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Nuclear Power Plant Emergency Information for Agriculture

For Farmers, Ranchers, Food and Nursery Stock Producers and Distributors

Facts And Instructions You Should Know
In Case of an Emergency at the
Diablo Canyon Power Plant

Prepared by the California Department of Public Health,
with Kern, Monterey, San Luis Obispo and Santa Barbara Counties
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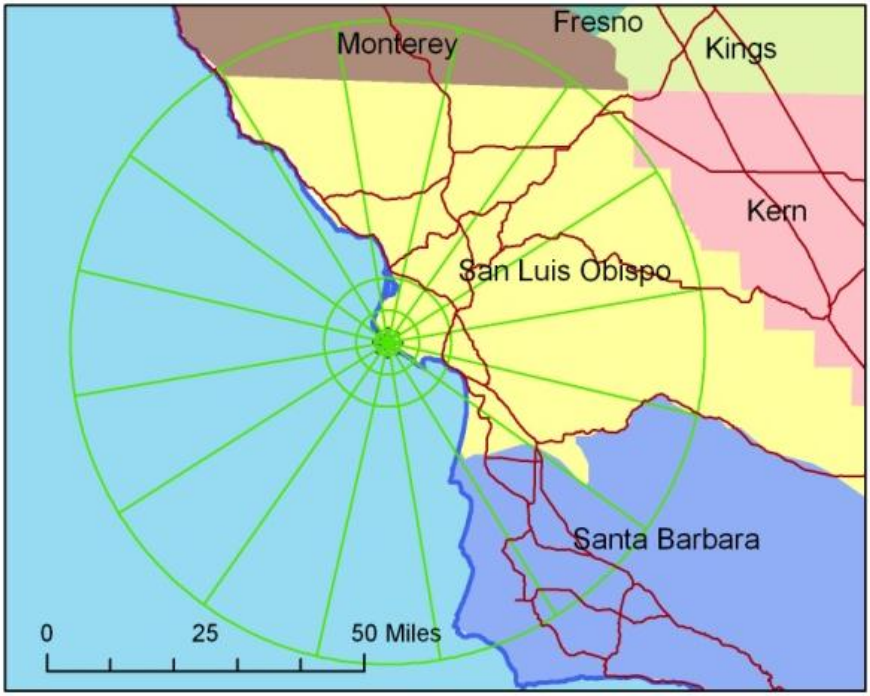
Introduction

This booklet is intended for farmers, ranchers, nursery stock producers, food processors and distributors and others involved with the growing, transport, processing, and sale of agricultural products. Its purpose is to provide information specifically pertaining to exposure pathways following a radiological emergency. Exposure pathways are the ways by which contamination can be spread and include the ingestion of contaminated food or water, and the inhalation of and direct contact with radioactive contamination. These exposure pathways are included in the Ingestion Pathway Zone (IPZ).



Map of 50-Mile IPZ zone for counties surrounding Diablo Canyon Power Plant

Emergency Planning and Ingestion Pathway Zones

State and county officials have developed comprehensive plans to respond in the unlikely event of a radiological emergency at Diablo Canyon Power Plant (DCPP). For the general public, plans have been made for the Emergency Planning Zone (EPZ).

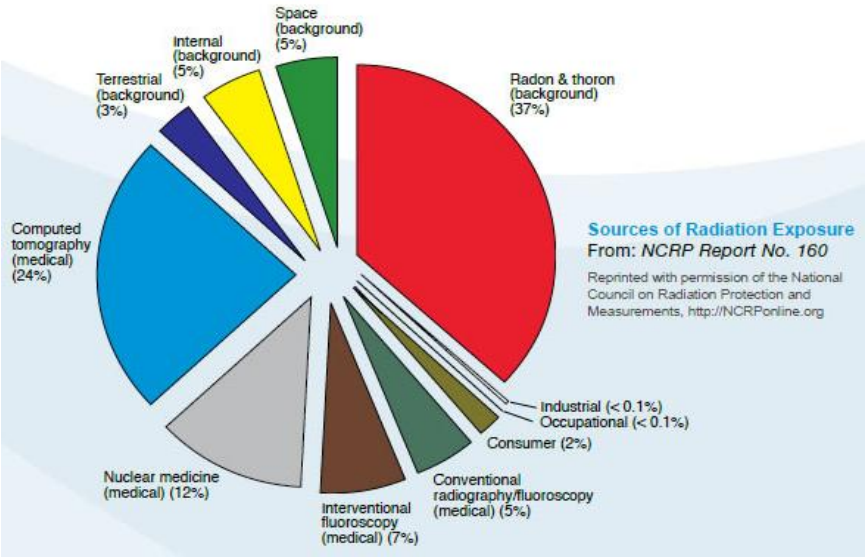
An Emergency Planning Zone has been created around the power plant to facilitate response and evacuations should an emergency occur. The EPZ extends approximately 18-22 miles, stretching from the Nipomo Mesa, north to Cayucos and east through the City of San Luis Obispo.

Residents and businesses, within the EPZ are provided annual information regarding an emergency at Diablo Canyon Power Plant and related actions they may need to take. For more information visit the San Luis Obispo County Office of Emergency Services website at www.slocounty.ca.gov/oes.

An ingestion pathway zone has been created within 50 miles of Diablo Canyon Power Plant to control the movement and ingestion of contaminated food and agricultural products. This Ingestion Pathway Zone includes San Luis Obispo county and parts of Kern, Monterey, and Santa Barbara counties.

Radiation

All of us are exposed to radiation every day, both from natural sources such as minerals in the ground and from man-made sources such as medical x-rays. Radiation dose to people is measured in units of millirems. Half of our average radiation dose comes from natural background sources: cosmic radiation from space, naturally occurring radioactive minerals in the ground and in your body, and from the radioactive gases radon and thoron, which are created when other naturally occurring elements undergo radioactive decay. Another 48 percent of our average dose comes from medical diagnostics and treatments. According to the National Council on Radiation Protection and Measurements, the average annual radiation dose per person in the U.S. is 620 millirems (6.2 millisieverts). The chart below shows the sources of this average dose. Individual doses will vary.



Another chart, found at the back of this booklet, compares the radiation doses from common radiation sources, both natural and man-made.

A Radiological Emergency at Diablo Canyon Power Plant

Diablo Canyon Power Plant is under strict regulations to ensure its safe operation and that redundant safety systems are in place. These safety systems are designed to safely shut down the reactors, keeping radioactive materials inside reactor systems should a problem exist. However, there are situations that could occur where radioactive materials may be released into the environment. Though unlikely, if a radiological emergency occurs, plans are in place to prevent or limit exposure to the public and emergency workers.

Notification of a Radiological Emergency at Diablo Canyon Power Plant

In the event of a radiological emergency at Diablo Canyon Power Plant, the public will be informed by messages broadcast through the Emergency Alert System (EAS) on television and radio stations. If at sea, tune to marine channel 16. If you live or work in the Emergency Planning Zone, you may also be alerted by the Early Warning System (EWS) sirens. The sirens would be activated if a public protective action was required, such as sheltering or evacuation.

If your agricultural operation is located within the 50-mile Ingestion Pathway Zone, you should stay tuned to local radio or television stations for emergency information and instructions specifically for agricultural operations.

Possible Effects from a Radiological Release to Agricultural Areas and Products

Radioactive materials released during an emergency at a nuclear power plant may be dispersed by wind and deposited on land, crops, livestock, food, and water supplies causing contamination. Contamination is the presence of radioactive materials where they are not wanted. The impact on agriculture will depend on the extent of the radiological release, quantity and type of radiological materials deposited, and weather conditions. Contamination may be minor and may not cause any ill effects.

Government Response

For agricultural areas within the 50-mile Ingestion Pathway Zone, the main goals of local and state officials will be to prevent contamination of the food supply and to keep contaminated products from going to market. To accomplish this, officials will utilize information regarding the release of radioactive materials and provide instructions and actions you should take. Sampling and analysis will determine the area of contamination and any products affected. This response will be a coordinated effort by local, state and federal officials.

Officials will communicate and coordinate with farmers, ranchers, nursery stock producers, food processors, and distributors and others involved with the growing, transport, processing and sale of food products. County agricultural departments will also provide direction regarding holds, quarantines and crop certification.

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

- Quarantine of food, animals, and other agriculture commodities;
- Temporary or permanent restriction of agricultural activity;
- Recommendation of placing animals on stored feed;
- Restricting the movement of commodities and animals until they have been determined to be in compliance with health standards;
- Requiring the decontamination or special handling of contaminated animals and other commodities;
- Temporary holding of commodities from outside the quarantine area to be certified to meet destination shipping requirements;
- Inspecting vehicles coming from or passing through designated areas.

Following an emergency, you will be provided specific instruction on actions you should take. Instructions will be based on power plant conditions, the extent of the radioactive release and the levels of contamination. In all cases, public health and safety will be the first priority.

Emergency Phase

The emergency phase is designated as the time the incident begins and continues until the power plant has been brought to a stable condition and any release or potential release has been terminated. Emergencies at commercial nuclear power plants are given the following classifications depending on the severity of the emergency: Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency. For more information on the different classification levels and protective actions local officials may direct, visit www.slocounty.ca.gov/OES.

During the Emergency Phase:

- Listen to local radio and television stations for emergency instructions and stay tuned for updates.
- Follow all instructions provided by local officials.
- Do not risk personal or employee safety trying to protect animals, crops, or food products.
- Phone numbers will be available to provide additional information.

The following information provides steps you can take to help protect animals, crops, and the food supply in the event of an emergency at Diablo Canyon Power Plant, including actions that may be taken by officials.

Animals

- Shelter animals in barns or covered areas.
- Provide adequate food and water for several days in the event you are asked to either evacuate or shelter-in-place.
- Cover outdoor feed and water, including tanks and troughs.

Water

- Disconnect filler pipes from storage containers supplied by runoff, and close water intake valves from any water sources that could potentially become contaminated such as ponds.
- If notified in advance, cover sources of water such as rain barrels and tanks. Covered water sources are unlikely to be contaminated.
- If possible, wait until water has been tested following an emergency before allowing animals to drink from uncovered water sources or before using for irrigation.

Soil

- Do not perform dust producing activities such as cultivation, disking, mowing, and harvesting until instructed, as they may spread contamination.

Agriculture Products (Harvested or Unharvested)

- All agriculture products placed on hold will need to be certified by government officials prior to movement or sale.
- Cease harvesting activities. Potentially affected areas will need to be monitored and assessed to determine if products are safe for consumption.
- Government officials will provide information on safe handling and disposal of products determined to be unsafe for consumption.
- In certain cases, products that have not been harvested may be safe by harvest time.
- Distributors should close all doors and windows and shut off ventilation systems in buildings that contain food, agricultural or other products.

Post-Emergency Phase

The post-emergency phase begins when the release has been terminated or the potential for release no longer exists. At this stage, if a release occurred, radiological assessments will take place and recovery operations will occur.

During the post-emergency phase, officials will sample the air, water, soil, crops, and animals in potentially affected areas to determine if contamination is present. They will also provide guidance on the possible decontamination of animals, food, and property, if necessary. Officials will make decisions regarding the use and sale of exposed food products and commodities. If it is determined that these products cannot be sold, information will be provided on safe disposal.

Protection of the public will be the primary goal of local, state, and federal officials following a nuclear power plant incident. If your area is evacuated, officials will provide information regarding access to your operation.

If you are allowed access to an evacuated area to care for animals or crops, you will be given specific instructions on routes to use and safety measures to take. These measures would depend on the level of contamination in the area but could include:

- Limiting access to areas determined to be unsafe
- Oversight by trained radiation technicians
- Imposing time limits on those entering contaminated areas
- Wearing personal protective clothing
- Maintaining a safe distance from contamination

After a Radiological Emergency

After a radiological emergency, it is essential to follow instructions provided by officials to ensure your safety and prevent the spread of contamination. Instructions following a radiological emergency may include:

- Do not use ponds or other uncovered water supplies for livestock or crops until officials provide instruction that they are safe.
- Do not cultivate or conduct any activities which disturb the soil or generate dust.
- Do not harvest or move crops, livestock, or bees offsite until officials provide direction for your area.
- Do not move, release, or sell any harvested crops, crops in the field, milk, or other food or agricultural products until they have been certified as being safe for consumption. *To be certified, products may need to be sampled. This includes fruits, vegetables, nut crops, nursery products, grains, feed supplies, meat and animal products including livestock, milk, poultry, eggs, and honey.*
- Do not attempt to wash or clean crops unless directed to do so by officials. In certain cases, crops that have not yet been harvested may be safe by harvest time.
- Do not provide or eat products potentially exposed to radiological contamination until health officials advise that it is safe to do so. Crops in backyard gardens or other non-commercial settings will also be subject to these instructions.

Reimbursement for Losses

In 1957, the U.S. Congress enacted the Price-Anderson Act as an amendment to the Atomic Energy Act of 1954. Its purpose was to encourage the commercial development of nuclear energy and to establish a framework for handling potential liability. The act requires the operators of nuclear power plants to provide financial protection against public liability caused by a nuclear incident.

In 1956, stock insurance companies created an insurance "pool", now known as American Nuclear Insurers (ANI), to respond to the needs of the nuclear industry. The pooling concept provides a mechanism to gather the large amounts of insurance capacity needed to insure the nuclear risk. Each operator of a nuclear power plant in the U.S. has liability coverage of $300 million dollars, plus an additional $10.5 billion of secondary financial protection.

If a nuclear power plant radiological emergency were to occur, American Nuclear Insurers would set up local claim centers in coordination with state and local agencies. It is important to keep a record of any losses attributed to the incident.

Local Agencies to Respond

Kern County Department of Agriculture and Measurement Standards
1001 South Mount Vernon Avenue
Bakersfield, CA 93307
(661)868-6300 www.kernag.com

Monterey County of the Agricultural Commissioner
1428 Abbott Street
Salinas, CA 93901
(831) 759-7325 www.ag.co.monterey.ca.us

Monterey County Office of Emergency Services
1322 Natividad Road
Salinas, CA93906
(831)796-1900 www.co.monterey.ca.us/oes

San Luis Obispo County Department of Agriculture Weights and Measures
2156 Sierra Way, Suite A
San Luis Obispo, CA 93401
(805)781-5910 www.slocounty.ca.gov/agcomm

San Luis Obispo County Office of Emergency Services
County Government Center, Room D430
San Luis Obispo, CA 93408
(805)781-5011 www.slocounty.ca.gov/OES

Santa Barbara County Agriculture Commissioner's Office
263 Camino Del Remedio
Santa Barbara, CA 93110
(805)681-5600 www.countyofsb.org/agcomm

Santa Barbara County Office of Emergency Management
4408 Cathedral Oaks Road
Santa Barbara, CA 93110
(805) 681-5526 www.countyofsb.org/ceo/oes

State Agencies to Respond

California Department of Public Health
1616 Capitol Avenue
Sacramento, CA 95814
(916) 449-5661
www.cdph.ca.gov

California Emergency Management Agency
(916) 845-8400 (Press Information Office)
(800) 550-5234 (Governor's Office Safety Referral Line, which would be activated to provide emergency information following an incident)
www.calema.ca.gov

California Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814
(916) 654-0466 *(Public Information Number to provide emergency information following an incident)*
www.cdfa.ca.gov

Federal Agencies and Other Sources of Information

United States Department of Agriculture
(800) 535-4555 (Food Safety and Inspection Hotline, operator answered on Monday - Friday, from 7:00 a.m. to 1:00 p.m. Pacific Time) (800) 462-9029
www.usda.gov

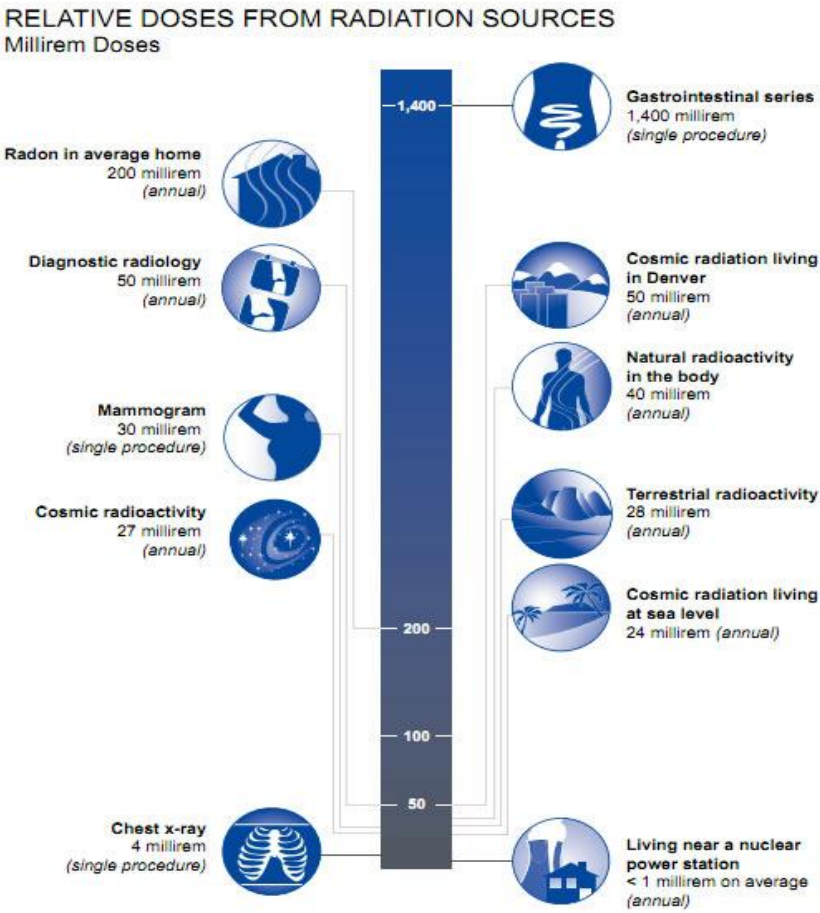
United States Department of Homeland Security
(800) 462-9029 (Nationwide Disaster Assistance)
www.dhs.gov/dhspublic

United States Nuclear Regulatory Commission
800-368-5642
www.nrc.gov

American Nuclear Insurers
(860) 682-1301
www.amnucins.com

Relative Doses from Radiation Sources

The following chart provides the relative doses from different radiation sources you might be exposed to, and these doses would be used to determine your annual exposure.



Important Things to Remember:

If an emergency occurs at Diablo Canyon Power Plant, keep informed by listening to local radio or television stations. If at sea, listen to marine channel VHF 16.

Follow official directions you are provided.

Do not risk personal or employee safety trying to protect animals, crops, or food products.

If a release occurs, do not harvest or move your crops or other food products unless officials provide clear direction and/or written certification for your area.

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For additional copies of this booklet, contact your county Agricultural Commissioner's office or the California Department of Public Health, 1616 Capitol Avenue (MS 7405), Sacramento CA, 95899-7413.