

Radiological Incidents

I. PURPOSE

This annex provides for the organized effort necessary to minimize the effects of radiation on the people, resources and the environment through detection and implementation of preventive and remedial measures.

II. SITUATION

There are several types of situations that have the potential to cause a radiological incident.

1. Fixed Facilities - Facilities that produce, process, or store radiological materials should be identified as well as facilities for treatment, storage or disposal of radiological wastes. Hospitals that have nuclear medicine departments should also be identified.
2. Transportation Routes - Areas at risk for transportation incidents lie along highways, rail lines and at airports. Information should be obtained on spent fuel shipment routes and the routes for other radiological shipments. There is also a risk of incidents involving an airline crash.
3. Nuclear Power Plants - Off-site planning for radiological incidents at nuclear power plants is treated separately from the all-hazards emergency operations plan.
4. Nuclear Detonation - Nuclear weapons are maintained by the United States and a number of foreign powers. The possibility of one or more of these weapons being detonated accidentally or deliberately by terrorists or a full-scale strike against the U.S. should be considered. Even if nuclear detonations were distant from the area, a system would be necessary to detect and access the radiation hazard.

III. ASSUMPTIONS & PLANNING FACTORS

1. In the event of a peacetime radiological incident, assistance will be available from the state and federal governments and from the nuclear industry to detect radiation, monitor it and predict its spread.

2. First responder organizations, particularly fire, medic and law enforcement, will be part of the local radiological emergency support program and should accept appropriate training for such response.
3. Based on previous history, the chance of a radiological incident is not a significant threat to people or the environment.

IV. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

The Incident Command will be used for on-scene management of a response to a radiological incident.

V. CONCEPT OF OPERATIONS

In an emergency involving radioactive materials the following elements must be considered:

A. Reporting Requirements

Radioactive materials are closely regulated by federal and state laws for reporting, handling, and transporting these kinds of materials.

1. Fixed facilities are required to report their radioactive materials.
2. Highway and railway shipments of radioactive materials are also required to report the material to be shipped, when it will be shipped, and the shipment route to either the State Emergency Management Agency (Iowa EMD) and/or to the IDPH and IDOT.

B. Response Capability

1. State

a. Notification of an Incident - Point of

Contact

1. Emergency Management Division - 24 hour Duty Officer: 515-281-3231.
2. Department Of Public Health, Bureau of Radiological Health - 515-281-3478.
(Notification may be made through the Iowa EMD Duty Officer also)
3. Department of Natural Resources -
515-281-8694

b. Response Teams - Radiological Response Teams

are available from the state to respond to an incident.

c. Additional State Agency Assistance

1. Civil Support Team
2. Iowa Department of Transportation
3. Iowa State Highway Patrol

2. Local

There are no trained response agencies or personnel in Lyon County therefore we would rely on the Hazmat Response Team and other State agencies

a. Fire departments and law enforcement agencies as a minimum the awareness level training for hazardous materials.

b. Health and Medical Services -
Merrill Pioneer Community Hospital can handle victims involved in a Radiological Incident.
The Lyon County Ambulance Staff have been trained to the Operations Level for Hazardous Materials.

c. Emergency Management - IEMD can provide a list
of people who have received radiological training through FEMA or Iowa Emergency Management Division.

C. Monitoring Equipment

Radiological equipment for local organizations is provided, calibrated and maintained by the Iowa Emergency Management Division. The following types of equipment are available;

1. Survey Instruments.

Portable instruments, such as the Geiger counter or ionization chamber, used to detect and measure ionizing radiation per unit of time. They provide the radiation information required for locating radioactive materials or contamination, and for estimating the degree of the hazard.

a. CDV-700 Low-Range Radiological Survey Meter, Geiger Counter, probe type, beta-gamma

discriminating, ranges 0-0.5, 0-5, and 0-50 mR/hr

- b. CDV-715 & CDV-717 High-Range Radiological Survey Meter, Ionization Chamber, gamma only, ranges 0-0.5, 0-5, 0-50, and 0-500 R/hr
- c. CDV-720 High-Range Radiological Survey Meter, Ionization Chamber, beta-gamma discriminating, gamma measurement, ranges 0-5, 0-50 and 0-500 R/hr

2. Dosimeters.

Dosimeters are used for measuring and registering the total accumulated exposure to ionizing radiation. Dosimeters respond to (measure) gamma radiation only.

3. Dosimeter Charger.

A device used to apply the proper electrostatic charge to re-zero dosimeters.

D. Accident Assessment

- 1. First on-the-scene responders should follow the appropriate "Action Guides" for radioactive materials found in the North American Emergency Response Guidebook developed in part by the U.S. Department of Transportation. These Action Guides conservatively assume minimal specialized training by first responders; hence, response actions beyond those indicated in this Guide would depend on the particular accident contingencies and the expertise of the responders.
- 2. Since specialists with the expertise to assess the degree of the radiological hazards in an accident will seldom be at the accident in the initial response phase, provisions should be made for rapid and reliable communication linkages between emergency first responders and the radiological authorities not at the scene.
- 3. Trained state and local radiological response teams should be established. Provisions should be made for rapid notification and deployment capabilities of these teams on a 24-hour basis. Procedures for response by adequately trained teams from appropriate jurisdictions (i.e., state, local) should have responsibility for the following functions:

- a. Assess need for first aid and lifesaving efforts;
- b. Determine if radioactive materials and other non-radioactive hazardous materials, such as flammables and corrosives, are involved and, if so, which are separate hazards or which might interact with the radioactive materials or their packaging;
- c. Develop procedures for controlling ingress and egress from the accident scene;
- d. Develop and adopt safety measures for response team members to prevent injury from environmental factors not related to radioactive or other hazardous materials, such as avoiding electric shock, falls, and fire;
- e. Develop methods for obtaining all possible information regarding the type of packaging; information from markings, labeling, and placarding; the type, quantity, and chemical form of the radioactive material involved; and observable indicators of a release of the radioactive material from packaging;
- f. Obtain information on the accident including location, condition of radioactive materials packages, fire potential, weather/wind conditions, and any other relevant information;
- g. Determine the capability of radiological survey instruments to detect or measure the specific radionuclide as identified on shipping papers or labels;
- h. Measure radiation levels, as appropriate, if capability exists (see f and g above);
- i. Perform preliminary public hazard/threat assessments, if needed, based on observation, measurements, and actual or potential releases;
- j. Develop criteria for determining need and methods for taking environmental samples.

E. Protective Actions for the Public

The three options for protecting the population are

access control, evacuation and shelter. Local officials will implement one or more options, depending on the best available estimate of the disaster situation.

1. Controlling access to the area should be included as a method here. It is the most prudent action to be taken until experts from the Department of Public Health or Natural Resources arrive on-scene.
2. Evacuation will be considered based on the condition of the area to be evacuated, the condition at the selected destination, and any risk of exposure while enroute. Evacuation operations are discussed in Annex E.
3. Sheltering in place will depend on the relative protection afforded by the structures in the community. People will be advised to stay indoors and reduce the airflow into the structure. In-place shelter is discussed in Annex J.

F. Decontamination

For decontamination procedures for personnel, contact the Department of Public Health, Bureau of Radiological Health, or the local hospital that has radiological capabilities. The Department of Public Health, Bureau of Radiological Health should be contacted regarding decontamination of facilities, equipment, and the environment.

G. Cleanup

1. The responsibility for selecting and implementing the appropriate countermeasures is assigned to the Incident Commander in coordination with appropriate technical resources.
2. The spiller is responsible, according to state and federal law, for the costs of all cleanup and countermeasures. The Incident Commander, in conjunction with requested state and federal resources (IDPH, DNR and EPA), is responsible for determining these measures and monitoring the cleanup and disposal of contaminated materials.

VI. **ADMINISTRATION AND LOGISTICS**

Provisions should be made for record keeping and

documentation of key data related to the incident.