State of Illinois
Illinois Emergency Management Agency

Emergency Information for Illinois Farmers, Food Processors and Distributors Near Nuclear Power Stations in Illinois

IEMA

KEEP THIS BOOKLET

This booklet contains information that will be useful to you in the event of an accident at any nuclear power station in Illinois

THE PURPOSE OF THIS BOOKLET

This booklet provides emergency information for the agricultural community within a 50-mile radius of the nuclear power stations in Illinois (Braidwood, Dresden, LaSalle, Byron, Clinton and Quad Cities nuclear power stations). It contains information concerning how you will be notified and what procedures you should follow in the unlikely event of a radiological emergency at any of these nuclear power stations.

If an emergency results in a release of radioactive material to the environment, you may be advised to take actions to protect your family, farm animals and agricultural products. This information, along with specific instructions you will receive over the local emergency broadcast radio stations or through other official news releases, will help you to prevent or minimize the potential effects of a radiological release on food and agriculture.

The instructions in this booklet may also be used in response to other kinds of radiological emergencies. General information on radiation and post-emergency activities is also provided.

Please read this booklet thoroughly

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Illinois Emergency Management Agency

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EMERGENCY PLANNING ZONES

Two types of emergency planning zones (EPZs) may be referred to in an emergency:

The Plume Exposure Pathway EPZ is the area within a 10-mile radius around the nuclear power station in which people may be directly exposed to radiation.

The Ingestion Exposure Pathway EPZ is the area within a 50-mile radius around the nuclear power station in which people may be indirectly exposed to radiation by eating or drinking contaminated food, milk and water.

SOURCES OF EMERGENCY INFORMATION

In the event of an emergency at Braidwood, Byron, Clinton, Dresden, LaSalle or Quad Cities nuclear power stations, specific protective action recommendations will be issued by appropriate state or local government officials. Information to prevent or minimize radiation contamination of food products will be provided to you through at least one of the sources listed below:

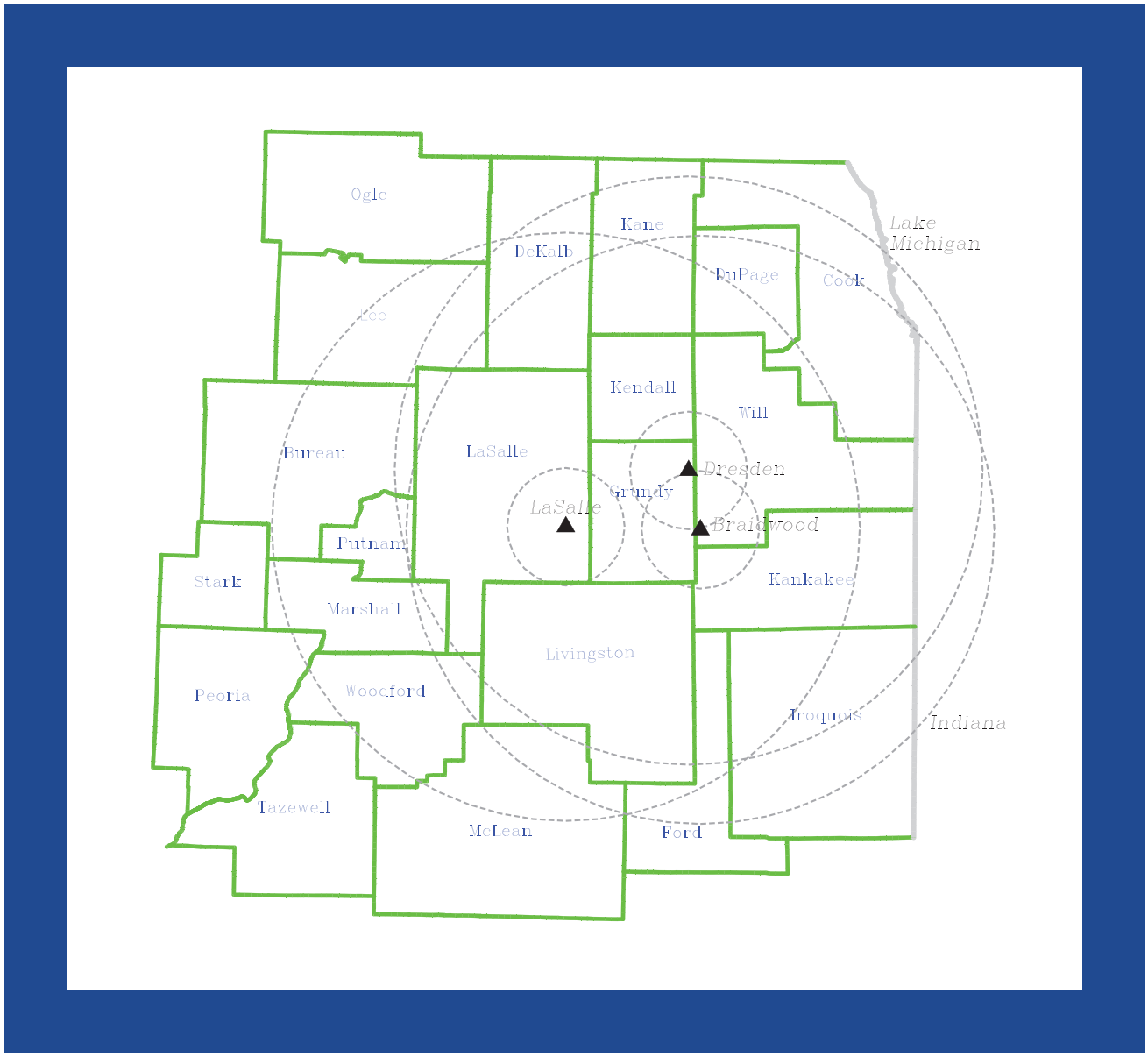
- **Local emergency broadcast radio stations** will provide you with official emergency information. These stations will also provide additional accident-related information. The radio stations designated for each nuclear power station are listed below the maps on pages 3-6 of this booklet.

- **Your local Cooperative Extension Service Office** may provide you with information on the protection of agricultural products through local radio or television broadcasts, newspaper articles, or by telephone.

- **National Oceanic and Atmospheric Administration (NOAA) weather radio broadcasts** over tone alert radios will provide you with up-to-date weather information. The broadcasts may also provide you with emergency instructions on protective measures.

- Additional emergency agricultural information may be available to you through state or local government emergency organizations.

BRAIDWOOD, DRESDEN and LASALLE STATIONS
10-MILE PLUME and 50-MILE INGESTION PATHWAY EPZs



DESIGNATED RADIO STATIONS FOR BRAIDWOOD, DRESDEN and LASALLE STATIONS ARE:

Grundy County
WJDK 95.7 FM
WCSJ 103.1 FM

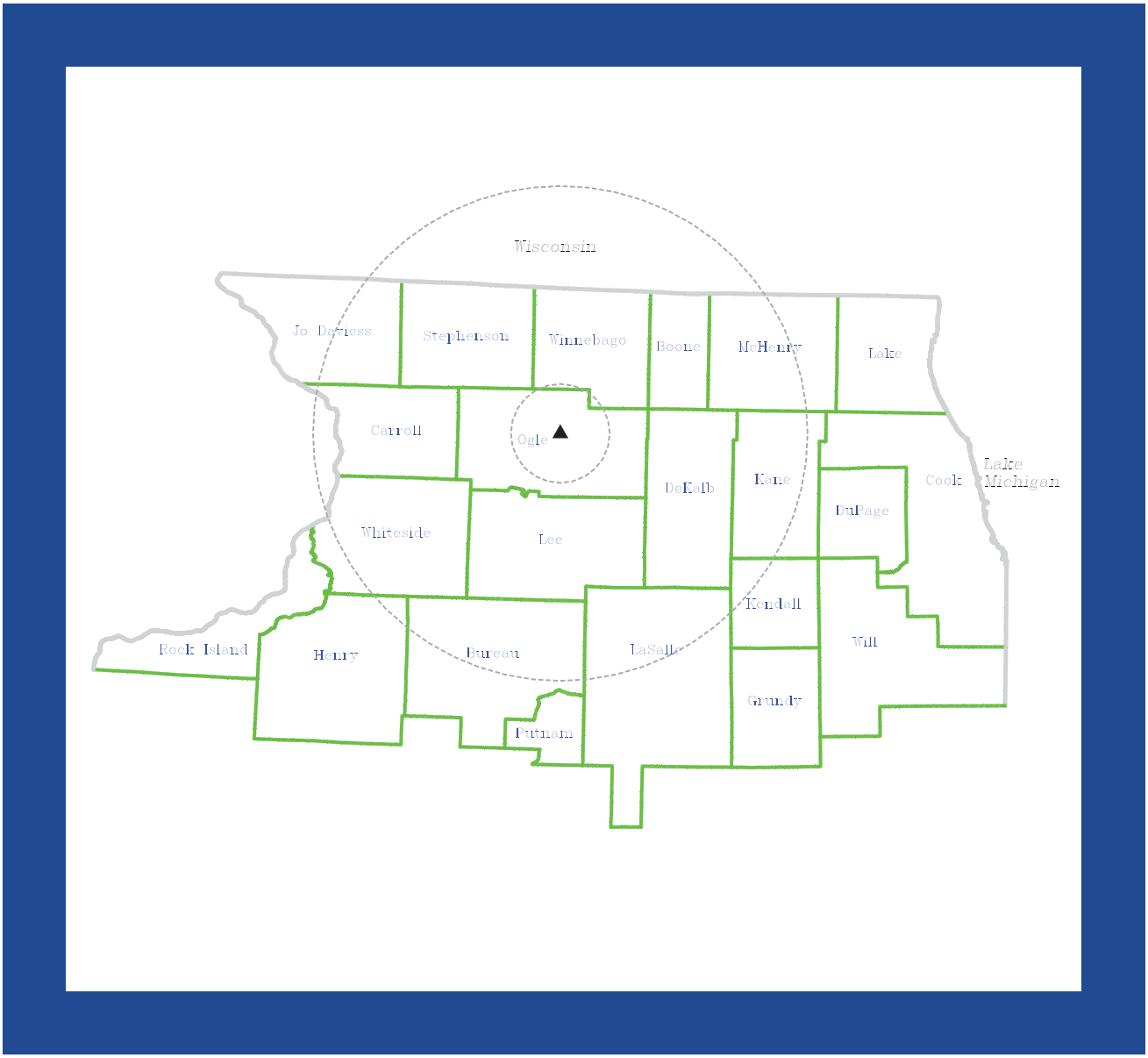
Will County
WJOL 1340 AM
WSSR 96.7 FM
WCCQ 98.3 FM
WRXQ 100.7 FM

Kankakee County
WVLI 92.7 FM
WIVR 101.7 FM
WFAV 95.1FM

LaSalle County
WCMY 1430 AM
WRKX 95.3 FM
WLPO 1220 AM
WAJK 99.3 FM

Kendall County
WSPY 107.1 FM

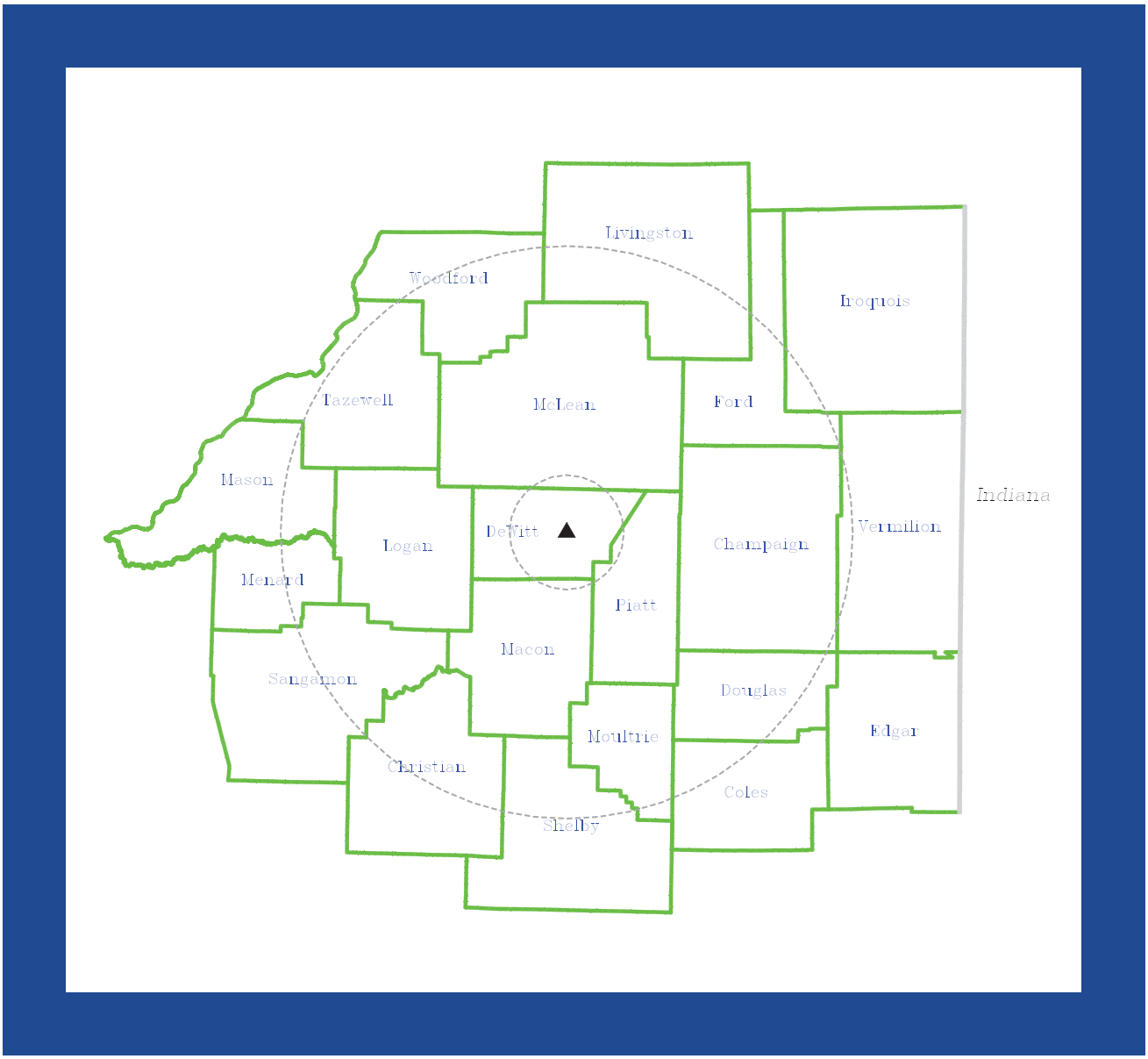
BYRON STATION
10-MILE PLUME and 50-MILE INGESTION PATHWAY EPZs



DESIGNATED RADIO STATIONS FOR BYRON STATION ARE:

WRHL 1060 AM
WYOT 102.3 FM

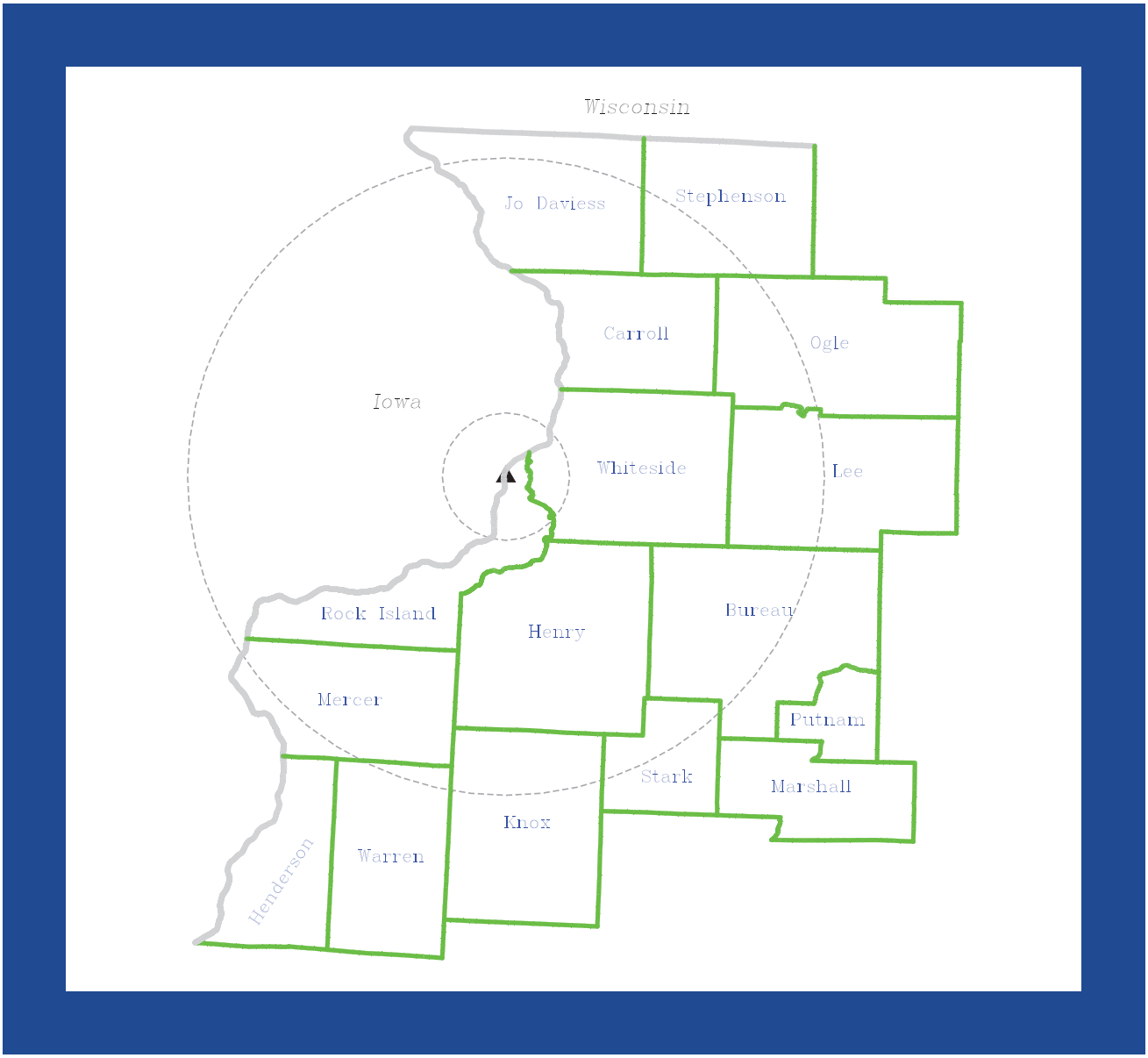
CLINTON STATION
10-MILE PLUME and 50-MILE INGESTION PATHWAY EPZs



DESIGNATED RADIO STATIONS FOR CLINTON STATION ARE:

WBNQ 101.5 FM
WJBC 1230 AM
WJBC 93.7 FM
WBWN 104.1 FM
WHOW 1520 AM
WEZC 95.9 FM
WHOW 92.3 FM

QUAD CITIES STATION
10-MILE PLUME and 50-MILE INGESTION PATHWAY EPZs



DESIGNATED RADIO STATIONS FOR QUAD CITIES STATION ARE:

Rock Island County
WYEC 93.9 FM
MAC 94.7 FM

Whiteside County
KCLN 1390 AM

PROTECTIVE ACTIONS FOR THE FOOD SUPPLY

The safety of the food supply within the 50-mile ingestion exposure pathway EPZ could be a concern to members of the agricultural community if a radiological release to the atmosphere occurred. During such a release, both water and land could become contaminated. Eating contaminated foods and drinking contaminated milk and water could have a harmful, long-term effect on your health.

State and local government emergency response organizations are prepared to quickly notify and advise the agricultural community on what actions to take in the event of a radiological emergency. The decision to recommend protective actions will be based on the emergency conditions at the nuclear power station, available information on the amount and type of radiation that has been released to the environment, and consideration of the health, economic, and social impacts of the proposed actions.

There are several types of protective actions that will help prevent or lessen the possibility of persons eating or drinking contaminated food or water:

- simple precautionary actions to avoid or reduce the potential for contamination of food and animal feeds. An example would be removing animals from pasture and providing them with stored feed and protected water.

- actions to isolate or contain food and prevent its introduction into commerce. An example would be to restrict or withhold (embargo) the shipment of agricultural and dairy products from the affected areas to processors or the marketplace.

- normal food production and processing actions that reduce any contamination that is present. Examples would include washing, peeling or shelling products to eliminate surface contamination, and freezing, drying or storing processed products to allow for decay of radioactivity.

The following are more specific examples of protective actions and related information that may be recommended to the agricultural community by appropriate state or local government officials. Location-specific recommendations will be issued by these officials in the event of an actual emergency.

Milk

Remove all dairy animals from pasture, shelter if possible, and provide them with stored feed and protected water. State or local government officials may come to your farm to take milk, feed and water samples for laboratory analysis to determine whether any of these products are contaminated.

If dairy products are found to be contaminated, it may be recommended that milk and milk products be withheld from the market. It is possible, however, for milk products contaminated with certain radioactive materials to be safe for human consumption after proper storage over a period of time. This will allow for decay of the radioactive materials. The decay may be achieved by freezing and storing fresh milk, concentrated milk or concentrated milk products. Storage of milk for prolonged periods of time at reduced temperature is also possible provided ultra-high temperature pasteurization techniques are used during processing. Using fluid milk for the production of butter, cheese, dry milk or evaporated milk may also be possible.

You will be advised by state or local government officials as to what protective actions are appropriate.

Fruits and Vegetables

Wash, scrub, peel or shell locally grown fruits and vegetables, including roots and tubers, to remove surface contamination.

If they are contaminated by short-lived radionuclides (e.g., Iodine 131), preserve by canning, freezing or dehydration and store to allow time for decay of the radioactivity.

Meat and Meat Products

If there is a release of radioactive material to the environment, you may be advised to place meat animals on protected feed and water and, if possible, provide them with shelter. If livestock consume feed and water contaminated with radioactive materials, some of the contamination will be absorbed into their bodies and could then enter the human food supply through meat and meat products. If contamination is verified, state or local government officials may advise that meat and meat products should not be eaten.

Poultry and Poultry Products

Poultry raised outdoors, especially those kept for egg production, should be monitored by taking samples and performing laboratory tests to determine the presence of radioactive contamination. Poultry raised indoors and given protected feed and water are not likely to be contaminated. If contamination is verified, state or local government officials may advise that poultry and eggs should not be eaten.

Fish and Marine Life

Fish and other marine life raised in ponds may continue to be harvested unless appropriate state or local government officials have determined through laboratory analysis of samples that they are contaminated. Samples of water, fish and marine life from open bodies of freshwater should also be analyzed to ensure that they are safe.

Soils

If state or local government officials find that the soil is contaminated, proper soil management procedures can be implemented to reduce contamination to safe levels. Idling (the nonuse of the land for a specific period of time) may be necessary in some cases. However, in situations involving highly contaminated soil, removal and disposal of the soil may be more appropriate.

Planting alternative crops may also be recommended in some situations. Crops such as cotton and flax could be substituted for food crops because they contribute little or no radioactive material to the human diet.

Deep-plowing the soil will move radioactive substances below the plant root level, prevent plants from taking up contaminated nutrients, and allow the level of radioactivity to decrease with the passage of time.

State or local government officials will let you know what actions are appropriate.

Grains

If grains are permitted to grow to maturity, most contamination probably will be removed by the wind and rain. Screening or cleaning probably will remove any remaining contamination. Sampling and laboratory analysis will determine if the grain is safe to use. When harvested, contaminated and uncontaminated grains should be stored separately.

Water

Covered wells and other covered or underground sources of water probably will not become contaminated. Radiation contaminants deposited on the ground will travel very slowly unless soils are sandy. It is unlikely that underground water supplies will be affected.

Water from cisterns and surface sources such as lakes and ponds should not be used.

Close water intake valves from any contaminated water sources to prevent distribution (e.g., irrigation) of contaminated water. Stored water that is exposed to the open air (such as livestock watering troughs) should be discarded and not reused.

Honey

Honey and bee hives will need to be sampled and analyzed by appropriate state or local government officials if radioactive contamination is detected in the area. You will be instructed by these officials on how to handle the hives and honey.

SLAUGHTER FACILITIES, FOOD PROCESSORS AND DISTRIBUTORS

Radioactive contamination of milk or food products in an affected area can occur during processing or during transportation. This can result from exposure to radioactive materials on the ground or in the air, and from contact with contaminated products.

Following a radiological emergency, government officials may restrict the movement of food products and withhold them from the marketplace if they are found to be contaminated. These products should not be released until they are considered to be safe for consumption, or until a decision is made to dispose of them. You will be instructed how to safely handle and dispose of contaminated food products.

POST-EMERGENCY ACTIONS

The following sections describe post-emergency actions that will occur if contamination is verified.

Re-entry is the temporary entry, under controlled conditions, into a restricted, contaminated area, in all probability within the 10-mile radius of the nuclear power station. If you have been evacuated from your area, you may be allowed to return temporarily to your farm when conditions permit. State or local government officials will advise you through the local news media if a decision to permit re-entry is made. You will receive specific instructions on routes to use and safety precautions to take. Re-entry will allow you to perform such vital activities as milking, watering and feeding farm animals.

Recovery is the process of reducing radiation in the environment to acceptable levels for normal daily living. Following the emergency, state and local government officials will identify the types and levels of contamination. They may need to take samples of air, water, soil, crops and animal products from your farm or business. They will provide you with instructions and assist you in decontaminating your animals, food and property if such actions are necessary. Contaminated food will be isolated to prevent its introduction into the marketplace. State and local government officials will determine whether condemnation and disposal are appropriate.

GENERAL INFORMATION ON RADIATION

Radiation and radioactive materials are a natural part of our environment. They are in the air we breathe, in the food we eat, in the soil, in our homes and even in our bodies. The level of radiation naturally existing in our environment is called “background radiation.” It may vary greatly from one location to another depending on related factors such as solar radiation, geographic elevation, soil composition and the presence of radon gases from the soil and building materials. We also are exposed to sources of man-made radiation such as X-ray machines and color televisions. Commercial nuclear power stations may release small, non-harmful amounts of radioactive materials to the environment under controlled conditions and during routine operations.

The health effects to people from radiation exposure are measured in units of millirems. In the United States, the average background radiation exposure received by each person is about 300 millirems per year. Each person also receives about 300 millirems a year from medical care sources. An approximate 7 millirems is received from consumer products and occupational and other environmental sources. The total average exposure per person per year is about 620 millirems, not including exposure from tobacco use. Persons living near a commercial nuclear power station receive less than one additional millirem per year.

The effects of radiation on people depend on the amount and length of time of exposure, how much of the body is exposed, how much radioactive material stays in the body, and the general health and age of the exposed person. The effects of radiation can be decreased by reducing the time the person is exposed and increasing the distance from the source of radiation.

SUMMARY OF EFFECTS OF RADIOACTIVE DEPOSITS ON HUMAN FOOD AND WATER SUPPLIES

Depending on the amount of radioactive materials released into the atmosphere and the prevailing weather conditions, people, animals, crops, land and water near the site of the emergency could be affected. Of initial concern would be the condition of fresh milk from dairy animals grazing on pasture and drinking from open sources of water. Sampling for contamination could occur at the farm, the transfer station or the processing plant. If contamination of fresh milk and processed milk products is verified, state or local government officials will determine whether to dispose of these products or to hold them until safe for consumption.

A later concern would be the possible contamination of vegetables, grains, fruits and nuts. The severity of the impact of the contamination would depend on the time of the year the emergency occurred. The time approximately prior to or during harvest is the most critical period. Crops will be sampled and analyzed by the appropriate government officials to ensure that they are safe to eat.

An additional concern would be the possible impact of the contamination on livestock and poultry. Pasture, feed and water sources, as well as meat and poultry products, will be sampled and analyzed to ensure that the meat and poultry products are safe to eat.

Contamination of drinking water supplies is not likely to be significant. If it occurs, it will probably affect only surface water supplies and not ground water wells or underground water sources. The safety of water would be determined by sampling public and private sources. If land becomes contaminated, proper soil management techniques can be implemented to reduce contamination of crops grown on the land. The procedures recommended would depend on the severity of contamination and the specific crops to be grown.

In conclusion, while it is unlikely that a serious radiological emergency will occur in this country, it is important to be prepared for such an event. The information in this booklet may help you more effectively respond to such an emergency.

ADDITIONAL INFORMATION

If you would like additional booklets or other information, or have questions concerning radiation, please contact the Illinois Emergency Management Agency, Bureau of Nuclear Facility Safety, Local REP Planning Section, (217) 782-7860.

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