



Federal Emergency Management Agency

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GUIDANCE MEMORANDUM EV-2

PROTECTIVE ACTIONS FOR SCHOOL CHILDREN

PURPOSE

This Guidance Memorandum (GM) is intended for Federal officials to aid them in evaluating emergency plans and preparedness for school children during a radiological emergency. This guidance is also intended for State and local government officials and administrators of public and private schools, including licensed and government supported pre-schools and day-care centers, for developing emergency response plans and preparedness for protecting the health and safety of students.

Background

The joint Federal Emergency Management Agency (FEMA) and Nuclear Regulatory Commission (NRC) guidance document, NUREG-0654/FEMA-REP-1, provides criteria for protective actions for persons, including school children, within the plume exposure pathway emergency planning zone (EPZ) in the event such protective actions are needed in response to a radiological emergency at a commercial nuclear power plant. The need to address the issue of protective actions for school children stems from both the lack of detailed guidance on this issue and the expressed interest for such guidance from public interest groups, State and local government officials and Federal Regional officials.

Scope

Guidance is provided in this GM on school evacuation in two contexts: for developing emergency response plans and for conducting and evaluating exercises. The primary method for protecting school children examined is evacuation to relocation centers. This GM is a companion of the guidance on evacuation contained in GM 21, Acceptance Criteria for Evacuation Plans. This specific guidance related to school children is appropriate because of the interest and concern expressed about protecting the health and safety of school children during a radiological emergency at a commercial nuclear power plant.

School Evacuation Considerations

Evacuation to Relocation Centers. The evacuation of school children under the continuous supervision of teachers and administrators from a school to a relocation center is a viable and reasonable approach when confronted with a radiological emergency. The decision to implement a protective action recommendation to evacuate to a relocation center should be tied to the nuclear power plant's emergency action level classification.

Some emergency response plans include the protective action strategies of early evacuation and early dismissal. If State and local governments select one of these strategies, then they ought to address it in their emergency response plan. If a State or local government elects to employ early evacuation or early dismissal, this guidance is sufficiently flexible to cover both strategies. All of the general guidance for evacuation would apply with the addition of the special considerations for early protective actions at the end of this GM.

The recommendation to school officials to evacuate the school children to relocation centers should specify the area(s) to be included in the evacuation. For example, the evacuation could include schools within the two-mile radius of the plant and within three downwind sectors beyond the two-mile radius.

Prompt evacuation is not advisable during exceptional situations such as having to drive through a radioactive plume or into a severe blizzard. Under these circumstances, the special population including school children, handicapped and/or immobile persons should be temporarily sheltered and subsequently evacuated, if need be, as soon as conditions permit.

School children and other special population evacuees (see also GM 26, REF for Handicapped Persons) should be relocated outside the ten-mile EPZ in predesignated facilities to ensure that the accountability, safety and security of the evacuees can be maintained and to minimize vehicular traffic and telephone use within the EPZ.

General Considerations. For whatever protective action options are contained in emergency plans, the plans should include provision for notifying parents and guardians (e.g., through the Emergency Broadcast System (EBS)) of the status and location of their children during a radiological emergency. Also, the plans should document the decision making process and criteria used for developing emergency procedures for implementing protective action measures for school children. Acceptance criteria for developing and evaluating emergency planning and preparedness for school children are provided below.

Planning Standard And Evaluation Criteria

J. Protective Response

Planning Standard

A range of protective actions have been developed for the plume exposure pathway EP2 for emergency workers and the public. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EP2 appropriate to the locale have been developed. (NUREG-0654/FENA-REP-1, p. 59)

Evaluation Criteria

J.9. Each State and local organization shall establish a capability for implementing protective actions based upon protective action guides and other criteria. This shall be consistent with the recommendations of EPA regarding exposure resulting from passage of radioactive airborne plumes (EPA-520/1-75-001), and with those of DHEW (DHHS)/FDA regarding radioactive contamination of human food and animal feeds as published in the Federal Register of December 15, 1978, (43 FR 58798) October 22, 1982 (47 FR 47073).*

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

J.10.a. Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas and shelter areas (identification of radiological sampling and monitoring points shall include the designators in Table J-1 or an equivalent uniform system described in the plan);

J.10.b. Maps showing population distribution around the nuclear facility. This shall be by evacuation areas (licensees shall also present the information in a sector format);

J.10.c. Means for notifying all segments of the transient and resident population;

J.10.d. Means for protecting those persons whose mobility may be impaired due to such factors as institutional or other confinement;

* For your information and reference, the 12/15/78, DHHS guidance has been superseded by the 10/22/82, guidance.

- J.10.g. Means of relocation;
- J.10.h. Relocation centers in host areas which are at least five miles, and preferably ten miles, beyond the boundaries of the plume exposure EPZ (See K.8);
- J.10.i. Time estimates for evacuation of various sectors and distances based on a dynamic analysis (time-motion study under various conditions) for the plume exposure pathway EPZ (See Appendix 4);

Appendix 4. Evacuation Time Estimates Within the Plume Exposure Pathway Emergency Planning Zone

Appendix 4.II.C. Special Facility Population

An estimate for this special population group shall usually be done on an institution-by-institution basis. The means of transportation are also highly individualized and shall be described. Schools shall be included in this segment (p. 4-3).

Areas of Review

These evaluation criteria address the key planning requirements concerning the evacuation of students from schools. The review under these criteria is intended to ensure that adequate planning and preparedness capabilities exist to enable school officials to evacuate students in the event such a protective action is necessary during a radiological emergency. This guidance covers those actions from the initial notification to school officials of the need, to evacuate the students to their arrival at relocation centers or other protective actions. In addition to these actions, the guidance also addresses time frames for accomplishing the protective actions.

For purposes of definition and reference to NUREG-0654/FEMA-REP-1, we are including "schools" among the types of institutions, the mobility of whose population may be impaired during a radiological emergency, because most students are dependent on school officials for transportation to and from their residences. (See evaluation criterion J.10.d.) Also, "schools" are explicitly referenced in Appendix 4 on pages 4-2 and 4-3 as a type of "Special Facility Population" for which evacuation time frames are needed on an institution-by-institution basis. The term, "schools," as used in this GH refers to public and private schools, and licensed or government supported pre-schools and day-care centers.

Acceptance Criteria

An emergency plan will typically be acceptable under these evaluation criteria if it fully addresses the following emergency functions for the evacuation of, or other appropriate protective measures for, school children.

Local governments should take the initiative to identify and contact all public and private school systems within the designated plume exposure pathway EPZ to assure that both public and private school officials address appropriate planning for protecting the health and safety of their students from a commercial nuclear power plant accident. The planning of both the public and private school officials should be closely coordinated with that of the local government.

Local governments should ensure that appropriate organizational officials assume responsibility for the emergency planning and preparedness for all of the identified schools. Local governments should also ensure that the emergency planning undertaken by these organizations is integrated within the larger offsite emergency management framework for the particular nuclear power plant site.

In accordance with the guidance contained in GH 21, the evacuation planning undertaken may be developed in three contexts:

- (1) Part of the existing radiological emergency preparedness plans,
- (2) A separate annex of an existing integrated emergency plan for many types of disasters and emergencies or
- (3) A separate evacuation plan for all of the schools in each school system.

School officials should document in the plan the basis for determining the proper protective action (e.g., evacuation, early preparatory measures, early evacuation, sheltering, early dismissal or combination) including:

- * Identification of the organization and officials responsible for both planning and effecting the protective action.
- * Institution-specific information:
 - Name and location of school;
 - Type of school and age grouping (e.g., public elementary school, grades kindergarten through sixth);

- Total population (students, faculty and other employees);
 - Means for effecting protective actions;
 - Specific resources allocated for transportation and supporting letters of agreement if resources are provided from external sources and
 - Name and location of relocation center(s), and transport route(s), if applicable.
- * If parts of the institution-specific information apply to many or all schools, then the information may be presented generically.
 - * Time frames for effecting the protective actions.
 - * Means for alerting and notifying appropriate persons and groups associated with the schools and the students including:
 - Identification of the organization responsible for providing emergency information to the schools;
 - The method (e.g., siren and telephone calls) for contacting and providing emergency information on recommended protective actions to school officials;
 - The method (e.g., siren, tone alert radios and telephone calls) for contacting and activating designated dispatchers and school bus drivers; and
 - The method (e.g., EBS messages) for notifying parents and guardians of the status and location of their children.

Planning Standard and Evaluation Criteria

N. Exercise and Drills

Planning Standard

Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities. Periodic drills are (will be) conducted to develop and maintain key skills. Inadequacies identified as a result of exercises or drills are (will be) corrected. (NUREG-0654/FEMA-REP-1, p. 71)

Evaluation Criteria

- N.l.a.** An exercise is an event that tests the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. The emergency preparedness exercise shall simulate an emergency that results in offsite radiological releases which would require prompt response by offsite authorities. Exercises shall be conducted as set forth in NRC and FEHA rules.
- N.l.b.** An exercise shall include mobilization of State and local personnel resources adequate to verify the capability to respond to an accident scenario requiring response. The organization shall provide for a critique of the biennial exercise by Federal and State observers/evaluators. The scenario should be varied from exercise to exercise such that all major elements of the plans and preparedness organizations are tested within a six-year period. Each organization should make provisions to start an exercise between 6:00 p.m. and 4:00 a.m. once every six years. Exercises should be conducted during different seasons of the year within a six-year period in order to provide for exercising under various weather conditions. Some exercises should be unannounced.
- N.4.** Official observers from Federal, State or local governments will observe, critique and evaluate the required exercises. A critique shall be scheduled at the conclusion of the exercise to evaluate the ability of organizations to respond as called for in the plan. The critique shall be conducted as soon as practicable after the exercise, and a formal evaluation should result from the critique.

Areas of Review

These evaluation criteria address exercise-related requirements and their evaluation by Regional Assistance Committee (RAC) staff. In addition to identifying capabilities for evacuating students or effecting early dismissal as a "major element" of an organization's emergency response plan, suggestions are provided for conducting interviews with officials from schools during an exercise.

* These provisions conform to the revision of evaluation criterion N.l.b. of NUREG-0654/FEHA-REP-1 promulgated in GM PR-1, Policy on NUREG-0654/FEHA-REP-1 and 44 CFR 350 Periodic Requirements.

Acceptance Criteria

Requirements are set forth in FEMA (44 CFR 350.9) and NRC (10 CFR 50, Appendix E.IV.F.1-5.) rules for conducting periodic exercises and drills. Under these requirements, organizations with assigned responsibilities for protecting students are required to demonstrate through exercises their ability to implement emergency procedures contained in their emergency response plans. However, the public (e.g., school children) are not required to participate in exercises. Further, the actual use of school vehicles is optional. The demonstration of each organization's capability to implement these measures in exercises will be evaluated by FEHA and other Federal officials.

The following functions should be demonstrated and evaluated in exercises in which the evacuation of students is necessitated by events in the exercise scenario:

1. Alerting and notification of appropriate school officials by local emergency officials with respect to status of radiological emergency and need to implement protective actions, including evacuation;
2. The contacting and notification of dispatchers and school bus drivers, as appropriate, to inform them of any potential or actual need for them to transport students and
3. The provision of information to the parents and guardians, as appropriate, concerning the status and intended location or destination of the students.

With respect to simulating the evacuation of school children in an exercise, the following guidelines are provided.

1. At the discretion of school officials, the bus driver may proceed to drive a school bus to a relocation center, as necessitated by the simulated exercise events.
2. An exercise evaluator will interview the relevant personnel at the EOC's, the School Superintendent's office, the School Principal's office, and the Dispatcher's office, as well as the bus driver to determine their awareness of and preparedness for the evacuation of the school children. Pertinent questions for the exercise evaluator pertaining to the dispatcher and bus driver include:

Emergency Operations Center(s) - (EOC)

One or more EOC's may be involved in decisionmaking to effect the evacuation of schools. For example, in some States, local school evacuation must be coordinated with

State officials. In such cases, observers may need to concurrently evaluate evacuation or other protective action decisionmaking in both State and local EOC's.

1. Who made the decision for evacuation or other protective action of schools and when?
2. What specific actions (evacuation, early dismissal or shelter) are incorporated in the decision and what specific sectors/schools are impacted by this decision?
3. When and from whom did the EOC receive information about this decision?
4. When and whom did the EOC staff contact to implement this decision?
5. Did EOC staff undertake actions to assist school evacuation or other protective action such as securing guides, buses and assistance in traffic control?

School Superintendent's Office

1. When and from whom did the superintendent receive protective action instructions or recommendations? What specific instructions or recommendations did the superintendent receive?
2. What actions did the superintendent take to implement these instructions or recommendations? Whom did the superintendent contact and when?

School Principal's Office

1. When and from whom did the principal receive protective action instructions? What specific instructions did the principal receive?
2. What means of communications (e.g., telephone, tone alert) were used to provide these instructions? Did this means of communication function adequately to provide accurate and timely information?
3. What actions did the principal take to implement these instructions? Whom did the principal contact and when?

Dispatcher

1. When and from whom did the dispatcher receive the instructions? What specific instructions were received?

2. What means of communications were used? Were the communications between the dispatcher and his/her supervisor and the dispatcher and the bus driver adequate to convey appropriate and timely information?
4. When did the dispatcher initiate notification to bus drivers and guides to implement the evacuation or other protective action plan? What specific instructions were provided by the dispatcher? How long did it take to contact the bus driver to give the order to evacuate?

Bus Drivers/Guides

1. When and from whom did the bus drivers and guides receive instructions? What instructions were received?
2. When did the driver arrive at the school?
3. Did the driver have an adequate map or knowledge of the route?
4. Was the driver aware of any agreement between the drivers and local authorities for them to provide their services in the event of a radiological emergency?
5. What means of communications were used? Were communications with the dispatcher adequate to convey appropriate and timely information?
6. Did the exercise play necessitate a change in instructions to bus drivers and guides? If so, what were these new instructions? What means of communications were used to contact the bus drivers and guides? Was this means of communication adequate?

Radiation Monitoring and Protection for Bus Drivers and Guides (as designated emergency workers)

1. Were bus drivers and guides provided with specific means for radiation monitoring (e.g., dosimeters and film badges) and exposure control (e.g., potassium iodide, respiratory protection)?
2. Were bus drivers and guides trained in the proper use of these instruments and materials?
3. Were instructions provided to the bus drivers and guides for the authorization and use of potassium iodide?

4. During the exercise, were instructions given to alter evacuation/early dismissal routes in order to avert radiation exposure by bus drivers and guides?

Relocation Centers/Neighborhoods (for early dismissal)

1. When did the buses arrive at the relocation center(s)/neighborhood(s)?
2. According to the exercise scenario events, did the bus drivers go to the appropriate relocation centers/neighborhoods? Did they arrive in a timely manner to avert radiation exposure?

Provision of Emergency Instructions to Parents and Guardians

1. Was information provided to parents and guardians on the location of students, e.g., relocation centers, early dismissal to residences or sheltering? When was this information provided?
2. What means (e.g., EBS messages and telephones) were used to provide this information?
3. Was this information provided in a timely and accurate manner according to the exercise scenario events?

In some cases, answers to the above questions will be secured from direct observation of the simulated evacuation, thus obviating the interviews.

Special Considerations for Implementing Protective Actions

In addition to the guidance above on school evacuation, the following special considerations are provided for use when implementing other protective actions.

Early Preparatory Measures. In order to facilitate the implementation of protective actions, the following measures should be considered:

- a. Inventory resources for mobilization; e.g., school buses and drivers.
- b. Curtail extramural or extra curricular activities so that school children are available for prompt evacuation, if it becomes necessary.

- c. Select the method (e.g., EBS) and the draft message to notify parents and guardians of the status or destination of their children if it becomes necessary to take protective actions. -
- d. Assure that the relocation center is available in the event evacuation is necessary.

Early Evacuation. Early evacuation is accelerating the implementation of protective actions for school children prior to the activation of protective actions for the general public. For example, if a plan calls for an evacuation of the public at the "General Emergency" level, then protective actions for school children would be initiated at the "Site Area Emergency" level. In the event of a rapidly deteriorating situation, school children would be evacuated simultaneously with the general public.

Early Dismissal. While early dismissal of school children is not addressed as an evacuation option per se in NUREG-0654/FEMA-REP-1, it is incorporated in this GRI as a method for accomplishing the intent of evaluation criteria under planning standard J because of its use for other types of emergencies such as imminent natural hazards (e.g., snowstorms). Hazards such as a school fire or boiler failure have a limited hazardous area, unlike an extended radiological plume; therefore, the early dismissal of students to their parents and guardians may be prudent. The greater area affected by severe weather, such as a blizzard, usually does not jeopardize the health and safety of the school children if they are dismissed early before the storm or remain sheltered in the school. In contrast, the radiological plume may make both the school and home undesirable shelters if both are in the plume exposure pathway, or if a fast moving event could escalate to while the children were in transit. Further, in the presence of unstable meteorological conditions it is difficult to project the movement of radiological releases. Therefore, the unique characteristics of a radiological emergency place limits on the use of early dismissal as a viable protective action, particularly in heavily populated areas.

Evacuation Combined With Early Dismissal. Early dismissal used in conjunction with evacuation as described above provides another option. The school children who reside in a sector of the ten-mile EPZ not effected by the potential danger or outside the ten-mile EPZ could be dismissed early to their parents, guardians or other supervision while those students whose homes are potentially in the path of a radioactive plume would be evacuated to designated relocation centers.

Sheltering. Under certain circumstances sheltering may be the preferred protective action (e.g., when there are hazardous road conditions or the possibility exists that evacuation may result in transporting students through the plume). Sheltering may be used as a primary or temporary protective action depending upon the characteristics of the radiological release and the status of weather and road conditions.

GM EV-2 is issued subsequent to review and concurrence by NRC staff who have determined that it provides clarification and interpretation of existing NUREG-0654/FEMA-REP-1 criteria applicable to protective actions for "special populations."