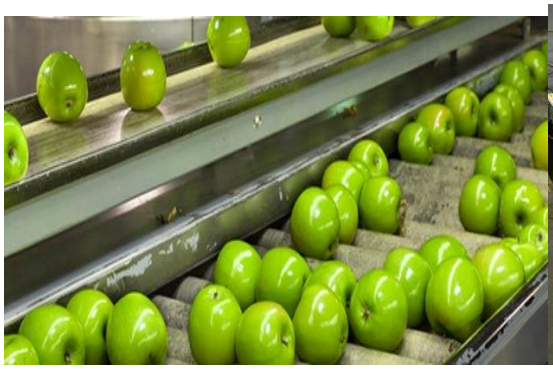
Radiological Emergency Information

For Farmers, Food Processors, Distributors, and Home Gardeners



Important Information

Please read and save this booklet

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Introduction

The booklet contains information to help farmers, food producers, distributors and home gardeners take effective action during and after a radiological emergency from a nuclear plant in Alabama. This booklet is intended to address only those areas where the health risk is from the ingestion of significant quantities of contaminated food and water, not from direct exposure. Contaminated areas where there is a risk of direct exposure will have their access restricted.

A radiological emergency at any of the nuclear power plants listed below could affect Alabama residents who live and work in the surrounding counties.

- Browns Ferry Nuclear Plant near Athens, Alabama
- Joseph M. Farley Nuclear Plant near Dothan, Alabama
- Sequoyah Nuclear Plant near Chattanooga, Tennessee

While it is unlikely that an emergency will occur, it is important to be prepared because of the potential impact to public health and safety, and the agricultural community. In the event of an actual emergency, radioactive materials may be released to the environment. State and local government officials will provide specific information on actions you can take to provide additional protection for your family, workers, farm animals, and food products. This booklet contains information to help you prepare to take effective action during and after a radiological emergency.

The information in this booklet may also be useful in helping you deal with other kinds of emergencies. During any emergency, your first concern should be the safety of your family, your employees, and yourself.

Please read this booklet thoroughly.

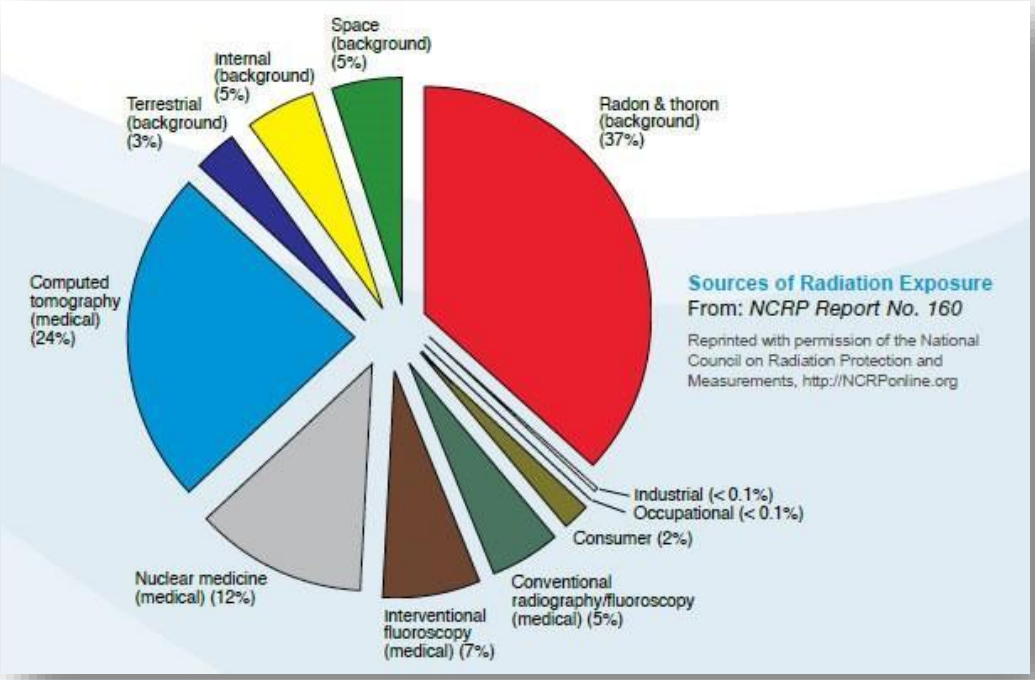
General Information on Radiation

Radiation is a natural part of our environment. Radiation is in the air we breathe, the food we eat, the soil, our homes, sunshine, and even our bodies. Radiation is also present in consumer products such as tobacco products, smoke detectors, lantern mantels and building supplies. The radiation naturally occurring or existing in our environment is called background radiation. The amount of background radiation varies from one location to another. People may also be exposed to radiation through medical and dental x-rays. Examples of radiation dose comparisons are:

- Protective Action Guide for Nuclear Power Plants Evacuations — 1,000 millirem
- Chest X-ray (posterior/anterior) — 2 millirem
- Panoramic Dental X-ray — 1 millirem
- Abdominal X-ray — 7 millirem
- CT of Abdomen — 800 millirem
- PET Scan for Cancer Staging — 1,410 millirem
- Cardiac Stress Test with Thallium 201 — 4,070 millirem
- PET CT — 4,500 millirem

Source for typical medical doses: 2008-2009 annual Report of the President's Cancer Panel, U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute.

The health effects of radiation exposure to people are measured in units called millirem. On average, Americans receive a radiation dose of about 620 millirem each year. Half of this dose comes from natural background radiation. Most of this background exposure comes from radon in the air, with smaller amounts from cosmic rays and the Earth itself. The other half of 310 mrem come man-made sources of radiation which in including medical, commercial, and industrial sources. In general, a yearly dose of 620 millirem from all radiation sources has not been shown to cause humans any harm.



Radiation Contamination
We can be exposed to radiation and not become contaminated. Contamination occurs when radioactive particles become attached to surfaces including those of people, animals, water, food, plants, soil, equipment and other objects.

- Being contaminated, however, does not necessarily mean a dangerous exposure to radiation has occurred.
- Contamination does not necessarily lead to ill effects.
- Contaminated surfaces may be able to undergo decontamination processes.
- External contamination may be easier to remove than internal contamination.

If external contamination is found on an individual, most of the material can be easily removed from the body by removing the clothing and washing with mild soap and shampoo. General preventive and emergency protective actions and guidance will be provide to farmers, food producers, distributors and home gardeners on decontaminating food crops, etc. See page 9: Protection Actions for the Food Supply.

People can become internally contaminated by breathing radioactive materials from the air or by ingesting contaminated food and water. Our body could be successful at eliminating and expelling some inhaled radioactive particles but if these materials persist, lung and other sensitive surrounding tissues could be damaged.

In the event of a release from a nuclear power plant, radioactive materials are carried by the wind and deposited on land, crops, livestock, food and water supplies. Without protective actions in place, we could consume contaminated food. Animals that are produced for food can become internally contaminated in the same way as humans by eating or drinking radioactively contaminated food. If radioactive material is absorbed into their bodies, it could be passed along the food chain through the eggs, meat or dairy products, such as milk. Plants produced for food can also be internally contaminated by absorbing radioactive materials from soil or water.

Radiation & Health
A big concern is that radiation will collect in our bodies and potentially cause injury and illness such as cancer or genetic changes. It is important to remember that neither exposure nor contamination necessarily increases the risk of damaging health effects.

Minor cell injuries caused by inhalation or ingestion of small and infrequent amount of radiation would likely be repaired by normal cell repair processes that take place all the time. A very large radiation dose may damage too many cells too fast for the body to repair or replace them.

How exposure to radiation will affect a person's health depends on:
- The amount and time of exposure
- How much of the body or particular organ is exposed
- How much radioactive material stays in the body
- The general health and age of the exposed person

We cannot eliminate radiation from our environment. But we can, however, reduce our risk by controlling our exposure to it. The effects can be reduced by reducing exposure time, by increasing the

distance from the source of radiation, or by placing shielding material between the source of radiation and the individual.

Why Protective Measures May Be Needed

A release of radioactive materials into the environment can pose a threat to the agricultural community and to the safety of the food supply. The deposition of radioactive materials could contaminate crops, livestock, uncovered water supplies, and land above established safety levels. When this level is exceeded, the food is considered to be "contaminated." Eating contaminated foods and drinking contaminated milk or water could have a harmful, long-term effect on your health.

State and local government officials are prepared to notify the agricultural community quickly during a radiological emergency by distributing emergency information through contact points such as local Cooperative Extension Offices and food processing plants. State and local government officials will recommend actions to reduce contamination and restrict the public consumption of contaminated food, milk, and water. Decisions or recommended actions will be based on a variety of factors.

These factors include:

- The possible health effects
- Emergency conditions at the nuclear power plant
- The amount and type of radioactive material
- Weather conditions

Sources of Emergency Information

Your best source of information during an emergency depends on where you live or work. For example, people near the nuclear power plant experiencing an emergency will receive initial information over the Emergency Alert System (EAS). People in adjacent areas will receive information from the media or other means. Major food processors and distributors may also receive information directly from the Alabama Department of Agriculture and Industries.

Emergency Alert System (EAS)

Local government officials will provide instructions and emergency-related information over designated radio and television stations.

News Media

Local and State government officials will be providing information to the news media. These reports will appear on radio and television, as well as in newspaper and social media sources.

Toll-Free Phone

Additionally, the State of Alabama may provide information through toll-free phone numbers established at the time of the emergency.

Emergency Planning

Emergency preparedness personnel from nuclear power plants and from all levels of government work together continuously to protect against the threat of a possible radiation accident. Detailed emergency plans from each plant and affected counties are continuously reviewed and revised as needed. Citizens living or working near nuclear facilities annually receive a calendar with important information related to Browns Ferry Nuclear Plant or Joseph M. Farley Nuclear Plant.

State and local governments, with support from the Federal government and utilities, develop plans that include a plume emergency planning zone with a radius of 10 miles from the plant and an ingestion pathway zone within a radius of 50 miles from the plant.

The Emergency Planning Zone (EPZ) is the area within a 10-mile radius around a nuclear power plant in which people may experience direct exposure to radiation. Access will be restricted to areas where exposure to radioactive materials exceeds acceptable levels. Routinely, these levels are well below those that can cause any immediate health effects.

Within the 10-mile EPZ, state and local governments may issue protective actions such as evacuation, shelter in place, go inside and stay inside; and/or stay tuned for further instructions.

If radioiodine has been released from the plant, public health officials may also issue a protective action for potassium iodide for individuals in the vicinity of the plant which would be received at local reception centers. Potential exposure to radioactivity would be most likely during the early period when the radioactive materials are first released. If your farm or facility is within the 10-mile EPZ, your first concern should be for you and your family.

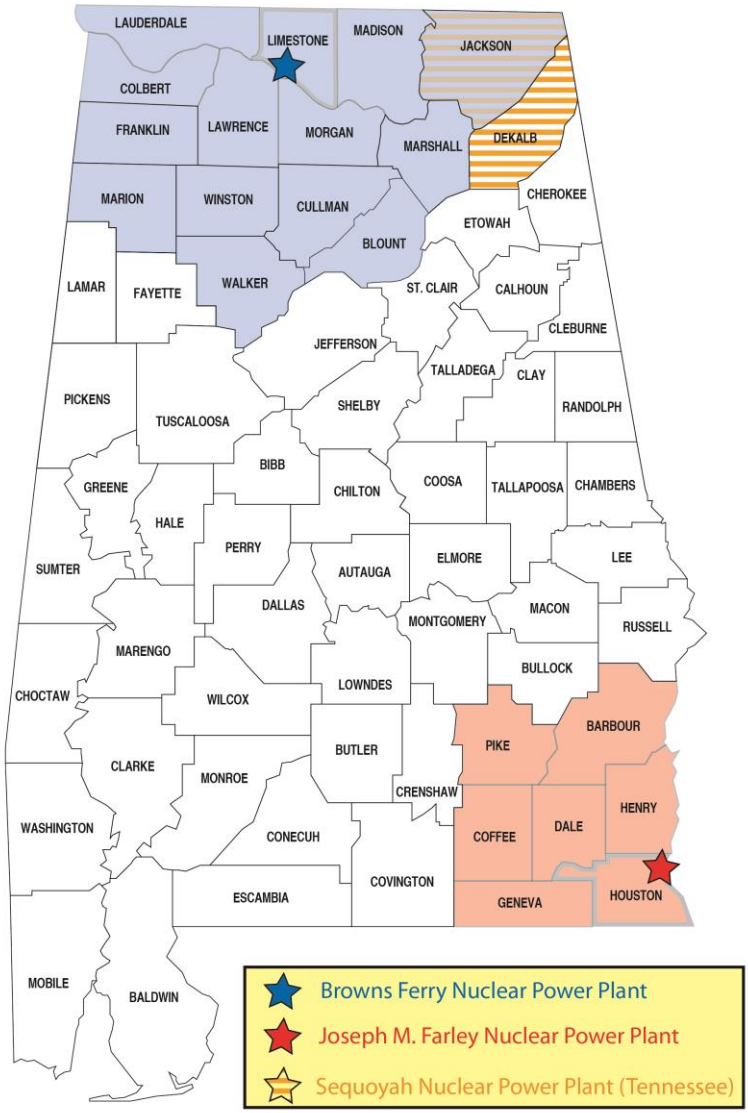
In a radiation accident, follow these general recommendations:

- Remain calm
- Tune into your local radio and/or television station
- Follow protective action instructions that are specific for your area
- Find your plan and follow it

Remember the three (3) ways in which people can protect themselves from ionizing radiation:

- Shielding the body
- Staying a safe distance from contaminated areas
- Reducing time in contaminated areas

The Ingestion Pathway Zone (IPZ) is the area within a 50-mile radius around a nuclear power plant in which people may experience indirect exposure to radiation by eating contaminated food or drinking contaminated milk or water. The map below identifies the IPZ counties in Alabama.



The safety of the food supply within the 50-mile IPZ can become a concern to farmers and food processors/distributors if a radiological release to the atmosphere has occurred. During such a release, water, crops, and land can become contaminated. Eating contaminated foods and drinking contaminated milk or water can have a harmful, long-term effect on the health of the public at large.

Guidance, in the form of protective actions, will be offered to everyone living, working or responding in potentially affected areas. Protective actions will depend on the extent of any released radiation and the impacts the proposed actions would have on the health and well-being of citizens and the economy. Basic actions to limit exposure, such as by sheltering, increasing distance and reducing exposure time, may be suggested.

Protective Actions

Protective actions are intended to prevent or minimize the possibility of consuming contaminated food, or minimize the contamination of food products as they are consumed.

Two types of protective actions exist that will help prevent or lessen the likelihood of persons consuming contaminated food or water:

- **Preventive Protective Actions** prevent or minimize contamination of milk and food products. Example: Sheltering livestock and placing them on stored feed and covered water.

- **Emergency Protective Actions** isolate or contain food to prevent its introduction into the marketplace and to enable testing to determine whether condemnation or other action is appropriate. Example: Restricting or withholding (embargoing) agricultural and dairy products from sale by prohibiting transportation to and from the affected areas.

Protective Actions for the Food Supply

Location-specific protective actions are issued during emergencies. The following are examples of general preventive and emergency protective actions.

Milk

Remove all dairy animals from pasture, shelter if possible, and provide them with protected feed and covered water. 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. Do not drink milk or consume any dairy product from cows, goats or any other lactating animals until laboratory results are available.

If dairy products are found to be contaminated, it may be recommended that milk and dairy products be withheld from the market.

Fruits and Vegetables

Locally grown fruits and vegetables, including roots, tubers and legumes, should be washed, scrubbed, peeled, or shelled to remove surface contamination.

Meat and Meat Products

You may be advised to place meat animals on protected feed and covered water and, if possible, to 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 then could enter the human supply through consumption of meat and meat products.

Food Processors and Distributors

Following a radiological emergency, government officials may restrict the movement of food products and withhold them from the marketplace (embargo). These products may not be released for use or distribution until they are determined safe for consumption or until a decision is made to dispose of them.

If disposal is necessary, you will receive instructions on safe handling and disposal. State and/or Federal government officials will meet with you to discuss this process and to establish timeframes.
Food processors and distributors may act to minimize exposure at their facilities by:

- Shutting down the air intake system.
- Closing windows and doors, and
- Implementing procedures to monitor incoming food ingredients.

Food in finished packaging should not be harmful to eat as long as the outer wrappings are discarded. Radioactivity will travel as fine particles that may coat the outside of the food product container. Government officials will provide further advice to avoid any contamination from exterior packaging.

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 food and water are not likely to be contaminated. If contamination is verified, state or local government officials may advise that poultry and eggs not be consumed or marketed.

Fish and Marine Life
Fish may continue to be harvested unless officials determine through laboratory analysis of samples that they are contaminated. Dilution of the radioactive material in large bodies of water should make contamination of fish unlikely. Samples of water and fish from open bodies of water will be analyzed to ensure they are safe.

Soils
If soil is contaminated, government officials will recommend soil management procedures to reduce contamination to safe levels. Idling, the nonuse of land for a specific period of time, may be necessary in some cases. However, in situations involving highly contaminated soil, removal and disposal may be more appropriate.

Planting alternative crops may be recommended in some situations. Deep plowing the soil can remove 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.

Grains
Most contamination on standing crops can be removed by wind and rain, depending on the stage of growth and whether grains are permitted to grow to maturity. Milling or polishing will probably remove any remaining contamination. Sampling and laboratory analysis will determine if the grain is safe to use. Contaminated and uncontaminated grains should be stored separately when harvested.

Water

You may be advised to place animals on covered water that has not been exposed to radioactive contamination. 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. Open water troughs

should be drained, rinsed and refilled after notification that radioactive materials have settled to the ground. The same procedure should be followed after windy weather spreads dust in the area.

Open water sources such as rain barrels and tanks should be covered to prevent contamination. Government officials will check open sources of water and tell you whether they are safe. Filler pipes should be disconnected from storage containers supplied by runoff from roofs or other surface drain fields. This will prevent contamination from entering the storage containers. Water intake valves from any contaminated water source should be closed to prevent distribution of contaminated water by irrigation or other processes.

Honey

Honey and beehives will need to be sampled and analyzed by 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.

If there is time when notified of a radiation release, listed below are some protective actions for beekeepers:

- Close off the hive to prevent bees from foraging and contamination of the entire hive
- Feed uncontaminated sugar water, honey, pollen and nutritional supplements, as needed
- Move hives and beekeeping equipment to sheltered areas such as barns, garages or outside areas of dense vegetation

Shelter Animals

There will likely be many types of livestock, as well as poultry, on the farm. Farmers will need to evaluate their egg-producing poultry, breeding stock and other animals to prioritize shelter decisions.

If you are advised to shelter animals, remove them from pasture and house them in a farm building. See chart on page 16: Guidelines for Spacing Requirements for Farm Animals in Sheltering during Disasters.

An ideal indoor shelter site would have these characteristics:

- Constructed at least partly of heavy materials that provide shielding
- Doors, windows and curtains that close
- Enough space to prevent overcrowding
- Adequate ventilation

Although open buildings such as pole barns or loafing sheds would provide less protection, any sheltering is better than none. Open areas could be blocked off with concrete blocks, earth, hay, sacks, plastic sheeting, or other materials.

You may not have enough shelter available for all your animals, so priority should be given to your most valuable livestock. Government officials will provide you more information or advice for decontaminating farm animals.

Animals on Protected Feed

You may be advised to place animals on protected feed that have not been stored in the open or exposed to radioactive contamination. Types of protected feed include:

- Grains stored in grain elevators, covered bins or other containers

- Hay stored in a barn or covered shed
- Feed that had been stored in a building
- Feed in a protected self-feeder
- Ensilage stored in a covered silo or trench
- Hay bales covered by a tarp or barrier plastic or bales with the outer layers discarded

If hay bales stored in the open must be used, use hay from the side away from the wind direction first. Being sure to wear protective equipment to avoid inhalation of re-suspended radionuclides, remove the outer layer of the bales and use the inner layers. (You could continue to store the outer layers until they have been monitored for radioactivity, then discard them if determined to be contaminated.)

See chart on page 17: Guidelines for Short-Term Dietary Requirements for Farm Animals during Disasters.

Food Control Areas

Initially, State and/or Federal radiation experts will determine which areas may be contaminated by radioactive materials by using information from field measurements and computer projections. Early monitoring and testing will help protect people living or working within the suspected affected area. The area, which includes potentially contaminated food sources, is called the Food Control Area.

The purpose of the Food Control Area is to:

- Prevent consumption of potentially contaminated fresh food and milk products from the areas; and
- Prevent potentially contaminated food products from being moved to the market place.

As an emergency protective action to prevent the consumption of contaminated foods, the transport of all food from the Food Control Area will be stopped. Cargo in route to processors is to be returned to its point of origin. Early field monitoring and laboratory testing will focus on two segments of the agricultural community within the Food Control Area:

1. Commercial dairies, milk processing plants, and dairy animals will be checked first because contamination can appear in fresh whole milk within 72 hours of a release of radioactive materials. Children are the primary consumers of milk products and the segment of the population most sensitive to radiation.
2. Fresh foods at farms and food processors cannot be moved from within the Food Control Area until testing is completed. The timing and order of testing will be determined by the harvest times for crops. Fresh food and milk products will be condemned if lab testing shows they are contaminated. Government officials will direct the disposition of condemned food and milk products and checkpoints will be set up at the boundary of the Food Control Area to ensure that contaminated fresh food and milk products do not leave the area. Food and milk products shown by lab testing to be safe for consumption by the public can be moved to market.

Home gardeners and small-scale farms

Checking for contamination at home gardens and small-scale farms may not begin for weeks after the emergency. Homegrown produce should be tested for radioactive contamination before it is consumed. Home gardeners and small-scale farmers should wait for further instructions from local and state government officials.

Lifting Food Controls

The boundary of the Food Control Area will be revised as data becomes available on the extent of radioactive contamination. Government officials will provide information when normal farming activities can be resumed in areas where food controls have been lifted.

Post-Emergency Actions

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

Re-entry

Re-entry is the temporary entry, under controlled conditions, into a restricted zone. If you are evacuated, you may be allowed, when conditions permit, to re-enter the restricted zone temporarily to perform essential tasks. Re-entry will allow you to perform such vital activities as milking, watering, and feeding farm animals. The amount of time and frequency allowed for en-entry will be determined based upon radiation levels in the area. Individuals will be required to enter and leave the restricted area through designated access control points where further instructions will be provided. Individuals who are allowed to re-entry the restricted zone temporarily will be provided with guidance to minimize their exposure and contamination to level as low as reasonably achievable.

Guidance to minimize radiation exposure and contamination <u>may</u> include:

- Stay indoors as much as practical.
- Keep doors and windows closed as much as possible.
- Do not operate window fans or other devices that pull outdoor air and dust into homes.
- Avoid stirring up dust.
- Designated shoes (preferably boots) or shoe covers should be worn when outside and removed to avoid spreading contamination inside or into vehicles that will leave the restricted area.
- Coveralls, gloves, hats, and other clothing may be worn if available to reduce the potential for skin contamination. Such clothing should be removed when going indoors to avoid spreading contamination inside. Dust masks may also be used if readily available.
- Do not harvest and consume garden vegetables, fruits, or other food products that may have been exposed to the plume.
- Do not drink or use water from open ponds, reservoirs, or cisterns that have been exposed to the plume. If available, city or rural water district water or well water may be used as long it is taken from a closed distribution system.
- Do not eat, drink, smoke, or chew in the contaminated areas. If you must eat or drink, ensure you wash hands and face with soap and water before doing so.
- As soon as practical, after completing work in contaminated areas (outdoors), wash or take a shower with soap and water.
- Contaminated clothing should be carefully removed and placed in plastic trash bags until they can be washed. Such clothing should be washed as a separate load or with other potentially contaminated clothing.

Return

Return is the process of allowing individuals to permanently return to their homes in areas previously evacuated during the emergency phase. Health officials have made a determination that radiation levels do not pose immediate concern to public health and safety and are below the safe allowable limit

established by the Environmental Protection Agency (EPA). However, in an effort to minimize exposure to people, property, pets and livestock, individuals who are allowed to return to their homes permanently will be provided with guidance to minimize their exposure to a level as low as reasonably achievable.

Guidance to minimize radiation exposure may include:

- Limit outside activities to only those that are necessary (non-recreational).
- When working outside, wear outer clothing that covers all portions of the body (example: boots, gloves, coveralls or long-sleeved shirts and long pants).
- Porches, walkways, vehicles, etc., may be washed off with a garden hose if practical to do so. Avoid contact with the wash water and do not permit its consumption by pets.
- Wash hands thoroughly before preparing or eating food or smoking.
- Keep doors and windows closed as much as possible. Do not operate window fans or other devices that pull outdoor air and dust into your home.
- Do not conduct outdoor burning.
- Place pets indoors or in restricted, uncontaminated areas and provide them with uncontaminated food and water.
- If pets are, or may have been exposed, bathe them and dispose of wash water and rinse in a sanitary sewer.
- Thoroughly wash fruits, vegetables or other garden produce before consumption. Do not market these items.
- As soon as practical after completing work in contaminated areas (outdoors), wash or take shower with soap and water.

Recovery

Recovery is the process of reducing radiation in the environment to levels acceptable for normal daily living. Following the emergency State and Federal government officials will identify the types and levels of contamination. Environmental samples of air, water, soil, crops, and animal products from your farm or food business will be taken. They will provide you with instructions and assist you in decontaminating your animals, food, and property if such actions are necessary. Contaminated milk and food products will be isolated (embargoed) to prevent introduction into the market place. Government officials will determine whether condemnation and disposal are appropriate. Unrestricted activity at your home, farm, processing facility, or distribution center may resume after concentrations of radioactive materials are reduced below limits set by the federal government.

Reimbursement for Damages, Losses, and Expenses

A radiological emergency may lead to additional living expenses, loss of farm or business income, or physical and property damages. Utilities operating nuclear power plants are required to have insurance to cover damages suffered by the public. American Nuclear Insurers (ANI) is prepared to provide emergency financial assistance to evacuees who live and work within the evacuation zone for immediate, reasonable out-of-pocket living expenses. These expenses may include: food, lodging, transportation (mileage allowance), lost wages and emergency medical treatment (including reimbursement for prescribed medicines). In some cases, "per diem" reimbursements would be set. Depending on the circumstances of the accident, ANI anticipates providing financial assistance within one to three days of the emergency.

Claims for financial assistance

Claims may be submitted by telephone, and/or at a claims office near the site of the accident. The claims office(s) would be located where it best serves the needs of evacuees and claims response staff with consideration for the circumstances of the accident and local conditions.

Notice of the appropriate telephone numbers and claims office addresses would be established at the time of the event.

Regarding evacuation claims, evacuees would be required to verify that they live or work within the evacuation zone by presenting items such as drivers' licenses, utility bills or pay stubs. Evacuees should keep receipts to streamline the compensation process.

Be Prepared

Here are some things you can do now to prepare for a possible radiation event:

- Keep this guide where you can refer to it
- Plan to shelter your farm animals if ever needed
- Determine how to quickly obtain protected feed and water for your farm animals
- Consider maintaining protected supplies for forage, feed and water that are rotated frequently
- Plan how to quickly cover outside feed and water supplies
- Consider possible methods for storing or processing milk if ever needed
- Introduce yourself to local emergency managers so that they are aware of your operation
- Stay calm- this will allow you to make good decisions in an emergency situation

Guidance for Spacing Requirements for Farm Animals in Shelters during Disasters

Adapted from *Guide for the Care and Use of Agricultural Animals in Research and Teaching, Federation of Animal Science Societies, 3rd Edition, January, 2010.*

Estimates to assist planning for temporary sheltering of animals indoors in emergency situations		
ANIMALS	**SQUARE FEET FOR SHORT (24-36 HOUR) PERIOD**	**SQUARE FEET FOR LONGER (2-10 DAYS) PERIOD**
Cattle		
~400 pound calf	15/animal	25/animal
~1200 pound adult	20/animal	35/animal
Cow with calf	40/unit	70/unit
Swine		
~150 pound hog	5/animal	8/animal
~450 pound sow or boar	14/animal	18/animal
Sow with litter	30/unit	35/unit
Sheep		
Ewe	8/animal	12/animal
Ewe with lambs	10/unit	15/unit
Poultry		
Broilers	0.8/animal	1.5/animal
Laying Hens	0.6/animal	1/animal
Turkeys	2/animal	5/animal

Guidance for Short-Term Dietary Requirements for Farm Animals during Disasters

Adapted from *Emergency Management Institute, IS-010, Animal Disasters, Module A, Unit 8- May, 1998.*

Rations from maintenance, not production- for specific amount and type of feeds, consult your veterinarian.		
ANIMALS	**Amount of water per day** (higher amounts apply to summer months)	**Amount of feed per day**
Dairy Cows		
In Production	7-9 gal	20 lbs hay
Dry cows	7-9 gal	8-12 lbs hay
Heifers	3-6 gal	8-12 lbs hay
Cow with calf	8-9 gal	12-18 legume hay
Calf (~400 lbs)	4-6 gal	8-12 legume hay
Swine		
Brood sow with litter	4 gal	8 lbs grain
Brood sow (pregnant)	3 gal	2 lbs grain
Gilt or boar	1 gal	3 lbs grain
Sheep		
Ewe with lamb	1 gal	5 lbs hay
Ewe (dry)	3 qt	3 lbs hay
Weaning lamb	2 qt	3 lbs hay
Poultry		
Layers	5 gal/100 birds	17 lbs/100 birds
Broilers	5 gal/100 birds	10 lbs/100 birds
Turkeys	12 gal/100 birds	40 lbs/100 birds
Horses		
All	1 qt/animal	As needed dry food

Conclusion

Depending on the amount of radioactive materials released into the atmosphere and the prevailing weather conditions, people, animals, crops, land, food, and food products near the nuclear power plant could be affected.

The initial concern is the contamination 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 they are safe for consumption.

Also of concern is the condition of food and food products. Government officials may withhold (embargo) contaminated food products from the marketplace. These products will not be released until state or local officials consider them safe for consumption, or until a decision is made to dispose of them.

A delayed concern is the possible contamination of vegetables, grains, fruits, and nuts. The severity of the impact of the contamination depends on the time of year the emergency occurs. The time immediately prior to or during harvest is the most critical period. Government officials will sample and analyze crops to ensure they are safe to eat.

An additional concern is the possible impact of the contamination on livestock and poultry. To ensure that meat and poultry products are safe to eat, government officials will take and analyze samples of pasture, feed, and water sources, and meat and poultry products.

Contamination of drinking water supplies is not likely to be significant. If it occurs, it probably will affect only surface water supplies and not ground wells or underground water sources. The safety of water will 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 depend on the severity of the contamination and the specific crops to be grown.

In conclusion, radiation exposure to the public will be minimal when controls are applied to the above concerns.

Additional Information

Additional information on harvesting, storing, and decontaminating your pasture and crops may be obtained from your local emergency management offices.

Browns Ferry Nuclear Plant	
50-mile Ingestion Pathway Counties (in Alabama)	
County	**Emergency Management Agency Office**
Blount	205-625-4121
Colbert	256-386-8558
Cullman	256-739-5410
Franklin	256-332-8890
Jackson	256-574-9344
Lauderdale	256-760-6363
Lawrence	256-974-7641
Limestone	256-232-2631
Madison	256-427-5130
Marion	205-921-4555
Marshall	256-571-7329
Morgan	256-351-4620
Walker	205-384-7233
Winston	205-489-2747
Joseph M. Farley Nuclear Plant	
50-mile Ingestion Pathway Counties (in Alabama)	
Barbour	334-688-1387
Coffee	334-894-5415
Dale	334-774-2214
Geneva	334-684-5677
Henry	334-585-6702
Houston	334-794-9720
Pike	334-566-8272
Sequoyah Nuclear Plant	
50-mile Ingestion Pathway Counties (in Alabama)	
Dekalb	256-845-8569
Jackson	256-574-9344

We recommend that you keep this booklet in a convenient location where you can refer to it quickly if necessary.

This publication was prepared by in cooperation with the following:

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Emergency Instructions

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