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CONTINGENCY PLAN FOR THE LAWRENCE LIVERMORE NATIONAL LABORATORY SITE 300 HAZARDOUS WASTE OPERATIONS

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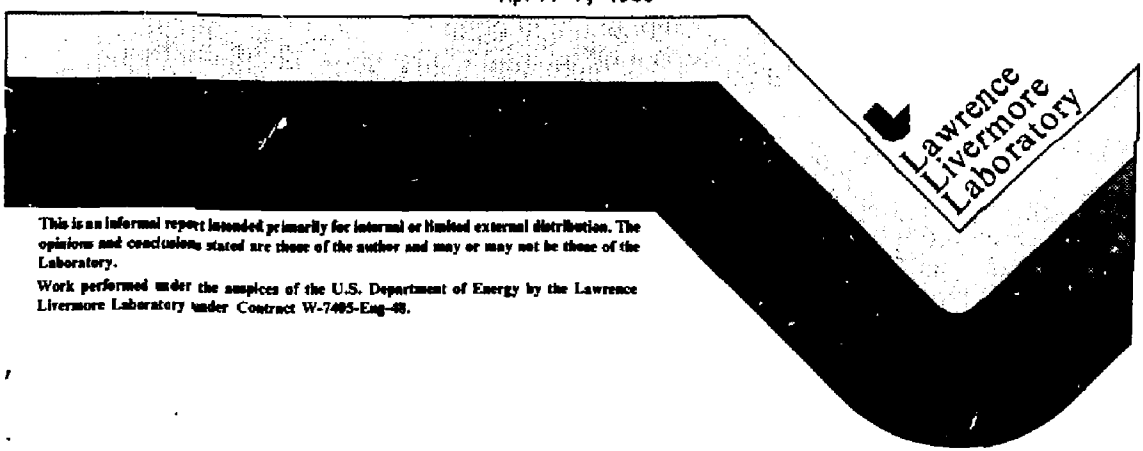
April 1, 1983



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I. INTRODUCTION

This contingency plan for hazardous waste release provides guidance for coordinating response efforts at Site 300, Lawrence Livermore National Laboratory (LLNL). The goal of this plan is to (1) minimize hazards to human health and life, and (2) protect livestock, wildlife, the environment, and property in the event of a fire, explosion, or any unplanned release of hazardous substances or mixtures to the air, water, or soil.

In this document, "hazardous waste" includes all waste substances or mixtures that:

- Contain any of the hazardous substances listed in 40CFR261 (Resource Conservation and Recovery Act).
- Have the characteristic of being toxic, flammable, reactive, corrosive, an irritant, and/or a strong sensitizer, as defined in 40CFR261 (RCRA).
- Are radioactive and are used in experiments at Site 300.
- Could have a significant effect on the environment.

The contents of this Plan include:

- An overview of LLNL Site 300's emergency response capabilities.
- A description of responsibilities assigned to LLNL facility personnel and to LLNL and non-LLNL emergency response personnel.

- Specific actions to be taken by LLNL personnel in the event of an unauthorized release or a fire.
- A means of contacting emergency response personnel.
- A summary of on-site self-help and off-site evacuation plans.

II. EMERGENCY RESPONSE CAPABILITIES

LLNL is able to respond to and control a number of industrial emergency situations with its available emergency control equipment and personnel trained to act to minimize consequences of unauthorized releases. The resources available for incidents at Site 300 are described below.

Emergency Response Personnel

1. LLNL Organization

LLNL's Hazards Control Department is available to provide safety guidance and support where hazardous materials are involved. As part of this effort, a fire station is manned and operated at the Site 300 facility. A Hazards Control Safety Team Leader, two explosives safety experts, and two Health and Safety technicians are also in residence at Site 300. Should an emergency arise requiring additional support, firefighters from the station located at the Livermore Site and personnel from disciplines such as environmental evaluations, industrial hygiene, and health physics can be summoned to Site 300 within thirty minutes after notification during work hours. In addition, LLNL's Disaster Control Organization, which is illustrated in Figure 1, is available for response.

2. Off-Site Arrangements

The following organizations have agreed to provide aid to LLNL in the event of an emergency:

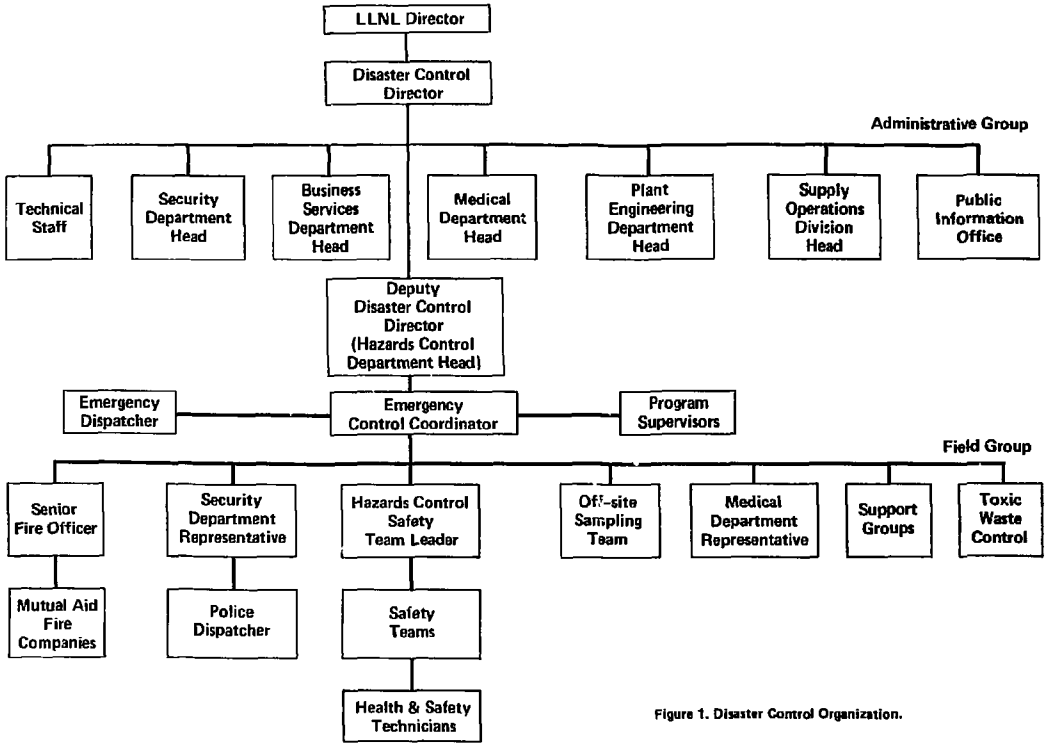

Figure 1. Disaster Control Organization.

Fire Departments - Twin Valley Mutual Aid Plan
City of Livermore
City of Pleasanton
Dublin-San Ramon Services District
Valley Fire Protection District
Tassajara Fire Protection District
Santa Rita
Camp Parks
Veterans Administration Hospital
Alameda County Fire Patrol
California Department of Forestry
Alameda County Office of Emergency Services
Tracy Rural

Police Departments - San Joaquin Country Sheriff
California Highway Patrol

Hospitals - Valley Memorial Hospital
Tracy General Hospital
Tracy Ambulance Service

Emergency Communications System

The Site 300 emergency communications system consists of radios, telephones, manual and automatic alarm systems, and messengers.

Emergency alarms are received by the Protective Services dispatcher, referred to as MIKE, in Building 870. For the most part, alarms are called in to the

Protective Services dispatcher ("MIKE") in Building 870 from facilities via the emergency "crash" number (X333) and are monitored at the Site 300 Firehouse, Administrative Building 871 and Medical Building 877. Other alarms are received via the automatic alarm system or Channel B radio, which has a short-range frequency, or Channel A radio, which allows long-range communication. Calls received by MIKE are transmitted by telephone to the Fire Department, Hazards Control Site 300 office, Site 300 Medical Department, and to the Site 300 Maintenance Machinists Shop for initial response, as illustrated in Figure 2. If additional response personnel are needed from the Livermore site, communication is by telephone or Channel A radio.

Emergency Control Plans and References

1. Disaster Control Plan

   LLNL has an established Disaster Control Plan which outlines the response organization, assigns responsibilities, and describes available resources. Supplements, which are listed in the back of the Disaster Control Plan, provide more details for response to specific incidents. These provide general guidance; guidance specific to Site 300 can be found in the references listed below.

2. Run Cards

   Run cards that contain information pertinent to responding to facility emergencies are maintained at the Site 300 Firehouse. The following information is provided:

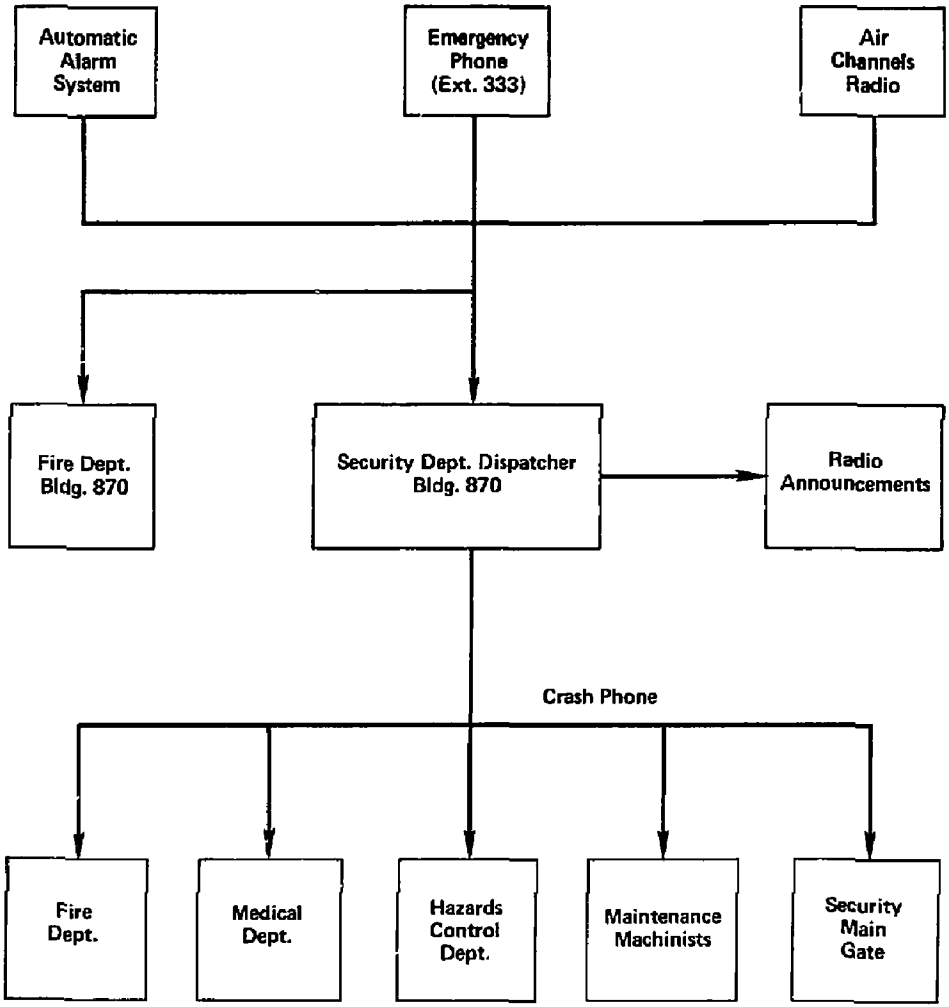

Figure 2. Site 300 alarm/alert system.

- Hazard Identification Cards: This card provides a list of hazardous materials and their physical location within the building and surrounding area.

- Emergency Call List: This is a list of names and telephone numbers of individuals who can be contacted 24 hours a day. These are people who are knowledgeable about the work and hazards associated with the area.

- Building Plan: A plot plan of the building and surrounding area is available. Information such as room numbers, shut-off valve locations, fire alarm panels, etc., is also contained here.

- Explosive Set-Back Plan: Safe set-back distances for high explosives facilities are shown in a plot plan.

3. Accident Control Plan

Part III of this Site 300 Contingency Plan for Hazardous Waste Operations summarizes information included in Procedures E-1 through E-6 of the Site 300 Operations Manual and the LLNL Disaster Control Plan.

4. Other Building References

- Operational Safety Procedures: Safety procedures for buildings that contain hazardous materials can be found in Bldg. 871, Room 144. The

information includes general functions of the building, location of emergency equipment, safety requirements for hazardous operations, etc.

- CFIRS Information: General information on the building, such as number of stories, construction type of interior and exterior walls, floors, and roofs can be obtained from the Firehouse Dispatcher, Livermore site (X27595).

Emergency Response Equipment

The following response equipment is available for use:

Fire Department Response Equipment (Site 300)

- All Fire Department vehicles are equipped with radios on LLNL channels and Twin Valley Mutual Aid channels.
- 1812 is a pumper firefighting vehicle specifically designed to operate on the hilly terrain at Site 300. It is equipped with a 1000-gpm pump, a 1000-gpm water tank, self-contained breathing apparatus, salvage covers, a 2500-watt electric generator, radiation meters, air samplers, combustible gas indicators and a standard assortment of hoses, ladders, and firefighting tools and appliances. (Location: Building 870).
- 1863 is a grass firefighting vehicle equipped with a 400-gal water tank, a 120-gpm booster pump, a 300-lb dry chemical fire extinguisher, and a small size hose. (Location: Building 870).

- 1894 is an ambulance capable of transporting three patients. It carries equipment, required by the State of California. (Location: Building 870).
- 1895 is a reserve ambulance that carries a squad bench, resuscitator, gurney, and assorted first aid apparatus. (Location: Building 870).
- 1842 is a four-wheel-drive truck that holds 100 gal of water and a 7-gpm pump. (Location: Building 870).

Plant Engineering Response Equipment (Site 300)

- 1845 is also a four-wheel-drive truck containing 100 gal of water and a 7-gpm pump. (Location: Building 873).
- A variety of heavy equipment is available during an emergency. This includes compressors, cranes, cutting torches, fork-lifts, generators, pumps, bulldozers, etc. (Location: Building 875).

Toxic Waste Control Response Equipment (Livermore Site)

- A 1-ton pickup truck, equipped with a flashing amber light and signs stating "Dangerous Cargo", is available for response to hazardous waste calls and emergencies. Equipment such as portable pumps, hoses, absorbant, etc., can quickly be loaded onto it. This response vehicle is also equipped with a first aid kit. (Location: Bldg. 612).

- A 5,000-gallon tanker that can respond to large pump-outs of hazardous waste is available for emergency responses. (Location: Bldg. 419).

- A hazardous waste spill kit is available from the TWC Group. This kit is portable and is equipped with 100 lbs. of absorbant, 5 gallons of contamifix (prevent airborne contamination), disposable coveralls, bags, respirators, surgical gloves, etc. (Location: Bldg. 612).

- Four 1,000-gallon portable tanks are always available for emergency response. They are capable of receiving hazardous waste having a pH range of 1 to 13. (Location: Bldg. 514).

- An assortment of electrical and gasoline-driven pumps are available for emergency response. These pumps have capacities up to 120 gpm and can pump corrosive liquids and sludges. (Location: Bldg. 514).

- Two complete sets of chrome leather suits are maintained for responding to reactive or shock-sensitive wastes such as old ethers, peroxide or super oxide formers. In addition, two blast shields constructed out of 1/4" steel are maintained and can be mounted on a flat bed truck for safety during transportation. (Location: Bldg. 612).

Other Related Equipment

- Atmospheric Release Advisory Capability (ARAC) (Site 300/Livermore)

  This system is designed to estimate the effects and atmospheric dispersion of hazardous material releases. The core of this system is a PDP-11 computer with a CRT readout to graphically display the

concentration of spills on site, within the immediate area surrounding the spill or within Northern California. The meteorological tower located at Site 300 site supplies the necessary information such as wind speeds, temperature gradients, atmospheric pressure, etc., for these computations. Some computations are performed by the PDP-11 but if more involved numerical modeling is required, the ARAC central facility is activated. This facility is equipped to perform detailed atmospheric dispersion calculations allowing a more accurate tracking of hazardous material dispersion. The capability of this system allows the various response teams to have instantaneous information on any hazardous material concentrations resulting from a spill or an accidental release.

III. HAZARDOUS WASTE RELEASE RESPONSE ORGANIZATION AND PROCEDURES

This section outlines the basic steps to be followed to facilitate the handling of Site 300 emergencies so that impacts to human health and the environment can be minimized. Potential releases fall into three main categories: explosives incidents, radioactive material incidents, and general hazardous chemical incidents. The following procedure is a general guide to be used after an incident. The responsibilities of LLNL personnel involved in responding are included. The designated person or group shall perform the functions described under their section heading below; however, personnel must use their judgement in carrying out their responsibilities safely during actual incidents and perform any additional functions as they are required by emergency response personnel.

1. Local Personnel Response

a. Employee(s) Discovering or Involved in Incident or Potental Incident

- If further injury from hazardous materials is imminent, remove the injured person(s) and leave the immediate vicinity. If it is necessary to evacuate the building, move to safe area or to the designated assembly point. Stay upwind from the scene of the incident. If building contains explosives, evacuate and seek cover a minimum of 1000 ft away. Avoid the frangible side

of building and stay under cover. Do not leave this area until dismissed by supervisor or emergency personnel. If no threat of further injury is present, do not move the injured person. Do not call the Medial Department since this is done automatically though the emergency call-in (Call X333).

- If any question exists as to the magnitude of the emergency and whether or not it should be called in, call for help without waiting for a resolution, and activate fire alarm in your area if there is a fire. Call the emergency dispatcher by phone (X333). In clear concise language state what happened, the specific location, whether anyone was injured, your name and the phone number you are calling from. Stay on the phone till released by dispatcher.
- Proceed with first aid if you know it (stop bleeding, begin artificial respiration, prevent shock, etc.). Attempt to confine and control the incident if familiar with the operation and/or materials. For example, secure equipment and gases. Isolate any incompatible chemicals and explosives. Securing electrical power is permissible, but do not reenergize system after it is secured. This will be done by electricians. DO NOT secure main water supply. This will be done by maintenance machinists.
- Extinguish small fires, if possible.
- If evacuation was necessary, check for unaccounted personnel and report status to MIKE via radio.
- When response personnel arrive on the scene, show the Emergency Control Coordinator where the incident occurred, inform him of

the hazards in the area and provide any other information needed for the emergency response personnel to avoid injury. When the Emergency Control Coordinator or Deputy Disaster Control Director assumes control of the emergency, stand by to provide the information requested.

b. Supervisor

- Direct personnel to perform actions required by the nature of the emergency until the Senior Fire Officer arrives. Note: This action is largely a judgmental one. The first priority is life-saving if this attempt does not endanger other employees. Secondly, all attempts should be made to prevent off-site consequences which would adversely affect the environment. The third priority is to protect LLNL property. Actions such as spill containment by closing valves, diverting releases, extinguishing fires etc. are acceptable until control is taken by the emergency response team or fire protection personnel.

- Provide any information needed by the emergency response team regarding hazards in the area.

- Direct personnel in providing assistance to the emergency response team when it is requested by the Emergency Control Coordinator, the Deputy Disaster Control Director or their alternates.

c. Employees Not Involved in the Incident

- Stay away from the scene of the incident and follow instructions issued by Supervisor, Senior Fire Officer, Emergency Control Coordinator, or the Deputy Disaster Control Director or their alternates. These instructions may be issued at the scene or via the Site 300 paging system.

- If an alarm sounds in any building other than the one you are in, stay in the building. If you are outside leave the area immediately.

2. Emergency Communications Personnel

Relay incident details promptly over a reserved telephone line to emergency response groups. Thereafter, use the best method available for notifying other personnel that are requested. During off-shift hours, refer to the Emergency Call List maintained at the LLNL Emergency Dispatchers Station and notify required personnel by phone or via the emergency dial page system.

Immediate Notification

a. Protective Services Console Operator (Site 300)

- Activate the Crash Circuit at Site 300 ,Fire Department, Medical etc.).

- Notify the LLNL Emergency Dispatcher (Livermore Building 323, Extension 2-7333).
- Announce the emergency on radio.

b. Emergency Dispatcher (Livermore)

- Notify on-duty Emergency Control Coordinator.
- Notify the following:

  a. The Deputy Disaster Control Director or alternate.

  b. The Hazards Control Safety Team Leader or alternate.

  c. The Programmatic Representative for the area involved.

- Make additional notifications when requested directly by the Senior Emergency Response person or through the Console Operator at Site 300 (MIKE). This additional notification must be made immediately after size-up if a fire or hazardous situation is discovered.

3. Firefighters

- Respond to emergency with designated equipment.

4. Senior Fire Officer

- Take Status Report, which indicates the presence of explosives and other hazardous materials in each building, and building run cards, and go to the scene of the incident immediately.
- Control emergency scene upon arrival and continue control of activities until relieved by the Emergency Control Coordinator.
- Proceed with preplanned control actions, with guidance from the Emergency Control Coordinator, the Hazards Control Safety Team Leader and area personnel.
- Start determining character, source, quantity and extent of released material.
- Coordinate mutual aid fire company activities until relieved by the Emergency Control Coordinator.

5. Emergency Control Coordinator

- Go to the scene of the incident, assume command and assess the magnitude of the emergency.
- Establish a command post.
- Direct lifesaving and general course of control actions and request additional personnel as required until the Deputy Disaster Control Director arrives.
- Assist Deputy Disaster Control Director in implementing Disaster Plan. If the emergency is a disaster, as defined according to criteria delineated in LLNL's Disaster Control Plan, activate the Plan and act as Deputy Disaster Control Director until the event is

not a disaster.

- Make recommendations to Disaster Control Director on course of action.
- If in command, notify Safety Team Leader when emergency activities are over.

6. Deputy Disaster Control Director

- Go to scene of the incident, meet with the Emergency Control Coordinator and begin transition for command of control activities.
- Implement Disaster Control Plan Procedures and directions given by the Disaster Control Director.
- Inform Director of control progress.

7. Disaster Control Director

- Establish headquarters, appropriate to situation.
- Coordinate administrative and field group interactions (see Figure 1) and delegate authority for direction of people, equipment and operations involved in incident.
- Call upon outside agencies for assistance if needed.
- Order evacuation of Site 300 if necessary.
- Notify local authorities of local evacuation needs.

8. Department of Energy Health and Safety Division Director

- Notify the governmental on-scene coordinator for the geographical area or the National Response Center if the events could threaten human health or the environment outside Site 300.

- Notify appropriate hazardous waste regulatory authorities within 24 hours of the incident.
- Notify appropriate hazardous waste regulatory authorities after clean-up by Toxic Waste Control i[illegible].

9. Medical Department, Plant Services, Supply Divison and Business Services Heads

- Perform support services as requested by the person directing the control activities.

10. Protective Services Division Personnel

- Send representatives(s) to site of incident (command post).
- Carry out traffic crowd control, guarding and other tasks requested by command personnel.

11. Hazards Control Department Personnel

Safety Team Leader

- Go to the scene of the incident (command post).
- Obtain technical information from safety disciplines of industrial hygiene, environmental evaluations, health physics, explosives safety, industrial safety, and fire safety, as required by command personnel.

- Direct activities of health and safety technicians in designating and maintaining contamination control zones.
- Check to see if facility is safe after notified by command personnel that emergency activities are complete. If so, notify and return facility to operation supervisor after the State Department of Health Services has been notified that the facility is cleaned up.

Safety Discipline Team Members and Technicians

- Provide support as requested by the Site 300 Safety Team Leader or command personnel.

Off-site Sampling Team

- Notify command post of activities (Sampling Team Captain).
- Make field measurements, and collect and analyze water, soil and vegetation from possible on- and off-site areas of contamination.
- Report extent of contamination to person in charge.

12. Toxic Waste Control Group Personnel

- Provide spill kit, response vehicles and equipment, and tankers as requested.
- Coordinate and carry out decontamination and disposal operations after incident is over.
- Notify person in charge when operations are complete.

IV. EVACUATION PLANS

Local Building or Area Evacuation - Facilities will be evacuated under the direction of the building supervisor, Senior Fire Officer, Emergency Control Coordinator, Disaster Control Director or whenever there is an imminent risk involved. Program facility self-help plans and procedures described in Section III, Local Personnel Response, will be followed during the evacuation. In general, radio announcements or directions by the person in charge will be issued. Personal discretion will be used if it appears that evacuating the building would increase injury potential. In that case, a sheltered location such as a control room will be sought in the building.

Personnel will assemble in pre-determined LLNL Self-help Plan evacuation assembly points making sure they are upwind or out of the blast zone.

Site 300 Evacuation - A radio announcement will be issued to evacuate the Site if the Disaster Control Director or his alternate feels that the action is necessary. His decision will be based on technical information received from emergency response personnel and also the information provided by ARAC on meteorological conditions for the area.

Corral Hollow Road is the only off-site evacuation route for Site 300. Evacuation to the east or the west on the road will be based on cloud path or potential cloud path patterns generated by ARAC or meteorological support personnel.

Wide Area Evacuation - Local and State officials notified by LLNL's Disaster Control Director or his alternate will decide on actions to be taken to implement evacuation of areas surrounding Site 300. The Director and his technical staff will provide information, such as ARAC data, to help appropriate officials decide whether and which areas should be evacuated.

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