LOUISIANA RADIOLOGICAL EMERGENCY INFORMATION

For Farmers, Food Processors, and Distributors

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Introduction

This brochure contains important emergency information for farmers, food processors, and distributors located within a 50-mile radius of a commercial nuclear power plant. It tells how you will be notified and what procedures you should follow in the event of an emergency at the power plant.

If an emergency results in a release of radioactive material to the environment, you could be told to take action to protect your family, farm animals, and agricultural products. You will receive instructions over the Emergency Alert System (EAS) radio or television stations or through other official sources, to help you prevent or minimize the agricultural effects of a radiological emergency.

In the event of an emergency at the nuclear power plant near you, specific instructions will be issued by state or local government officials. Information will be provided to you through at least one of the sources listed below:

- The Emergency Alert System (EAS) will provide you with emergency information broadcast over certain EAS radio and television stations.
- State and local officials may use local radio or television broadcasts, newspaper articles, telephone, or personal contact to provide you with important information about protecting agricultural products.
- Additional information is available from:
  - Louisiana Department of Environmental Quality at 225-219-0941 or www.deq.louisiana.gov;
  - Louisiana Department of Agriculture and Forestry at 855-452-5323 or http://www.ldaf.state.la.us/ for Animal care during emergency;
  - Governor's Office of Homeland Security & Emergency Preparedness at 225-925-7500 or http://gohsep.la.gov/;
  - Your local Parish Office of Emergency Preparedness.

Protective Actions

Protective Action Guidelines (PAGs) are guides used in planning for protective actions to safeguard public health. The actions are taken to limit the radiation dose from ingestion by avoiding or reducing the contamination in or on human food and animal feeds following the release of radionuclides. In order to ensure public safety, Derived Intervention Levels (DILs) have been recommended by the US Food and Drug Administration (FDA) to protect food, milk, and water from radioactive contamination. Each DIL is a set point where protective measures should be considered. For example, if levels of radioactive cesium in milk approach the preventive "response level," surveillance and protective actions for dairy animals may be recommended (e.g., placing dairy animals on uncontaminated feed and water).

Emergency Protective Actions

The following are examples of protective actions that may be recommended if a release of radioactive materials occurs and contamination of agricultural products is verified or suspected.

- When you go outside, wear clothing that covers all portions of the body. Remove outer clothing before going indoors.

- Wash hands thoroughly before preparing or consuming food.
- Do not use fresh milk, fruits, vegetables, or eggs.
- Do not engage in any dust producing activities such as cultivating, disking, baling, or harvesting. Wear a dust mask or a folded, dampened cloth over your nose and mouth to reduce the quantity of radioactive materials inhaled when such activities can not be avoided.
- Do not process or distribute agricultural products until they have been sampled and found to be free of contamination.
- Do not destroy, slaughter, or market animals.
- Do not transport or market food products.
- Do not fish or hunt.
- Do not destroy agricultural products unless advised to do so.

Several of the response actions, which may be taken to protect agriculture products, animals, and other agriculture commodities, include:

- Temporary holding of food crops from market.
- Quarantine of food, animals, and other agriculture commodities.
- Placing animals on stored feed in place of grazing or forage.
- Placing movement restrictions on commodities and animals until they have been officially determined to be in compliance with appropriate health standards.
- Decontamination or other means of handling contaminated animals and other commodities will be performed.

Giving Animals Protected Feed

You may be advised to place animals on protected feed and water. This will help prevent contamination from harming your animals, and from entering the human food supply. Types of protected feed include:

- Grain stored in covered bins;
- Hay stored in a barn or covered shed;
- Ensiled feed stored in a covered silo or bags;
- Hay bales covered by a tarp or barrier plastic;
- Ensiled feed from a bunker silo may be used after removing a layer from unprotected face and top.

Sheltering Animals

One way of protecting your animals is to provide them with shelter. Dairy cows and other milk-producing animals should be given priority as these animals can pass contamination on to humans through their milk. Secondary consideration should be given to egg-producing fowl, breeding stock, other livestock and poultry.

Barns, milking parlors, machine sheds, garages, corn cribs, and swine or poultry buildings are all possible livestock shelters. Generally, masonry or concrete buildings offer the best protection.

Although a ventilation system is needed to keep sheltered livestock healthy, it allows radioactive material to enter the building. Therefore, it is important to limit outside air entering the building to the minimum amount necessary for the animals' safety. Do not use fans for ventilation unless absolutely necessary. If you must use fans, set them on low speed to reduce air intake.

Protection from Packaged Food Products

Food in packaging prepared before the release of radioactive material will not be harmful to eat as long as the outer wrappings are carefully removed and discarded.

Food, Milk Processors, Warehouses, and Commodity Terminals

Windows and vents to the outdoors should be closed. Any system that draws air from the outdoors to the inside should be shut down, such as vacuum systems, air conditioners, and compressed air systems. Radioactive contamination of milk or food products can occur during processing or during transportation. Implement procedures to monitor incoming food ingredients. Government officials may restrict the movement of food products and withhold them from the marketplace (embargo). If disposal is necessary, you will receive instruction on safe handling and disposal.

Preventative Protective Actions

Preventative Protective Actions are measures taken to prevent or minimize contamination of food products.

Milk

Remove all dairy animals from pasture, shelter them if possible, and provide them with protected feed and water. If dairy animals 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 milk and milk products. Milk from animals with internal contamination should not be consumed, or sold, until you are told that it is safe to do so.

Fruit and Vegetables

Wash, scrub, peel or shell locally grown fruits and vegetables, including roots and tubers to remove surface contamination. Remove the outer leaves of leafy vegetables such as cabbage. Fruits and vegetables ripe at the time of an emergency may be lost because of the personal hazard posed by harvesting contaminated fruit. Fruits and vegetables that do not have to be picked immediately could be picked and cleaned after the radioactivity decays. Canning, freezing, or

storage of fruits and vegetables will also allow the decay of most radioactive materials to take places. Fruits and vegetables should not be consumed, or sold, until you are told that it is safe to do so.

Meat and Meat Products

Livestock exposed to external contamination could be used for food if they are adequately washed and monitored before slaughter. Animals can be washed down using soap and water. In handling animals, you should wear protective clothing to prevent contaminating yourself. Meat animals that consume contaminated feed should not be slaughtered unless State authorities indicate it is safe to do so. Instructions would be given on a case by case basis.

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 may advise that poultry and eggs should not be eaten.

Fish

Recreational fish may continue to be caught and released because dilution of the radioactive material in large bodies of water should make radioactive contamination of fish highly unlikely. Fish raised for food in open ponds or tanks must be tested prior to sale or use as food.

Soils

If officials find that the soil is contaminated, proper soil management procedures can be implemented to reduce contamination to safe levels. 1) Idling, the nonuse of the land for a specific period of time may be necessary in some cases. However, in a worst case situation, removal and proper disposal of soil may be more appropriate. 2) Crops, such as flax or cotton, not intended for human or livestock consumption could be recommended. 3) Deep-plowing the soil may keep radioactive substances below the plant root zone, preventing plants from taking up contaminated nutrients, and allow the level of radioactivity to decrease with the passage of time. 4) Liming the soil will limit the uptake of contaminants by crops.

Grains

If grains are permitted to grow to maturity, most contamination will probably be removed wind and rain. Milling or polishing will probably remove any remaining contamination. When harvested, contaminated and uncontaminated grains should be stored separately.

Water

Open sources of water should be protected. Cover open wells, rain barrels, and tanks to prevent contamination of water supplies. Covered wells and other covered or underground sources of water will probably not become contaminated. Radiation contaminants deposited on the ground will travel slowly unless soils are sandy.

Close water intake valves from any contaminated water sources to prevent distribution (e.g., irrigation) of contaminated water. Contaminated dust may accumulate in exposed irrigation canals. If possible, run a small amount of water through your canal systems, and divert this water away from your crops before resuming your normal irrigation practices.

Filler pipes should be disconnected from storage containers that are supplied by runoff from roofs or other surface drain fields. Close water intake valves from any contaminated water sources to prevent the use of contaminated water.

Food Processors and Distributors

Radioactive contamination of milk or food products in an affected area can occur during processing or transportation. Following a radiological emergency, state officials may restrict the movement of food products and withhold them from the market if they are suspected or found to have contamination. These products should not be released for consumption, until they are deemed safe or a decision is made to dispose of them. You will be told how to safely handle and dispose of contaminated food.

Effects of Contamination of Human Food and Water Supplies

The amount of radioactive material released into the atmosphere, the duration of the release, and weather conditions, all can affect the accident's impact on people, animals, crops, land, and water near the site of the emergency. An initial concern would be the condition of fresh milk from dairy animals grazing on pasture and drinking open sources of water. Testing may be performed at the farm, the transfer station, or the processing plant. If fresh milk and processed milk products are shown to be contaminated, state officials will decide whether to dispose of them or hold them until safe for consumption.

Another concern would be the possible contamination of vegetables, grains, fruits, and nuts. The severity would depend on the time of year the emergency occurred. The just before or during harvest is the most critical period. Crops may be sampled and analyzed by state officials to determine if 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, may be sampled and analyzed to determine if the meat and poultry products are safe to eat.

Contamination of drinking water supplies is not likely to be a problem. If it occurs, it probably will affect only surface water supplies and not ground wells or underground water sources.

If land becomes contaminated, proper soil management techniques can reduce contamination of crops grown on the land. The procedures to be used would depend on the severity of contamination and specific crops to be grown.

Giving Animals Protected Food and Water

Animals need water to survive. Even if you have no protected feed during a radiological emergency, animals can live for several days on water alone. Water from enclosed containers, and underground sources, such as covered deep wells and freely running springs, will be safe for livestock. Water in an open pond or stream could be contaminated and should not be used until you are told it is safe to do so.

The following table provides sustenance level feed and water guidelines for common farm animals. These levels will not support high milk production. Keeping the animal alive is the goal. Do not feed high volumes of excellent forage just before you leave as you want to discourage the cows from producing much milk as it may be sometime before you can come back to milk them again.

ANIMAL	WATER/DAY	FEED/DAY	SPACE/HEAD
Dairy Cows			
Milk Cows	20-25 gallons/per head/per day	20-30 pounds hay and grain	20 square feet
Bulls	20-25 gallons/per head/per day	20-30 pounds of hay	20 square feet
Dry Cows	10-15 gallons/per head/day	12-20 pounds of hay	20 square feet
Weaning Cows	6 gallons summer/3 gallons winter	8-12 pounds hay	
Cow (Pregnant)	7 gallons summer/6 gallons winter	10-15 pounds hay	
Cow with calf	20-25 gallons/per day	12-18 pounds of hay	150 square feet
Calf (less than 500 lb)	5-10 gallons	8-12 pounds of hay	15 square feet/calf
Swine			
Lactating sow	4 gallons	8 pounds grain	5 square feet per head/ 40 per sow and litter
Brood Sow (Pregnant)	3 gallons	4 pounds grain	7 square feet
Gilt or boar	1 gallon	3 pounds grain	5 square feet
Sheep			
Ewe with Lamb	4 quarts	5 pounds hay	10 square feet/pair
Dry Ewe	3 quarts	3 pounds hay	8 square feet
Weaning Lamb	2 quarts	3 pounds hay	8 square feet
Poultry			
Layers	5 gallons/100 birds	17 pounds/100 birds	0.8 square feet/bird
Broilers	5 gallons/100 birds	10 pounds/100 birds	0.6 square feet/bird
Turkeys	12 gallons/100 birds	40 pounds/100 birds	2 square feet/bird

Buildings and Equipment

If a building or piece of equipment is found contaminated, you would be advised on decontamination procedures. You may be told to wear protective clothing and wash down your buildings and equipment with soap and water. Cleaning does not destroy radioactivity but it does remove it form areas where people could be exposed.

Post Emergency Actions

Reentry

If you were evacuated from the area, temporary entry to your property may be permitted, under controlled conditions, so you can perform essential tasks such as securing property, milking dairy animals and watering/feeding animals. Instructions will be given by the appropriate officials regarding route use and safety precautions.

Recovery

Recovery is the process of reducing radiation in the environment to acceptable levels for normal daily living. It also involves returning affected areas to pre-emergency conditions as quickly as possible eventually leading to the safe return of the public, if possible.