Introduction — Radiological Accidents

"Radiation is a part of our everyday lives."

Radiation is a part of our everyday lives. Simply put, radiation is a form of energy, and it can be beneficial, as sunlight, or useful, as radio waves, microwaves, or x-rays. The difference between these forms of radiation is that some carry more energy than others. Even beneficial forms of radiation like sunshine can be damaging if one is overexposed; sunlight is a medium energy radiation, and radio waves are low energy. On the other hand, x-rays are a high energy form of radiation. X-rays are used very carefully and are very useful, but technicians who use x-rays every day in their work wear special garments to prevent overexposure. High energy radiation can have very damaging effects on living tissue.

There are materials that naturally generate radiation, both high and low; we call these materials "radioactive." Some of these materials occur in nature and some are man-made. Naturally occurring radioactive materials are present in relatively small amounts in the soil, in the structures where we live, and in the food and water we consume. They are usually harmless.

Radioactive materials are a useful part of our modern world. They are often part of smoke detectors; they are used in life-saving medical treatments; they power batteries on the Space Shuttle. A large amount of radioactive material is used for fuel in nuclear power plants, which produce electricity.

While the safety record of such plants in the United States has been very good and nuclear plants are run under the strictest controls, residents living near power plants should know what preparations and responses are appropriate.

If you live near a power plant using radiological materials, you should familiarize yourself with the following terms used to describe a nuclear emergency:

- Notification of unusual event—A small problem has occurred at

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the plant. No radiation leak is expected. Federal, state and county officials will be notified by plant officials.

- Alert—A small problem has occurred, and small amounts of radiation could leak inside the plant. Federal, state and county officials will be on standby in case they are needed.
- Site area emergency—A more serious problem. Small amounts of radiation could leak from the plant. Area sirens may be sounded. Residents who live near the plant should listen to their radio or television for information. If necessary, state and county officials will act to ensure public safety.
- General emergency—The most serious problem. Radiation could leak outside the plant off the plant site. The sirens will sound. State officials will act to ensure public safety. Residents who live near the plant should listen to their radio or television for information, and follow the directions of officials.

Nuclear power plants are required to install sirens and other warning systems to cover a ten-mile area around the plant. Learn about your community's warning system. Obtain public emergency information materials from the company that operates your local emergency services office.

Chapter 12 contains information about radiological accidents, what happens during a nuclear power plant emergency, how to minimize exposure during an emergency for people and livestock, and special concerns for agricultural producers.