

Food Protection Guide for Emergency Managers

If an accident were to occur at a nuclear power plant in Minnesota, actions need to be taken to protect people from agricultural products that have been exposed to radiological contamination.

Control Zones

The Minnesota Department of Agriculture (MDA) will implement agricultural control zones, limit the transportation of products in and out of the control zones, and prevent them from being used in the food supply.

Agricultural control zones are geographic boundaries used to restrict the movement of agricultural products and foodstuffs that have been potentially contaminated by radiological material until sampling can be done to determine that the products are safe to be consumed. The movement of agricultural products is done through special permitting. The geographic boundaries of the agricultural control zone may be county and township borders or areas with edges defined by roadways or rivers. Some agricultural products may require their own specific control zone.

When Does Food Protection Begin?

Food protections begin in the plume phase.

Alert: No actions taken.

Site Area Emergency: A livestock advisory is issued for the entire 50-mile radius surrounding the plant. The Department of Public Safety will issue a media release recommending sheltering of exhibition/large animals.

General Emergency: The MDA establishes an agricultural control zone in areas where protective actions (evacuate or shelter in place)

have been mandated. If a release occurs, the control zone will include all counties 50 miles downwind from the plant.

Additional controls may be put in place depending on the data obtained from field sampling during the intermediate ingestion phase.

Additional agricultural control zones are mandated when lab analysis indicates radiation levels exceed strict Food and Drug Administration (FDA) guidelines for annual consumption.

Protective Action Guidelines

The guidelines issued by the FDA establish revised protective action guidelines (PAG) that restrict:

- Internal whole body radiation dose (committed effective dose equivalent - CEDE) to 0.5 Rem
- or
- Internal radiation dose to a single organ (committed dose equivalent - CDE) to 5 Rem, whichever is most limiting.

The FDA PAGs are expressed in terms of measurable quantities called derived intervention levels (DILs). A DIL corresponds to the concentration of radioactivity in food, which could lead to an individual receiving a dose equal to or greater than the FDA PAG if no intervention was taken for one year.

Basis for Guidelines

FDA guidance is based on preventing contaminated items from entering the food chain. The FDA limit is based on an individual

consuming that product in proportion to their total diet for one year.

This limit is conservative to avoid immediate health impact but encourage urgency in taking a protective action. The high priority item is milk (from any source), because grazing concentrates the amount of radioactive iodine in milk and poses the greatest risk exposure to a child's thyroid.

Other food products and feed are dependent upon the growing season and when the product is being taken to market.

Note: Counties within the 50-mile ingestion pathway zone (IPZ) will already be in the process of establishing agricultural control zones, because control zone decisions are made during the plume phase. This needs to be taken into consideration during protective action recommendation (PAR) approval and initial implementation planning.

Protective Action Recommendation (PAR)

The MN State Emergency Operations Center Planning and Assessment Center (PAC) and Intermediate Phase Task Force (IPTF) will develop the PAR for food protection.

- A map detailing the affected area will be provided.
- The MDA will be asked to prepare a list of the growers, producers, and distributors affected in relation to the growing season.
- A technical advisor will explain this PAR in terms of risk level, so that the state incident manager (SIM) and operations chief can communicate it to the governor or governor's authorized representative (GAR), state agencies, and counties.
- After the PAR is coordinated with state and county agencies, it will be given to the GAR

for approval. When approved, it becomes a protective action decision (PAD).

- A media release explaining the PAD will be made through the joint information center (JIC).
- An initial implementation plan will be developed after the PAR is approved.

Considerations for Implementation of Food Protection

Food control decisions emphasize public protection and balance the short- and long-term implications for economic damage to the state.

The following guidance may be used to develop an initial implementation plan:

1. A high priority in developing the sample plan is to survey farms inside the agricultural control zone(s) to determine if contamination is present with the goal of rezoning the area (IPTF, MDA).
2. Review normal food protections and processing actions to mitigate any additional cross-contamination and determine what actions need to be taken regarding processors outside the control zone (MDA).
3. Discuss whether stations can be set up where produce, food or feed in transit may go to be tested and reimbursed for added expense and whether food is condemned (state, American Nuclear Insurers [ANI]).
4. Request that the county assist with designation of testing and reimbursement sites; e.g., identify large areas where many vehicles may be parked, such as county fairgrounds if not in use (state, county).
5. Designate how control points should be set up. Is law enforcement required at each intersection around the embargoed area (state, county)?

6. Designate intersections where the control points will be located and determine whether extra staffing is needed (State Patrol, county).
7. Develop a media release for residents and non-ambulatory populations regarding safe food/water handling (JIC).
8. Contact rail and road transporters to return shipments for testing (MNDOT).
9. Determine where products from agricultural control zones will be disposed (state, county, MDA, MPCA).
10. Ensure that ingestion brochure distribution is taking place in the counties (state).
11. Discuss strategies weighing the minimization of the agricultural control zone short-term economic damage against the long-term reputation of Minnesota agriculture. Develop strategies for food products that exceed the DIL (IPTF, state).
12. Issue accurate and coordinated media releases.
13. Request PIO from the county or local jurisdiction to come to the JIC.
14. Coordinate state agencies for a media release.

Long-Term Ingestion Issues

Hunting and Fishing Considerations

Hunting and fishing restrictions may be larger in area than that of the agricultural control zone(s) due to the transitory nature of wildlife and fish. The season of the year may also play a role in this recommendation.

The Minnesota Department of Natural Resources (DNR) is the agency responsible for implementation of restriction and enforcement.

Milk protection considerations

1. What types of protective actions would be imposed, and by whom, to protect the milk supply?
2. How many dairy farms were affected?
3. How would you enforce the restriction of non-permitted food products?
4. How will you conduct a long-term milk sampling program?
5. How will contaminated feed and milk be disposed of?
6. How will information regarding the PADs be distributed to farmers?
7. Is it likely that all dairy farms will be unable to put livestock on stored feed and covered water?
8. How is animal feed obtained, paid for and transported into the agricultural control zone?

Food protection considerations

1. What protective actions would be imposed to protect the food supply?
2. What crops are in various stages of growing/harvesting? Will they be treated the same as one another?
3. Will contaminated farms be able to plant next year?
4. What is an estimated value for affected farms/crops/agricultural products? To whom do you provide this information?
5. How many food processing plants were affected?
6. How will food product movement within the state and outside the state be controlled?
7. How will contaminated food/crops be disposed of?

8. What steps can be taken to insure the non-contamination of Minnesota agricultural products?
9. Will personal gardens be sampled? How?
10. Are food shortages anticipated?

Livestock protection considerations

1. What protective actions would be imposed to protect livestock?
2. What services would farmers require for care of livestock (particularly if they are unwilling to re-enter to tend their herds)?
3. What methods will be used to dispose of contaminated farm animals and animals that may have died or need to be euthanized?
4. How would you sample meat products and deal with public perception of mass contamination?
5. Would you decontaminate farm animals? How?

Wildlife protection considerations

1. What is the present hunting and fishing season?
2. What protective actions would you make regarding fish, game, fowl, etc.?
3. What is your strategy for long-term sampling?
4. Who is responsible for mushroom and berry picking restrictions and sampling?
5. Where restrictions should be placed?
6. Is the river safe for fishing and recreational use?