preparedness. Rather, the licensees are still required by EPA to comply with the requirements of the Emergency Planning and Community Right-to-Know Act of 1986 and would be subject to severe civil and criminal penalties for failure to comply.

Uranium hexafluoride production facilities are covered by the Act because they possess hydrogen fluoride and fluorine, both of which are on the list of hazardous chemicals. The local emergency planning committee for each area is required by the Act to decide, among other things, the area or population that could be affected by a

release as well as procedures for timely notification of the public. NUREG-1140 recommended a distance of one mile from the release point as the area affected. This distance is based on U.S. Department of Transportation criteria for releases of hazardous chemicals in transport accidents. The criteria are those used by the Johns Hopkins University Laboratory Applied Physics Laboratory to derive the emergency action distances given in "Hazardous Materials-Emergency Response Guidebook," U.S. Department of Transportation Report DOT-P5800.2, 1980. However, the local emergency planning committees may select any distance of criteria they consider appropriate. In addition, the local emergency preparedness committees also select the means of notifying the public.

Lessons Learned From a Uranium Hexafluoride Release

Ou January 4, 1988, a cylinder filled considerably above its 14-ton capacity with uranium hexafluoride ruptured while being heated at the Sequoyah Fuels Corporation facility in Gore, Oklahoma. One worker died and several other workers were injured. The death and injuries were caused by exposure to hydrogen flouride, produced by a reaction of the uranium hexafluoride with airborne moisture.

After the accident, the NRC formed a Lessons-Learned Group that reviewed the accident and recommended improvements. (See "Release of UFs from a Ruptured Model 48Y Cylinder at Sequoyah Fuels Corporation Facility: Lessons-Learned Report," NRC report NUREG-1198, June 1988.) A number of the recommendations are relevant to this proposed rule and are discussed here. Readers wanting to know why the recommendations were made should refer to NUREG-1198.

Recommendation 3.1.1.2. (1). "The individuals responsible for development, maintenance, updates, and implementation of the contingency plan (i.e., the emergency plan) should be clearly identified at both the corporate and site levels."

Resolution. The recommendation was adopted in the proposed rule. The proposed rule would require each plan to describe the responsibilities of the licensee's personnel should an accident occur including responsibilities for developing, maintaining, and updating the plan.

Recommendation 3.1.1.2 (2). "Audits of contingency plan implementation should be conducted by individuals not having direct implementation responsibility, and the audits should include evaluation of the appropriateness of the plan, procedures, facilities, equipment (including location of facilities and equipment), training and periodic exercise in the spectrum of accidents or emergencies possible at the facility."

Resolution. The recommendation was generally adopted in the proposed rule by requiring that exercises be evaluated by individuals not having direct implementation responsibility for the plan. Audits of exercises should provide a good indication of how well the plan would really work in an emergency.

Recommendation 3.1.2.2 (1). "A systematic training program should be established to familiarize all plant personnel with the general contents of the contingency plan and appropriate response actions. Specific training should be provided to individuals (both site and corporate) who might be assigned specific response function and responsibilities."

Resolution. The recommendation was adopted in the proposed rule. The proposed rule would require the licensee to train workers how to respond in an emergency.

Recommendation 3.1.2.2 (2). "Offsite organizations who might be requested to support an emergency response should be invited to attend training specific to the response expected."

Resolution. The recommendation was adopted in the proposed rule. The proposed rule would require the licensee to offer instruction and orientation tours to fire, police, medical, and other offsite emergency personnel.

Recommendation 3.1.3.2. (1). "Drills and exercises involving substantial staff response to a spectrum of simulated emergency situations should be conducted periodically. The simulated events should be based on prepared scenarios to demonstrate specific objectives, and they should be observed and critiqued by qualified personnel. Any deficiencies observed should be evaluated and responsibility for corrective action assigned and followed."

Resolution. The recommendation was adopted in the proposed rule. The proposed rule would require quarterly communication checks and annual exercises to test response to simulated emergencies. Audits of exercises would be required by personnel having no direct implementation responsibility. Deficiencies in the plan would have to be corrected.

Recommendation 3.1.3.2. (2). "Drills and exercises should periodically include the offsite organizations which might be called upon for support (local

police, civil defense, health departments, etc.), as well as corporate personnel."

Resolution. The recommendation was adopted in the proposed rule. The proposed rule would require the licensee to invite offsite response organizations to participate in the licensee's exercises.

Recommendation 3.1.4.2 (1). "Consider requiring a designated Emergency Operation Center (EOC) onsite and an alternate EOC either offsite or in another onsite location which is unlikely to be impacted by the incident. The EOC and alternate EOC should contain adequate communications capability and accommodations to provide for coordination of the onsite emergency response activities and notifications and coordinations. The EOC or alternate EOC should be accessible 24 hours a day."

Resolution. The proposed rule would require a control point rather than an emergency operations center. The term emergency operations center was intentionally not used in the rule because that term has a specific meaning in nuclear power plant emergency preparedness that would be inappropriate for the smaller, less complex, and generally faster moving accidents that fuel cycle and other radioactive material licenses would have to respond to. The proposed rule would also require the ability to perform notification and coordination even if parts of the facility were unusable due to the accident.

Recommendation 3.1.4.2 (2). "Locations of emergency equipment and kits should be reviewed by the NRC and licensees so that in the event of an emergency in a given facility location. or inaccessiblity of a large portion of the facility. access to adequate emergency equipment and facilities, including emergency decontamination facilities, can be assured. Equipment caches should be in multiple locations."

Resolution. The staff agrees with this recommendation and the proposed rule would require that notification of offsite response organizations and coordination of onsite response efforts be possible even if part of the facility or equipment is unavailable due to the accident. The prosed rule has no other specific requirements for multiple equipment caches, however. The exact locations of emergency equipment is appropriate for consideration when NRC reviews the licensee's submitted emergency plan.

Recommendation 3.1.4.2 (3). "Consideration should be given to providing strategically placed 'air capsule escape units' to allow workers to escape from portions of a facility in which there exists a potential for exposure to toxic fumes for more than a few moments."

Resolution. This recommendation was not specifically adopted in the proposed rule. The proposed rule would require means and equipment for mitigating the consequences of accidents, including those provided to protect workers onsite. However, in general, air capsule escape units are not believed to be useful or practical for accidents at fuel cycle and other radioactive material facilities. In most cases it is believed that the quickest and best way to escape the accident is to leave the area as quickly as possible. In the case of fires and explosions, attempted use of such capsules could increase hazard. Rather than adopt a general requirement, the use of air capsule escape units could be considered on a case-by-case basis for special situations in which ordinary means of escape are not available.

Recommendation 3.1.4.2 (4). "The facility comunications system should include a radio system compatible with local police or other offsite responder communictions systems. In addition, the licensee should attempt to identify beforehand to local and state police, insofar as practical, offsite individuals who would be called on for support in the event of an emergency at the site. Radio communications with police officials during an emergency can resolve specific issues."

Resolution. This recommendation was not specifically adopted in the proposed rule. The proposed rule would require the licensee to provide a means of notifying offsite response organizations. but whether that would include radios is appropriate for negotiation between the licensee and the offsite response organizations on a case-by-case basis. In general, the NRC would recommend radios but would consider other means of maintaining adequate communication. The rule also requires the licensee to provide appropriate instructions to offsite response organizations. The question of lists of individuals who might be called to the site will be discused in a guide on this subject.

Recommendation 3.2.1.2 (1). "The events described in the radiological contingency plan required of certain NMSS licensees should be reviewed to develop a consistent analysis and classification of events. The resulting classification should be used in NRC decision criteria to initiate transition of the NRC from a normal mode to higher response modes."

Resolution. This recommendation was adopted. The proposed rule includes a classification system for accidents. Recommendation 3.3.2.1.2 (1).

"Personnel of local agencies that might be called upon to respond to emergencies should be given training."

Resolution. This recommendation was adopted in the proposed rule. The licensee would be required to offer to police, fire, medical and other offsite emergency personnel information on how to respond to an accident as well as orientation tours of the facility.

Recommendation 3.3.2. "Hospital staff who might reasonably be expected to deal with injuries from a major accident should be trained to deal with all aspects of the injuries. Radiological plans and their use in drills are desirable."

Resolution. This recommendation was adopted in the proposed rule. The rule would require the licensee to offer instructions and orientation tours to medical personnel and would require the licensee to invite medical personnel to participate in the licensee's exercises.

Recommendation 3.3.4.2. "Radiological contingency planning should include site control plans and methods for implementing site access control. Local law enforcement groups that might be called on in an emergency should be trained."

Resolution. The NRC agrees with this recommendation, and the propsed rule would require means and equipment for mitigation the consequences of accidents. Site access control plans would be one means of mitigating the consequences of accidents and would be contained in the licensee's plans, as appropriate, for the particular site. The rule would require the licensee to offer instructions and orientation tours to police personnel

Proposed requirements. Licensees would be given the option of demonstrating that emergency plans for responding to accidental releases are not needed because doses would not exceed 1 rem effective dose equivalent as a result of a creditble accident at their specific facility. The table of radionuclides in the proposed regulations was developed using conservative, pessimistic, or "worstcase" assumptions. Each assumption is possible at some "generic" facility, but may not be realistic for a specific actual facility. Thus the licensee is given the option of analyzing accidents for the actual existing facility and determining site-specific maximum credible releases. If after the review, the NRC staff agrees that the resulting doses would be below 1 rem. an emergency plan for responding to the release would not be required.

The licensee also has the option of revising facility design, operating

procedures, or possession limits to reduce potential doses below 1 rem effective dose equivalent in lies of perparing an emergency plan for responding to an accidental release.

If an emergency plan for responding to an accidental release is needed, it would include:

(1) Facility description. A brief description of the licensee's facility and area near the site. The purpose is to provide the reader with enough basic information to evaluate thelicensee's plan. Significant nearby facilities, such as schools, should be included in the site area description.

(2) Types of accidents. An identification of each type of accident for which protective actions might be needed. Typically, the accidents of concern are fires involving radioactive materials, releases of large quantities of uranium hexaflouride, and criticalities involving high-enriched uranium or plutonium. Releases of hazardous chemcials that could affect the radiological safety of the facility and result in releases of ar exposure to radioactive materials must also be considered.

(3) Classification of accidents. A classification system for classifying accidents as site area emergencies or general emergencies. These classes are adopted from nuclear power plant emergency planning, but modified for fuel cycle and other radioactive material licensees. A general emorgency means releases that may cause doses offsite exceeding 1 rem effective dose equivalent or 5 rems to the thyroid have occured, are in progress, or may occur. In this case, offsite actions may be needed. A site area emergency means events are in progress or have occurred that reaguire a response from offsite organizations, but doses woud not be expected to exceed 1 rem effective dose equivalent or 5 rems thyroid.

(4) Detection of accidents. Identification of the means of detecting each type of accident in a timely manner. The means of detection could include one or more of the following: fire alarms, criticality alarms, visual observation, stack monitors, or radiation monitors, as appropriate.

[5] Mitigation of consequences. A brief description of the means and equipment for mitigating the consequences of each type of accident, including those provided to protect workers onsite, and a description of the program for maintaining the equipment. Mitigating actions could include actions to reduce or stop the release and actions to protect workers such as evecuating the building or decontaminating personnel. Means for limiting releases could include sprinkler systems and other fire suppression systems, fire detection systems, physical separation of material, storage in fire-resistant containers, use of fire-resistant building materials, fire-fighting capabilities, procedures prohibiting flammable materials in areas where radioactive materials are found, filter systems, ase of water sprays to knock-down UFs, and others.

Equipment might include respiratory protection equipment for employees, evacuation alarms, and equipment possessed by the licensee to reduce or stop the release. It would not include equipment brought to the site by offsite response organizations.

This item is not intended to require backfits or design changes. Plant design is subject to a more complete safety review when the license application is reviewed.

(6) Assessment of releases. A brief description of the methods and equipment to assess releases of radioactive materials.

This does not mean real-time assessment. It means measurements made after the release has occurred to determine how much material was released. The NRC does not believe that real-time estimates of releases are generally possible for the types of accidents of concern. Significant releases are not likely to occur by way of monitored release paths. Monitored paths would generally contain filters that would reduce any release to negligible levels. Furthermore, if a release were detected from a monitored release path there would generally be no way to determine that additional material was not being released by way of unmonitored paths. In addition, even if one could assure that the entire release were monitored so that a release rate could be determined. there would be no way to know the duration of the release or whether the release rate would subsequently rise or fall greatly. This situation is different from that at nuclear power plants where the containment can be sampled and therefore the entire inventory subject to release can be calculated. Beyond this, measurements of releases would generally be made much too late to be of any usefulness during the emergency response. The recommended approach therefore is to estimate source terms for each accident type in the planning and then decide in the planning what recommendations would be made to offsite response organizations for each accident type. In summary, one cannot wait until a potential accident is underway to decide what recommendations should be made.

There is not enough time during the accident.

(7) Responsibilities. A brief description of the responsibilities of licensee personnel should an accident occur, including the identification of personnel responsible for promptly notifying offsite response organizations and the NRC; also responsibilities for developing, maintaining, and updating the plan. In general, responsibilities should be described for the position rather than by naming individuals so that personnel changes do noi require amending the emergency plan. Offsite response organizations would generally include fire, police, medical, state radiological safety organizations, and perhaps other emergency personnel. (Agreement State licensees would notify the State rather than the NRC.]

(8) Notification and coo. aination. A commitment to and a brief description of the means to promptly notify offsite response organizations and request offsite assistance, including medical assistance for the treatment of contaminated injured onsite workers when appropriate. A control point must be established. The means of notification and coordination must be planned so that mayailability of some personnel, parts of the facility, and some equipment will not prevent the notification and coordination. The licensee shall also commit to notify NRC immediately after notification of the appropriate response organizations and not later than one hour after the licensee declares an emergency.

In general, the licensee would be expected to be able to contact the local police by radio so that adequate twoway communication could be maintained throughout the accident. In a few cases, the licensee may want to seek assistance from the Department of Energy under the Federal Radiological Emergency Response Plan (see 50 FR 46524; November 8, 1985).

(9) Information to be communicated. A brief description of the types of information on facility status, radioactive releases, and recommended actions, if necessary, to be given to offsite response organizations and to the NRC.

(10) Training. A brief description of the training the licensee will provide workers on how to respond to an emergency and any special instructions and orientation tours the licensee would offer to fire, police, medical, and other emergency personnel.

Instructions on how to deal with the radiation release should be appropriate for the personnel and should clearly state the specific actions expected of

them and things they should and should not do. After the more comprehensive initial training, refresher briefings are suggested annually. A desirable time would be soon after the exercise has been conducted so that training c efficiencies can be corrected and recommendations of the audits relevant to training can be implemented. Refresher briefings for offsite response organizations should be conducted at a frequency considered appropriate by those organizations.

(11) *Recovery*. A brief description of the means of restoring the facility to a safe condition after an accident. Detailed procedures are not appropriate because the exact nature of the accident cannot be forseen. Instead general criteria are appropriate.

(12) Exercises and audits. Provisions for conducting guarterly communications checks with offsite response organizations and annual onsite exercises to test response to simulated emergencies. The licensee shall invite offsite response organizations to participate in the annual exercises. Exercises must use scenarios not known to exercise participants. An Audit of each exercise must be conducted by individuals not having direct implementation responsibility for the plan. Audits of exercises must evaluate the appropriateness of the plan, emergency procedures, facilities, equipment, training of personnel, and overall effectiveness of the response. Deficiencies found by the audits must be corrected.

The NRC would like comments specifically on whether exercises should be required annually or once every two years. The issue is whether the increased practice would improve the quality of the receponse sufficiently to make annual exercises worth their cost.

The case in favor of annual exercises can be summarized as follows. Exercises are valuable training opportunities that not only help to train personnel, but help identify deficiencies in emergency response plans and procedures. Since it is generally impracticable to exercise all portions of a program during each exercise, it is

important to conduct exercises often enough to eventually cover all aspects of a program over a reasonable time period. Exercising annually is sufficient to meet this need. Experience has taught that by conducting exercises, portions of the plan and procedures that were thought to be adec sate can be found to be deficient. For example, during the December 17, 1986 exercise at Allied Chemical, an emergency action level that initiates a general emergency was determined to be inappropriate and had to be revised. If not for the opportunity to actually use the emergency action levels during the exercise, this inconsistency could have persisted for many years undetected. Therefore, it is important to have annual exercises as a method to identify problem areas. In addition, personnel need these opportunities to actually demonstrate their capabilities. With several people trained to fill each emergency response position, an individual could go several years before having an opportunity to participate, even with an annual exercise frequency. With a two year frequency this could lead to personnel not having an opportunity to participate in an exercise for a considerable number of years.

The case in favor of less than annual exercises, for example, biennual exercises can be summarized as follows. While nuclear power plants exercise annually, the potential hazard from a radioactive materials facility is enormously lower and the complexity of the needed response is much less Therefore, having the same exercise frequency as nuclear power plants is not justified in terms of the potential hazard nor needed to maintain an adequate level of preparedness. In addition. annual exercises could place an excessive burden on offsite response organizations. This burden may be difficult for them to meet especially considering that they may have to participate in many other exercises required by the Emergency Planning ard Community Right-to-Know Act of 1986.

(13) Hozardous chemicals. A description sufficient to demonstrate the applicant's compliance with the Emergency Planning and Community Right-to-Know Act of 186, Title III, Pub. L. 99-499, if applicable to the applicant's activities at the proposed place of use of the radioactive material. This should include a summary of the information provided to the local emergency committee and to whom and when the information was sent.

In brief, the licensee is required to give prompt notification to appropriate offsite response organizations, providing these organizations with information on the situation and recommended actions. and assuring that these officials have been offered instruction in advance. In addition, in order to assure that offsite response organizations expected to respond to an accident have been consulted in the formulation of the plan, the licensee must allow such offsite organizations 60 days to comment on the plan and must provide these comments to the NRC.

The NRC has also considered the need for: (1) Formal public information programs for people living close to licensed facilities who might be advised to take protective actions if an accident occurred: and (2) formal notification of the potentially affected public in the event on an accident. The NRC has concluded that the need for any actions of this type are best left to the local offsite emergency response organizations and officials who have jurisdiction and responsibility for protecting the people in the vicinity of the facility. This approach has been adopted for hazardous chemicals in the Emergency Planning and Community Right-to-Know Act of 1986. The NRC will encourage State and local authorities to consider the need for such actions and to work with the licensee on a case-by-case basis

Most, if not all, of the licensees who would be required to submit an emergency plan by this regulation have already submitted onsite Radiological Contingency Plans under the orders issued in 1981. Those plans already include essentially the same information that would be required under the new regulation, but most of the plans are likely to require some changes to meet the new rule. The NRC plans to allow licensees who have submitted Radiological Contingency Plans one year to make the necessary changes. Alternatively, these licensees could submit an evaluation showing that an emergency plan is not necessary. The changes or evaluation would then have to be submitted to the Commission as provided for in the proposed rule. The NRC would not expect those licensees to resubmit their entire plans when submitting changes. Rather, at the time of renewal of their licenses, licensees would resubmit their entire plan revised to conform to the new rule as a part of their renewal application. Licensees covered by the rule who have not submitted Radiological Contingency Plans would be allowed one year to submit either an emergency plan or an evaluation showing that an emergency plan is not needed.

The NRC will consult with FEMA as appropriate under the terms of the FEMA-NRC metnorandum of understanding. Agreement States receiving plans would also be free to consult FEMA if they desired. NRC encourages licensees to work with State governments to develop comprehensive emergency plans for other hazards.

The staff identified about 60 NRC licensees who would be covered by the rule as proposed. The staff estimated, however, that about 15 of those licensees would probably lower their possession limits so they would not be covered and that about 15 would probably demonstate that the 1-rem dose is not plausible. Realistically. probably no more than about 30 licensees would actually submit a emergency plan. Perhaps about 5 to 10 Agreement State licensees would also eventually be covered because the new requirements would be a matter of compatability with Agreement States.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. The rule not affect the probability or the size of accidental radioactive releases. It might is some cases reduce the doses people near the facility site could receive. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 1717 H Street NW., Washington, DC. The environmental assessment and finding of no significant impact are contained in Section 4.3 of "A Regulatory Analysis for Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees." NUREG-1140. Single copies are available without charge upon written request from NRC Distribution Section. Office of Information Resources Management, USNRC, Washington, DC 20555

Paperwork Reduction Act Statement

This proposed rule amenda information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). This rule has been submitted to the Office of Management and Budget for review and approval of these requirements.

Regulatory Analysis

The Commission has prepared a regulatory analysis (NUREG-1140) on this proposed regulation. The analysis examines the accident scenarios considered by the Commission (see Section 2) as well as the costs and benefits of actions considered (see Section 3]. The analysis is available for inspection in the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the analysis (NUREG-1140) may be obtained without charge upon written request from: Distribution Section. Office of Information Resources Management, USNRC, Washington, DC 20555.

As indicated previously, the Commission in particularly interested in receiving public comments on the regulatory analysis. Comments on the analysis may be submitted to the NRC as indicated under the ADDRESSES heading.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1990, 5 U.S.C. 005(b), the Commission certifies that this rule, if adopted, will not have a significant economic impact upon a substantial number of small entities.

The proposed rule would required development and implementation of emergency plans by licensees who are authorized to possess significant amounts of radioactive material. These companies do not fall within the definition of a small business found in the Small Business Act, 15 U.S.C. 632. or within the small business size standards set forth in 13 CFR Part 121. The proposed rule affects about 60 out of some 9.000 licensees. However, the staff believes that about 15 of these licensees could amend their licenses to reduce quantities of material they are authorized to possess and about 15 could perform an evaluation showing no need to be covered by the rule. Realistically, probably no more than about 30 licensees would actually submit emergency plans. These 30 licensees are essentially identical to those issued orders to require onsite contingency plans in 1981. An additional 5 to 10 Agreement State licensees might have to submit emergency plans because the rule would be made an item of compatability with Agreement State Drograma

Thus, the proposed rule would not impose a significant economic impact on a substantial number of small entities, as defined in the Regulatory Flexibility Act of 1980.

Any small entity affected by this regulation which determines that. because of its size, it is likely to bear a disproportionate adverse economic impact, should notify the Commission of this in a comment that indicates the following:

(a) The small entity's size in terms of annual income or revenue and number of employees:

(b) How the proposed regulation would result in a significant economic burden upon the small entity as compared to that on a larger entity;

(c) How the proposed regulations could be modified to take into account the entity's differing needs or capabilities.

The comments should be sent to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, ATTN: Docketing and Service Branch.

Additional Views of Commissioners Asselstine and Carr

Commissioner Asselstine stated. "I approve this proposed rule as far as it goes. However, I believe that in light of the fast-moving nature of the accidents of concern for the types of facilities covered by this proposed rule, the Commission should give further consideration to requiring a formal notification system for promptly alerting the public within an appropriate emergency planning zone (EPZ) in the event of an accident. Staff studies and experience from the January 4, 1986 accident at the Sequoyah Fuels Corporation facility demonstrate the necessity for quick decisions and prompt actions in the case of an emergency. The regulatory analysis prepared in support of this rule (NUREG-1140) states that The goal should be to make decisions on protective actions and start implementing these decisions within 5 or 10 minutes of discovering the accident. Releases are expected to end within half an hour to an hour. It appears to me that in view of these circumstances, prompt notification of the affected public to enable individuals to take appropriate and timely protective actions is a sensible approach which the Commission should require. Along with requiring prompt notification system. I believe provisions for annual dissemination of information to the public located within an EPZ relating to notification methods and protective actions is also necessary. I would appreciate comments on these suggestions.

Commissioner Carr stated. "I agree that the proposed rulemaking should be published for public comment, but I am concerned about the conservatism used

by the staff in its accident dose calculations and its use of the 1-rem lowe; end of the range for protective action given the Commission policy (1985 Policy and Planning Guidance) that emergency planning should be based on realistic assumptions."

Commissioner Carr requests public comments on these concerns.

List of Subjects

10 CFR Part 30

Byproduct material. Government contracts. Intergovernmental relations, Isotopes. Nuclear materials. Penalty, Radiation protection. Reporting and recordkeeping requirements.

10 CFR Part 40

Government contracts, Hazardous materials—transportation, Nuclear materials, Penalty, Reporting and recordkeeping requirements, Source material, Uranium.

10 CFR Part 70

Hazardous materials—transportation, Material control and accounting. Nuclear materials, Packaging and containers. Penalty. Radiation protection, Reporting and recordkeeping requirement, Scientific equipment, Security measures, Special nuclear material.

Under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is proposing to adopt the following amendments to 20 CFR Parts 30, 40, and 70.

PART 30-RULES OF GENERAL APPLICABILITY TO DOMESTIC LICENSING OF BYPRODUCT MATERIAL

1. The authority citation for Part 30 is revised to read as follows:

Authority: Secs. 81, 82, 161, 182, 183, 180, 66 Stat. 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2111, 2112, 2201, 2232, 2233, 2236, 2282); secs. 201, as amended, 202, 206, 68 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5541, 5642, 5846).

Section 30.7 also issued under Pub. L. 95-601, sec. 10, 62 Stat. 2951 (42 U.S.C. 5651). Section 30.34(b) also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 30.61 also issued under sec. 167, 68 Stat. (42 U.S.C. 2237).

For the purposes of sec. 223. 68 Stat. 058, as mmended (42 U.S.C. 2273); §§ 30.3, 30.34(b), (c), and (f), 30.41(a) and (c), and 30.53 are issued under sec. 161b, 68 Stat. 948, as amended (42 U.S.C. 2201(b)); and §§ 30.6, 30.36, 30.51, 30.52, 30.55, and 30.56(b) and (c) are issued under sec. 1610, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

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SECRET SALLS

2. In § 30.4, all definitions are alphabetized, the lettering system for the definitions is deleted, and three new definitions are added alphabetically to read as follows:

\$ 30.4 Definitions.

. . . .

"Effective dose equivalent" means the sum of the product of the dose equivalent to the organ or tissue and the weighting factors applicable to each of the body organs or tissues that are irradiated. Weighing factors are: 0.25 for gonads. 0.15 for breast. 0.12 for red bone marrow. 0.12 for lungs. 0.03 for thyroid. 0.03 for bone surface. and 0.06 for each of the other five organs receiving the highest dose equivalent.

"General emergency" means events may occur, are in progress, or have occurred that could cause the release of radioactive materials sufficient to cause doses offsite exceeding 1 rem effective dose equivalent or 5 rems to the thyroid or an intake of 2 milligrams of soluble uranium.

"Site area emergency" means events may occur, are in progress, or have occurred that require offsite response but are not expected to cause a release of radioactive materials sufficient to cause doses offsite to exceed 1 rem effective dose equivalent or 5 rems to the thyroid or an intake of 2 milligrams of soluble uranium.

3. In § 30.32, a new paragraph (g) is added to read as follows:

§ 30.32 Application for specific licenses.

(g)(1) Each application to possess radioactive materials in unsealed form, on foils or plated sources, or sealed in glass in excess of the quantities in \$ 30.72, "Schedule C-Quantities of Radioactive Materials Requiring Consideration of the Need for an Emergency Plan for Responding to a Release," must contain either:

(i) An evaluation showing that the maximum dose to a person offsite due to a release of radioactive materials under reasonable and plausible circumstances would not exceed 1 rem effective dose equivalent or 5 rems to the thyroid; or

(ii) An emergency plan for responding to a release of radioactive material.

(2) One or more of the following factors may be used to support an evaluation submitted under paragraph (g)(1)(i) of this section:

 (i) The radioactive material is physically separated so that only a portion could be involved in an accident; (ii) All or part of the redioactive material is not subject to release during an accident because of the way it is stored or packaged;

 (iii) The release fraction in the respirable size range would be lower than the release fraction shown in
 30.72 due to the chemical or physical form of the material;

 (iv) The solubility of the radioactive material would reduce the dose received;

(v) Facility design or engineer safety features in the facility would cause the lease fraction to be lower than shown in § 30.72;

(vi) Operating restrictions or procedures would prevent a release fraction as large as that shown in § 30.72; or

(vii) Other factors appropriate for the specific facility.

(3) An emergency plan for responding to a release of radioactive material submitted under paragraph (g)(1)(ii) of this section must include the following information:

(i) Facility description: A brief description of the licensee's facility and area near the site.

(ii) Types of accidents: An identification of each type of accident for which protective actions may be needed.

 (iii) Classification of accidents: A classification system for classifying accidents as site area emergencies or general emergencies.

(iv) Detection of accidents: Identification of the means of detecting each type of accident in a timely manner.

(v) Mitigation of consequences: A brief description of the means and equipment for mitigating the consequences of each type of accident, including those provided to protect workers onsite, and a description of the program for maintaining the equipment.

(vi) Assessment of releases: A brief description of the methods and equipment to assess releases of radioactive materials.

(vii) Responsibilities: A brief description of the responsibilities of licensee personnel should an accident occur, including identification of personnel responsible for promptly notifying offsite response organizations and the NRC: also responsibilities for developing, maintaining, and updating the plan.

(viii) Notification and coordination: A commitment to and a brief description of the means to promptly notify offsite response organizations and request offsite assistance, including medical assistance for the treatment of

contaminated injured onsite workers when appropriate. A control point must be established. The notification and coordination must be planned so that unavailability of some personnel, parts of the facility, and some equipment will not prevent the notification and coordination. The licensee shall also commit to notify NRC immediately after notification of the appropriate offsite response organizations and not later than one hour after the licensee declares an emergency.

(ix) Information to be communicated: A brief description of the types of information on facility status. radioactive releases, and recommended actions, if necessary, to be given to offsite response organizations and to the NRC.

(x) Training: A brief description of the training the licensee will provide workers on how to respond to an emergency and any special instructions and orientation tours the licensee would offer to fire, police, medical and other emergency personnel.

(xi) Safe shutdown: A brief description of the means of restoring the facility to a safe condition after an accident.

(xii) Exercises and audits: Provisions for conducting quarterly communications checks with offsite response organizations and annual onsite exercises to test response to simulated emergencies. Quarterly communications checks will offsite response organizations shall include the check and update of all necessary telephone numbers. The licensee shall invite offsite response organizations to participate in the annual exercises.

Participation of offsite response organizations in annual exercises although strongly recommended is not required. Exercises must use scenarios not known to exercise participants. The license shall conduct an audit of each exercise using individuals not having direct implementation responsibility for the plan. Audits of exercises must evaluate the appropriateness of the plan, emergency procedures, facilities, equipment, training of personnel, and overall effectiveness of the response. Deficiencies found by the audits must be corrected.

(xiii) Hazardous chemicals: A description sufficient to demonstrate the applicant's compliance with the Emergency Planning and Community Right-to-Know Act of 1988. Title III. Pub. L. 99-499. if applicable to the applicant's activities at the proposed place of use of the byproduct material.

(4) The licensee shall allow the offsite response organizations expected to respond in case of an accident 60 days to comment on the linensee's emergency plan before submitting it to NRC. The licensee shall provide any comments received within the 80 days to the NRC with the emergency plan.

4. In § 30.34, a new paragraph (f) is added to read as follows:

§ 30.34 Terms and conditions of licenses.

(f) Licensees required to submit emergency plans by § 30.32(g) shall follow the emergency plan approved by the Commission. The licensee may change the approved plan without Commission approval only if the changes do not decrease the effectiveness of the plan. The licensee shall furnish the change to the appropriate NRC Regional Office specified in § 30.6 within six months after the change is made. Proposed changes that decrease, or potentially decrease, the effectiveness of the approved emergency plan shall not be implemented without prior application to and prior approval by the Commission.

. . .

5. A new § 30.72 is added to read as follows:

§ 30.72 Schedule C---Quantities of radioactive materials requiring consideration of the need for an emergency plan for responding to a release.

Radioactive material ¹	Release	Quantity (curies)
H-3	.5	20,000
G-14	.5	1,000
NB-22	.01	9.000
Na-24	.01	10,000
P-32	.5	100
P-33	.5	1,000
5-35	.5	900
C1-36	.01	5,000
K-42	.01	9.000
Ge-45	.01	20,000
Sc-46	.01	3.000
-66	.01	100
V-48	.01	7.000
Dr-51	.01	300.000
Vin-56	.01	60.000
Fe-55	.01	40,000
e-59	.01	7,000
060	.001	5.000
Ni-63	.01	20.000
Cu-64	.01	200.000
n-65	.01	5.000
ie-68	.01	2.000
e-75	.01	10.000
(r-85	1.0	8.000.000
¥-89	.01	3.000
ir-90	.01	90
B1	.01	2.000
1-93	.01	400
r-95	.01	5.000
15-84	01	300

metena)1	fraction	Ouentity (curies)
Mo-99	01	30.00
Tc-99	01	10.000
Tc-99	01	400.000
Ru-106	.01	200
Ag-110m	.01	1.000
Cd-109	.01	1.000
Cd-113	.01	BC
in-114m	.01	1.000
Sn-113	.01	10,000
Sn-123	.O1	3,000
Sn-126	.01	1,000
Sb-124	.01	4,000
Sb-126	.01	6,000
Te-127m	.01	5,000
Te-129m	.01	5.000
H-125	.5	7
1-131	.5	5
Ke-133	1.0	900.000
CB-134	.01	2.000
08-137	.01	3.000
58-133	.01	10,000
68-140	.01	30,000
GB-141	.01	10,000
08-164	.01	300
Pm-140	.01	4,000
Con the	.01	4,000
500-151	.01	4,000
EU-102	.01	500
E.0-156	.01	400
Cd 150	.01	3,000
Th. 160	.01	5,000
Ho. 166m	.01	4,000
Tm-120	.01	100
H-175	.01	4,000
HE SES	.01	400
1-105	.01	7,000
ALLIGR	.001	40,000
Ho-203	0.5	30,000
Pb-210	01	10,000
B-207	01	6 000
Bi-210	(43	600
Po-210	1	000
Ac-228	001	4 000
Np-237	001	*,000
Am-241	001	2
Am-242	.001	2
Am-243	.001	2
Sm-242	.001	60
Cm-243	.001	3
Sm-244	.001	4
Cm-245	.001	2
1-252	.0019	9(20 mg)
Iny other beta-		
gamma emitter	.01	10,000
fixed fission		
products	.01	1,000
liked corrosion		
products	.01	10,000
ontammated		
equipment bega-		151.2
pamma	.001	10,000
radiated materiala,		
any form other		
man solid		
noncombustible	.01	1,000
raciated material,		
BOIID		
noncombustible	.001	10,000
IXed radioactive		
WESTE, DELE-		
LATTITLE.	.01	1.000

Release	Quantity (curies)
.001	10,000
.001	2
.0001	20
.0001	20
	Release traction .001 .001 .0001 .0001

¹ For combinations of radioactive materials, consideration of the need for an emergency plan is required if the sum of the ratios of the quantity of each radioactive material authorized to the quantity listed for that material in Schedule C exceeds one.

* Waste packaged in Type B containers does not require an emergency plan.

PART 40-DOMESTIC LICENSING OF SOURCE MATERIAL

6. The authority citation for Part 40 is revised to read as follows:

Authority: Secs. 62, 63, 64, 65, 81, 161, 182, 183, 186, 65 Stat. 932, 933, 935, 946, 853, 954, 955, as amended, secs. 11e(2), 83, 84, Pub. L 95-604, 92 Stat. 3033, e^{*}, amended, 3039, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2014(e)(2), 2092, 2093, 2094, 2095, 2111, 2113, 2114, 2201, 2232, 2233, 2236, 2282); sec. 274, Pub. L. 86-373, 73 Stat. 688 (42 U.S.C. 2021); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5041, 5642, 5846); sec. 275, 92 Stat. 3021, as amended by Pub. L. 87-415, 96 Stat. 2067 (42 42 U.S.C. 2022).

Section 40.7 also issued under Pub. L. 95-601, sec. 10. 92 Stat. 2951 (42 U.S.C. 5851). Section 40.31(g) also issued under sec. 112, 68 Stat. 939 (42 U.S.C. 2152). Section 40.46 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 40.71 also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2227).

For the purposes of sec. 223, 66 Stat. 958. as amended (42 U.S.C. 2273): §§ 40.3, 40.25(d)(1)-(3), 40.35 (a)-(d) and (f), 40.41 (b) and (c). 40.46, 40.51 (a) and (c), and 40.63 are issued under sec. 161b, 68 Stat. 948. as amended (42 U.S.C. 2201(b)): and §§ 40.5, 40.25(c) and (d)(3) and (4), 40.26(c)(2), 40.35(e), 40.*2, 40.61. 40.62, 40.64, and 40.65 are issued under sec. 1610, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

7. In § 40.4, all definitions are alphabetized, the lettering system for the definitions is removed, and two new definitions are added alphabetically to read as follows:

§ 40.4 Definitions.

. . .

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"General emergency" means events may occur, cre in progress, or have occurred that could cause the release of redioactive materials sufficient to cause doses offsite exceeding 1 rem effective dose equivalent or 5 rems to the thyroid or an intake of 2 milligrams of soluble uranium.

• • • •

"Site area emergency" means events may occur, are in progress, or have occurred that require offsite response but are not expected to cause a release of radioactive materials sufficient to cause doses offsite to exceed 1 rem effective dose equivalent or 5 rems to the thyroid or an tntake of 2 milligrams of soluble uranium.

• • • • •

8. A new paragraph (i) is added to \$ 40.31 to read as follows:

\$ 40.31 Applications for specific licenses.

(i)(1) Each application to possess uranise bexafluoride in excess of 50 kilograms in a single container or 1000 kilograms total must contain either:

(i) An evaluation showing that the maximum intake of uranium by a member of the public due to a release under reasonable and plausible circumstances would not exceed 2 milligrams; or

(ii) An emergency plan for responding to the radiological hazards of an accidental release of source material and to any associated chemical hazards directly incident thereto.

 (2) One or more of the following factors may be used to support an evaluation submitted under paragraph
 (i)(1)(i) of this section:

(i) All or part of the radioactive material is not subject to release during an accident because of the way it is stored or packaged;

(ii) Facility design or engineered safety features in the facility would reduce the amount of the release; or

(iii) Other factors appropriate for the specific facility.

(3) An emergency plan submitted under paragraph (i)(1)(ii) of this section must include the following:

(i) Facility description: A brief description of the licensee's facility and area near the site.

(ii) Types of accidents: An identification of each type of accident for which protective actions may be needed.

(iii) Classification of accidents: A classification system for classifying accidents as site area emergencies or general emergencies.

 (iv) Detection of occidents: Identification of the means of detecting each type of accident in a timely manner. (v) Mitigation of consequences: A brief description of the means and equipment for mitigating the consequences of each type of accident. including those provided to protect workers onsite, and a description of the program for maintaining the equipment.

(vi) Assessment of release: A brief description of the methods and equipment to assess releases of radioactive materials.

(vii) Responsibilities: A brief description of the responsibilities of licensee personnel should an accident occur, including identification of personnel responsible for promptly notifying offsite response organizations and the NRC; also responsibilities for developing, maintaining, and updating the plan.

(viii) Notification and coordination: A commitment to and a brief description of the means of promptly notify offsite response organizations and request offsite assistance, including medical assistance for the treatment of contaminated injured onsite workers when appropriate. A control point must be established. The notification and coordination must be planned so that unavailability of some personnel. parts of the facility, and some equipment will not prevent the notification and coordination. The licensee shall also commit to notify NRC immediately after notification of the offsite response organizations and not later than one hour after the licensee declares an emergency.

(ix) Information to be communicated: A brief description of the types of information on facility status, radioactive releases, and recommended actions, if necessary, to be given to offsite response organizations and to the NRC.

(x) Training: A brief description of the training the licensee will provide workers on how to respond to an emergency and any special instructions and orientation tours the licensee would offer to fire, police, medical and other emergency personnel.

(xi) Sofe shutdown: A brief description of the means of restoring the facility to a safe condition after an accident.

(xii) Exercises and audits: Provisions for conducting quarterly communications checks with offsite response organizations and annual onsite exercises to test response to simulated emergencies. Quarterly communications checks with offsite response organizations shall include the check and update of all necessary telephone numbers. The licensee shall invite offsite response organizations to participate in the annual exercises. Participating of offsite response organizations in annual exercises although strongly recommended is not required. Exercises must use scenarios not known to exercise participants. The licensee shall conduct an audit of each exercise using individuals not having direct implementation responsibility for the plan. Audits of exercises must evaluate the appropriateness of the plan. emergency procedures. facilities, equipment, training of personnel, and overall effectiveness of the response. Deficiencies found by the audits must be corrected.

(xiii) Hazardous chemicals: A description sufficient to demonstrate the applicant's compliance with 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 source material.

(4) The licensee shall allow the offsite response organizations expected to respond in case of an accident 60 days to comment on the licensee's emergency plan before submitting it to the NRC. The licensee shall provide any comments received within the 60 days to the NRC with the emergency plan.

9. In § 40.35. a paragraph (f) is added to read as follows:

§ 40.35 Conditions of specific licenses issued pursuant to § 40.34

(f) Licensees required to submit emergency plans by § 40.31(i) shall follow the emergency plan approved by the Commission. The licensee may change the plan without Commission approval if the changes do not decrease the effectiveness of the plan. The licensee shall furnish the change to the Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555. within six months afte the change is made. Proposed changes that decrease the effectiveness of the approved emergency plan shall not be implemented without prior application to and prior approval by the Commission.

PART 70-DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

10. The authority citation for Part 70 continues to read as follows:

Authority: Secs. 51, 53, 161, 182, 183, 68 Stat. 929, 930, 948, 953, 954, 88 amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2201, 2232, 2233, 2282); secs. 201, as amended, 202, 204, 206, 88 Stat. 1242, as amended, 1244, 1245, 1246 (42 U.S.C. 5841, 5842, 5845, 5846).

Section 70.7 also issued under Pub. L 95-601. sec. 10. 92 Stat. 2951 (42 U.S.C. 5851). Section 70.21(g) also issued under sec. 1.22. 68 Stat. 939 (42 U.S.C. 2152). Section 70.31 also issued under sec. 57d. Pub. L. 93-377. 68 Stat. 475 (42 U.S.C. 2077). Sections 70.36 and 70.44 also issued under sec. 184. 66 Stat. 954. as amended (42 U.S.C. 2234). Section 70.61 also issued under secs. 186. 187. 68 Stat. 955 (42 U.S.C. 2236, 2237). Section 70.62 also issued under sec. 108. 68 Stat. 939. as amended (42 U.S.C. 2138).

For the purposes of sec. 223. 68 Stat. 958. as amended (42 U.S.C. 2273): \$\$ 70.3. 70.19(c). 77.21(c). 70.22 (a). (b). (d)-(k). 70.24 (a) and (b). 70.32(a) (3). (5). (6). (d). and (i). 70.36. 70.39 (b) and (c). 70.41(a). 70.42 (a) and (c). 70.56. 70.57 (b). (c). and (d). 70.58 (a)-(g)(3). and (h)-(j) are issued under sec. 161b. 68 Stat. 948. as amended (41 U.S.C. 2201(b)); \$\$ 70.7 70.22a (a) and (d). 70.20b (c) and (e). 70.21(c). 70.24(b), 70.32 (a)(6), (c), (d), (e), and (g), 70.36. 70.51 (c)-(g), 70.56, 70.57 (b) and (d), and 70.58 (a)-(g)(3) and (h)-(j) are issued under sec. 1611, 69 Stat. 949, as amended (42 U.S.C. 2201(i)): and §§ 70.5. 70.20b (d) and (e). 70.38. 70.51 (b) and (i), 70.52, 70.53, 70.54, 70.55, 70.58 (g)(4). (k). and (l). 70.59 and 70.60 (b) ar (c) are issued under sec. 1610, 89 Stat. 950, as amended (42 U.S.C. 2201(o)).

11. In § 70.4. all definitions are alphabetized, the lettering system for the definitions is removed, and three new definitions are added alphabetically to read as follows:

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§ 70.4 Definitions.

"Effective dose equivalent" means the sum of the products of the dose equivalent to the body organ or tissue and the weighting factors applicable to each of the body organs or tissues that are irradiated. Weighting factors are: 0.25 for gonads. 0.15 for breast. 0.12 for red bone marrow. 0.12 for lungs. 0.03 for thyroid. 0.03 for bone surface. and 0.06 for each of the other five organs receiving the highest dose equivalent.

"General emergency" means events may occur, are in progress, or have occurred that could cause the release of radioactive materials sufficient to cause doses offsite exceeding 1 rem effective dose equivalent or 5 rems to the thyroid or an intake of 2 miligrams of soluble uranium.

"Site area emergency" means events may occur, are in progress, or have occurred that require offsite response but are not expected to cause a release of radioactive materials sufficient to cause doses offsite to exceed 1 rem effective dose equivalent or 5 rems to the thyroid or an intake of 2 milligrams of soluble uranium.

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12. In § 70.22, paragraph (i) is revised to read as follows:

§ 70.22 Contents of applications.

(i)(1) Each application to possess enriched uranium or plutonium in quantities such that a criticality accident alarm system is required, uranium hexafluoride in excess of 50 kilograms in a single container or 1000 kilograms total, or in excess of a 2 curies of plutonium in unsealed form or on foils or plated sources, must contain either:

(i) An evaluation showing that the maximum dose to a member of the public offsite due to a release of radioactive materials under reasonable and plausible circumstances would not exceed 1 rem effective dose equivalent or an intake of 2 milligrams of soluble uranium, or

(ii) An emergency plan for responding to the radiological hazards of an accidental release of special nuclear material and to any associated chemical hazards directly incident thereto.

(2) One of more of the following factors may be used to support an evaluation submitted under paragraph (i)(1)(i) of this section:

 (i) The radioactive material is physically separated so that only a portion could be involved in an accident;

 (ii) All or part of the radioactive material is not subject to release during an accident or to criticality because of the way it is stored or packaged;

(iii) In the case of fires or explosions, the release fraction would be lower than 0.001 due to the chemical or physical form of the material:

(iv) The solubility of the material release would reduce the dose received:

(v) The facility design or engineered safety features in the facility would cause the release fraction to be lower than 0.001:

(vi) Operating restrictions or procedures would prevent a release large enough to cause a member of the public offsite to receive a dose exceeding 1 rem effective dose equivalent; or

(vii) Other factors appropriate for the specific facility.

(3) Emergency plans submitted under paragraph (i)(1)(ii) of this section must include the following information:

(i) Facility description: A brief description of the licensee's facility and area near the site.

(ii) *Types of accidents:* An identification of each type of accident for which protective actions may be needed.

(iii) Classification of accidents: A classification system for classifying accidents as site area emergencies or general emergencies.

(iv) Detection of accidents: Identification of the means of detecting

each type of accident in a timely manner.

(v) Mitigation of consequences: A brief description of the means and equipment for mitigating the consequences of each type of accident, including those provided to protect workers onsite, and a description of the program for maintaining the equipment.

(vi) Assessment of release: A brief description of the methods and equipment to assess releases of radioactive materials.

(viii) Responsibilities: A brief description of the responsibilities of licensee personnel should an accident occur, including identification of personnel responsible for promptly notifying offsite response organizations and the NRC: also responsibilities for developing, maintaining, and updating the plan.

(viii) Notification and coordination: A commitment to and a brief description of the means to promptly notify offsite response organizations and request offsite assistance, including medical assistance for the treatment of contaminated injured onsite workers when appropriate. A control point must be established. The notification and coordination must be planned so that unavailability of some personnel, parts of the facility, and some equipment will not prevent the notification and coordination. The licensee shall also commit to notify NRC immediately after notification of the appropriate offsite response organizations and not later than one hour after the licensee declares an emergency.

(ix) Information to be communicated: A brief description of the types of information on facility status, radioactive releases, and recommended actions, if necessary, to be given to offsite response organizations and to the

(x) Training: A Brief description of the training the licensee will provide workers on how to respond to an emergency and any special instructions and orientation tours the licensee would offer to fire, police, medical and other emergency pi rsonnel.

(xi) Safe shutdown: A brief description of the means of restoring the facility to a safe condition after an accident.

(xii) Exercises and audits: Provisions for conducting quarterly communications checks with offsite response organizations and annual onsite exercises to test response to simulated emergencies. Quarterly communications checks with offsite response organizations shall include the check and update of all necessary telephone numbers. The licensee shall

invite offsite response organizations to participate in the annual exercises. Participation of offsite response organizations in annual exercises although strongly recommended is not required. Exercises must use scenarios not known to exercise participants. The licensee shall conduct an audit of each exercise using individuals not having direct implementation responsibility for the plan. Audits must evaluate the appropriateness of the plan, emergency procedures, facilities, equipment, training of personnel, and overall effectiveness of the response. Deficiencies found by the audits must be corrcted.

(xiii) Hazardous chemicals: A description sufficient to demonstrate the applicant's compliance with the Emergency Planning and Community Right-to-Know Act of 1988, Title III, Pub. L 99-499, if applicable to the applicant's activities at the proposed place of use of the special nuclear material.

(4) The licensee shall allow the offsite response organizations expected to respond in case of an accident 60 days to comment on the licensee's emergency plan before submitting it to NRC. The licensee shall provide any comments received within the 60 days to the NRC with the emergency plan.

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§ 70.22 [Amended]

13. In § 70.22 (i). footnote 3 is removed.

§ 70.23 [Amended]

14. In § 70.23(a)(11), footnote 2 is removed and reserved. 15. In § 70.32, paragraph (i) is revised

to read as follows:

§ 70.32 Conditions of licensee. .

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(i) Licensees required to submit emergency plans in accordance with § 70.22(i) shall follow the emergency plan approved by the Commission. The licensee may change the approved plan without Commission approval if the changes do not decrease the effectiveness of the plan. The licensee shall furnish the Director of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, with a copy to the appropriate NRC Regional Office specified in Appendix D, Part 20 of this chapter, a copy of each change within six months after the change is made. Proposed changes that decrease the effectiveness of the approved emergency plan shall not be implemented without

prior application to and prior to approval by the Commission.

Dated at Washington, DC, this 14th day of April. 1987.

For the Nuclear Regulatory Commission. John C. Hoyle.

Acting Secretary of the Commission. [FR Doc. 87-8801 Filed 4-7-87; 8:45 am] BILLING CODE 7580-01-4