

Nuclear Power Plant Emergency Information for Agriculture

Prepared by the California Department of Public Health
FOR San Luis Obispo, Monterey, Santa Barbara and
Kern Counties 2019

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*For additional copies of this booklet, contact your county Agricultural Commissioner's office or
the California Department of Public Health at the address above*

Introduction

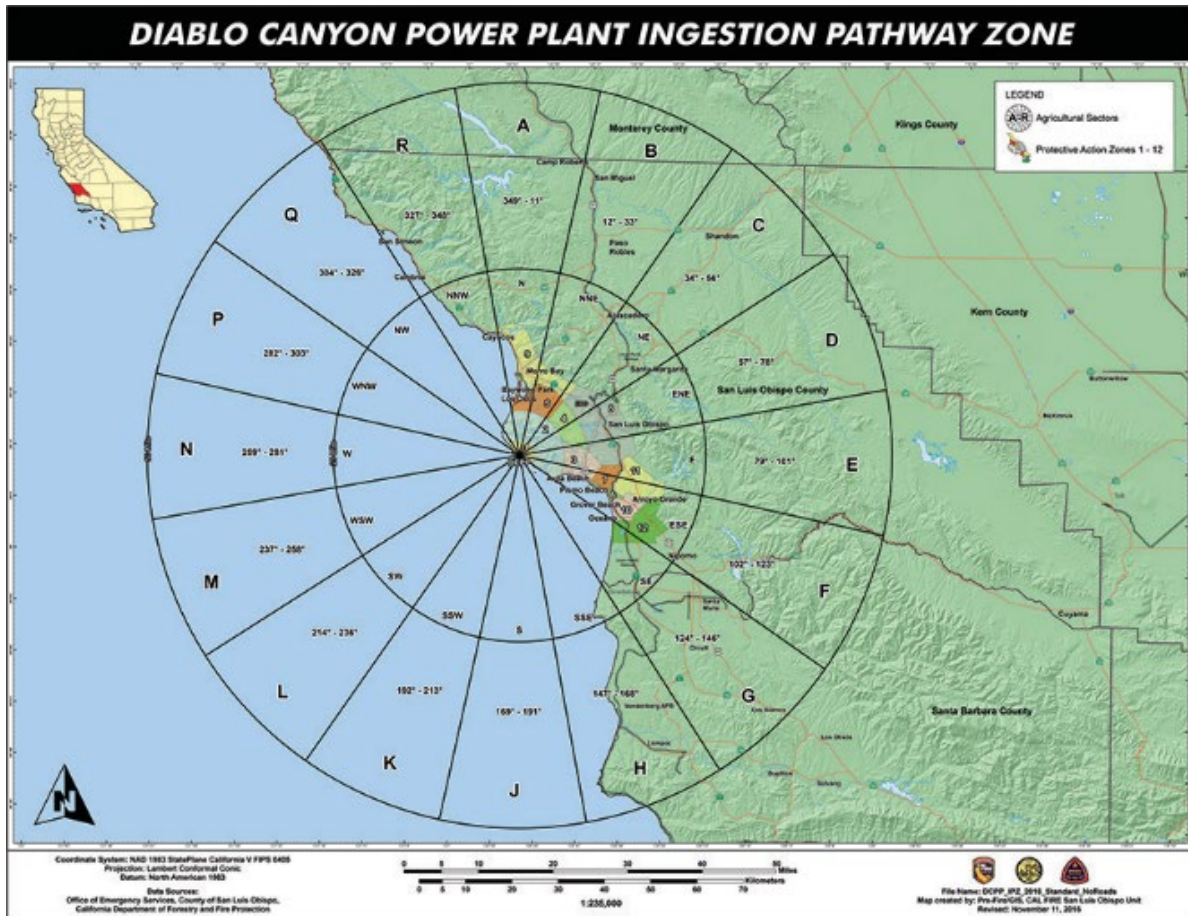
This pamphlet is intended for farmers, ranchers, nursery stock producers, food processors and distributors, and others involved with the growing, transport, processing, and sale of agricultural products in San Luis Obispo, Monterey, Santa Barbara, and Kern counties. Its purpose is to provide information 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.

Emergency Planning Zone and Ingestion Pathway Zone

An Emergency Planning Zone (EPZ) has been created around Diablo Canyon Power Plant to facilitate planning and response 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. The EPZ is divided into 12 Protective Action Zones (PAZs) which help organize emergency planning and response actions into areas that are familiar to response agencies and the public.

State and county officials have developed comprehensive plans to respond in the unlikely event of an emergency at the Diablo Canyon Power Plant. Residents and businesses within the EPZ are provided annual information regarding an emergency and related actions they may need to take. For information before, during and after an emergency, visit www.ReadySLO.org.

The Ingestion Pathway Zone (IPZ) extends to a 50-mile radius around Diablo Canyon Power Plant. The purpose of the IPZ is to control the movement and ingestion of potentially contaminated food and agricultural products following a radiological emergency. The IPZ includes San Luis Obispo County and parts of Monterey, Santa Barbara, and Kern counties. The IPZ is divided into 16 smaller Agricultural Sectors to help with planning and response. Actions which may be directed to protect the food supply will be communicated by PAZ, Agricultural Sector, or defined geographical area.



A RADIOLOGICAL EMERGENCY AT DIABLO CANYON POWER PLANT

Diablo Canyon Power Plant follows strict regulation to ensure its safe operation, including having redundant safety systems in place. These safety systems are designed to safely shut down the reactors; keeping radioactive materials contained should a problem exist. However, there are situations where radioactive materials may be released into the environment. If a radiological release occurs, plans are in place to prevent or limit exposure to the public and emergency workers.

ABOUT 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 millirem or millisievert. Half of our average radiation dose comes from natural background sources: cosmic radiation from space, naturally occurring radioactive minerals in the ground and from the radioactive gas radon and thoron. 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 millirem (6.2 millisievert). Individual doses will vary.

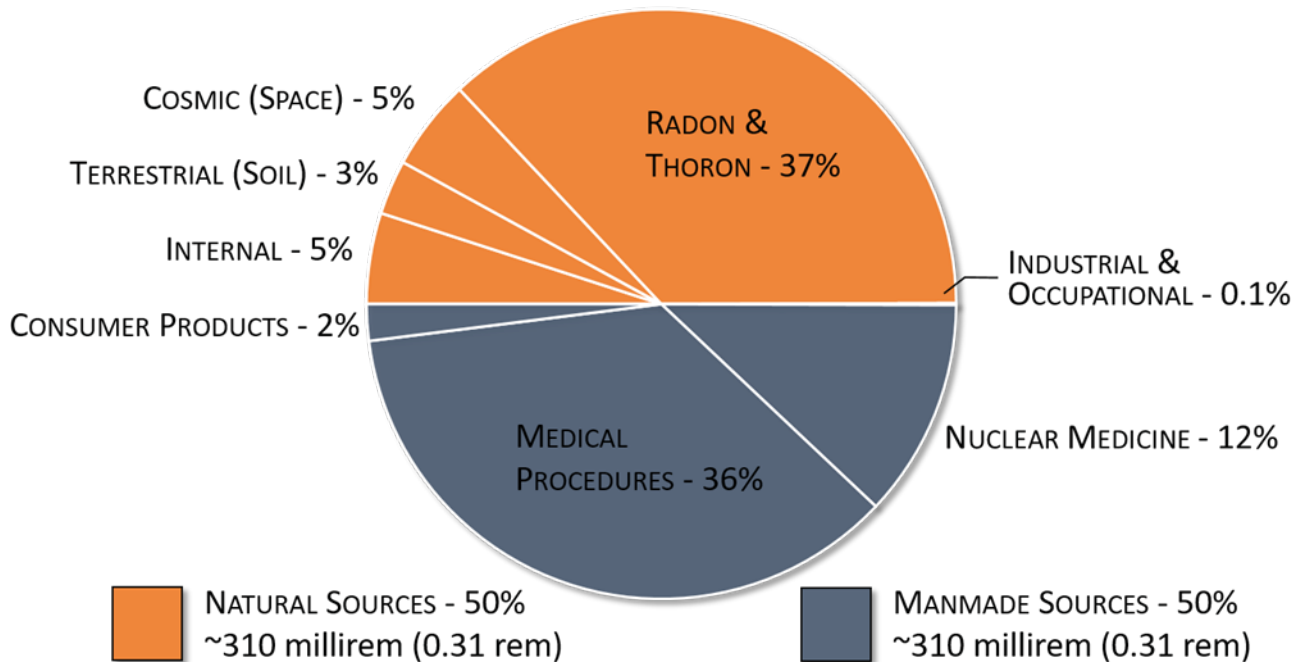
POSSIBLE EFFECTS TO AGRICULTURAL AREAS AND PRODUCTS

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. The impact on agriculture will depend on the extent of the radiological release, quantity and type of radiological materials deposited, and weather conditions. Any contamination may be minor and may not cause any ill effects.

NOTIFICATION OF AN EMERGENCY

In the event of a serious emergency at Diablo Canyon Power Plant, a combination of alert and notification systems will be used to notify the public. Should protective actions, such as evacuation or sheltering in place be necessary, officials will utilize the Early Warning System (EWS) sirens. The sirens are an indication that the Emergency Alert System (EAS) has been activated and you should tune to a local radio or television station for emergency information. Local radio and television stations will broadcast all actions that need to be taken, including actions directed for the agricultural community.

SOURCES OF RADIATION EXPOSURE IN THE UNITED STATES



SOURCE: NCRP REPORT NO.160 (2009)

AGRICULTURAL ACTIONS DURING AN EMERGENCY

For the agricultural community, the main goals of local, state, and federal 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. Some of these actions will be directed in the beginning stages of an emergency to help prevent contamination of livestock, food and water.

County agricultural officials may also open an information center to answer questions specifically for the agricultural community. Officials will also utilize agricultural databases to provide additional information and actions based on the situation.

Other actions will be directed in the hours, days and weeks following a radiological emergency to ensure any contamination is identified, decontaminated and quarantined as necessary to ensure the safety of the food supply. Sampling and analysis will be necessary to determine the area of contamination and any products affected. This response will be a coordinated effort by local, state and federal officials.

PREVENTIVE ACTIONS

As even small amounts of contamination can be harmful if ingested regularly, strict regulations are in place to ensure contaminated products are kept out of the food supply. Because of this, it is possible that agricultural actions will be directed for large sections of the Ingestion Pathway Zone, even if no protective actions have been directed for the general public.

The following actions may be directed in the early stages of an emergency to help prevent contamination of livestock, crops, and the food supply in the event of a radiological release. These preventative actions are only recommendations and are intended to be completed in advance of a radiological release in the area. Should emergency officials direct public protective actions such as evacuation or sheltering in place for your area, those actions take precedence, and any preventative agricultural actions should be ceased.

The following are some of the preventative agricultural actions that may be recommended:

- Remove all dairy animals from pasture, shelter if possible, and provide them with stored feed and water.
- Shelter any meat animals and provide stored feed and water. If livestock consume feed and water contaminated with radioactive materials, contamination will be absorbed into their bodies and could enter the human food supply through meat and meat products.
- Shelter poultry and provide stored feed and water.
- Cover any open sources of water. Cover open rain barrels and tanks to prevent contamination. For storage containers that are supplied by runoff from roofs or other surface drains, disconnect the filler pipe to prevent contaminants from being washed into the storage container. Covered wells and other covered or underground sources of water will likely not become contaminated.
- Stop all harvest activities including apiaries and backyard gardens

Every emergency is different, so it is important to prepare your agricultural operation in advance and remain tuned to local radio and television stations for continuing emergency information.

ACCESS TO YOUR AGRICULTURAL OPERATION IF YOU ARE DIRECTED TO EVACUATE

Protection of public health and safety will be the primary goal of local, state, and federal officials. Once the emergency has been mitigated, officials will coordinate access to evacuated areas for essential services such as caring for livestock. It is

important to leave plenty of feed and water as you may not be able to return for several days or even longer.

If you are permitted entry into an evacuated area, you will be given specific instructions on how to access the area, safety measures to take, and how long you can remain in the area. 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

ACTIONS FOLLOWING A RADIOLOGICAL EMERGENCY

Following a radiological emergency, officials will identify areas that have been affected by contamination. They will determine what areas can be reoccupied, areas where temporary access is permitted, and what crops, water and livestock need to be sampled. Sampling will be conducted to verify which products are safe to consume. Guidance will also be provided on the possible decontamination of livestock, food, and property, as necessary.

Government officials will place holds on food and agriculture products that will need to be certified by government officials prior to movement or sale. The movement of commodities and livestock may be restricted until they have been determined to be in compliance with health standards. Vehicles may be stopped and inspected coming from or passing through designated areas. Additionally, commodities from outside the affected area may be temporarily held to be certified to meet destination shipping requirements.

Actions directed by local officials will be specific to the area and type of agricultural operation being conducted.

Some actions that may be directed are:

- Do not eat or provide products such as crops or milk to others that have been potentially exposed to radiological contamination until health officials advise that it is safe to do so. Backyard gardens or other non-commercial settings will also be subject to these instructions.
- 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.
- If government officials find that the soil is contaminated, proper soil management procedures could be implemented to reduce contamination.

“Idling”, the non-use use of land for a specific time period may be necessary. However, in situations involving small spots of highly contaminated soil, removal and disposal of the soil may be necessary. Government officials will provide you with guidance on what actions are appropriate.

- Do not perform dust producing activities such as cultivation, disking, mowing and harvesting until instructed, as they may spread contamination.
- Honey and beehives will need to be sampled and analyzed by government officials if radioactive contamination is detected in the area. You will be instructed by officials on how to handle the hives and honey.

These are just a few of the actions that may be directed to protect the food supply. As ramifications of a radiological release on the food supply may be widespread, it is important to follow directions closely to ensure your safety and the safety of the food supply.

REIMBURSEMENT FOR LOSES

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” 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.

If a nuclear power plant emergency were to occur, the federal government, courts system, and American Nuclear Insurers would coordinate reimbursement for losses. Local claim centers would be established to assist in this process. As this will be a complex process, it is important to keep a detailed record of any losses attributed to the incident.

LOCAL AGENCIES

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

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

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

Monterey County
Office of Emergency Services
1322 Natividad Road
Salinas, CA 93906
(831)796-1900
www.co.monterey.ca.us/oes

Santa Barbara County
Agriculture Commissioner Weights and Measures Department
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/oem

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

STATE AGENCIES

Governor's Office of Emergency Services
(916) 845-8510
(Office of Crisis Communications and Media Relations)
(800) 421-2921 or
(916) 845-8911
(California State Warning Center-24 Hour Emergency)
www.caloes.ca.gov

California Department of Public Health
MS-7405, IMS K-2
P.O. Box 997377
Sacramento, CA 95899-73771
(916) 449-5661
www.cdph.ca.gov

California Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814
(916) 654-0466
www.cdfa.ca.gov

FEDERAL AGENCIES AND OTHER SOURCES OF INFORMATION

United States Department of Agriculture
(202) 720-2791
www.usda.gov

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

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

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