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Master Emergency Plan for the Ernest Orlando Lawrence Berkeley National Laboratory

Environment, Health and Safety Division

March 1999



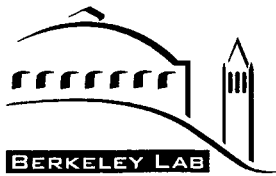
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Master Emergency Plan for the Ernest Orlando Lawrence Berkeley National Laboratory

PUB-533
Revision 1
Effective Date: April 1, 1999

Environment, Health and Safety Division
Lawrence Berkeley National Laboratory
University of California
Berkeley, CA 94720

Prepared for the U.S. Department of Energy under Contract No. DE-AC03-76SF00098



**Master Emergency Plan for the
Ernest Orlando Lawrence Berkeley National Laboratory**

**PUB-533
Revision 1
Effective Date: April 1, 1999**

Approved By:

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3-17-99

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3-17-99

David McGraw
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1. Introduction

1.1 Purpose

The purpose of this Master Emergency Plan is to ensure that Lawrence Berkeley National Laboratory's (LBNL's) emergency resources are in maximum readiness before, during, and after any emergency. This plan also describes LBNL's philosophy, and a tiered approach, to emergency preparedness.

The objectives of emergency planning are

- to save lives and minimize injury,
- to protect the environment and property, and
- to return to normal operations as soon as possible.

Emergency response units and supporting organizations should use this plan as the basis for developing their organization's plans. Emergency plans and procedures published by other LBNL organizations for specific types of emergencies must be consistent with the guidance contained in this plan.

Since this plan describes concepts and procedures applicable before, during, and after emergencies, it is in effect immediately upon publication.

1.2 Scope

This plan addresses the planning for, response to, and recovery from emergencies or disasters that may overwhelm Lab resources.

This plan applies to all emergencies at locations listed in Section 1.7. of this chapter. These include LBNL buildings and facilities on the Laboratory main site, on the University of California Berkeley Campus, and at its locations in the cities of Berkeley, Oakland, and Walnut Creek, California, and Washington, D.C. Offsite emergency planning incorporates local government and mutual-aid responses.

Emergencies that would not be categorized as disasters are covered by other specific plans and emergency procedures, such as the LBNL Hazardous Materials Response Plan, Spill Control Contingency Plan, and the Hazardous Waste Handling Facility's Contingency Plan.



1.3 Philosophy of Emergency Preparedness

This plan is based on the philosophy that proper response can only be attained if each individual reacts appropriately and knowledgeably. It is the intent of this plan, therefore, to use the talent and specialized knowledge that exists at all levels at the Laboratory. While normal lines of administrative and departmental authority and responsibility will form the basis for emergency action, immediate knowledgeable response at the local level is considered to be the first line of defense. Prompt and proper action by those on the scene will limit the extent of danger to personnel and property, and may avert a disaster. Laboratory management, emergency response groups, and other support groups will become involved as outlined herein.

1.4 Concept of Operation

Sitewide emergency planning is based on credible scenarios presupposing widespread damage and injury. The most credible scenarios are a large earthquake on the Hayward fault and a firestorm in the urban-wildland interface surrounding LBNL. These events would have serious impacts on personnel. Planning for such scenarios will facilitate dealing with emergencies of a lesser nature. Section 1.12, *Hazard Assessment and Planning Scenario*, addresses the basis for LBNL's Emergency Plan concept.

During a sitewide emergency, LBNL will draw on all existing resources to respond to and mitigate the effects of the emergency. This commitment of resources will include (but not be limited to) assignment of personnel; provision of supplies, equipment, facilities, and funding; and requesting mutual aid when necessary.

1.5 Updating the Master Emergency Plan

This plan will be reviewed annually and updated not later than 30 June, if required. Other updates resulting from organizational changes, results of drills and exercises, or changes based on improved practices will be made as necessary. Changes will be distributed to all Emergency Plan holders in the form of change pages to be inserted into their binders. The Emergency Manager of the Environment, Health and Safety Division is solely responsible for updating the plan. All recommended changes should be directed to the Emergency Manager.

1.6 Document Control

All copies of the Master Emergency Plan will be numbered sequentially and issued to organizations or individuals by this control number. Issuance will be documented in the appropriate LBNL tracking system. The most current version of this plan will be posted on the LBNL Emergency Services web page.



1.7 Site Description

Berkeley Lab is a multiprogram national laboratory operated by the University of California for the U.S. Department of Energy. Berkeley Lab employees work in such diverse fields as fundamental physics, energy conservation technology, materials science, structural biology, medical imaging, and advanced battery technologies. The oversight of LBNL operations is assigned to the DOE Oakland Operations Office (DOE/Oak). The DOE program office with major programmatic responsibilities for LBNL is the Office of Science (OS).

LBNL is located 5 km (3 miles) east of San Francisco Bay (Figure 1-1) and 25 km (15 miles) northeast of San Francisco in Alameda County, California. The Laboratory occupies a 200-acre site (Figure 1-2) on the west-facing slope of the Berkeley Hills above the University of California Berkeley campus. The boundary between two cities divides the site, with the western three-quarters being in Berkeley and the eastern quarter in Oakland. Much of the surrounding area is urbanized. The LBNL site is in the northwest corner of property owned by the Regents of the University of California, and is bounded on the north by single private family homes, and on the west by private multidwelling units and a University student hall. The southeastern portion of the UC Regents' property includes recreational facilities and a botanical garden, while the eastern portion of this property is maintained in its natural state. LBNL is drained by Blackberry Canyon, which receives drainage from the central part of the site, and Strawberry Canyon, which generally forms its southern boundary. As a result of the site's hilly terrain, grading and filling have often been necessary to provide suitable building sites. Areas have been built up with soil up to tens of meters thick in some of the original ravines and depressions.

LBNL buildings are owned by DOE and constructed on land leased to DOE under long-term agreements. Additional University space used for DOE programs is supplied under the terms of the DOE–University of California M&O contract. DOE/Oak is responsible for oversight of LBNL operations.

Berkeley Lab research and support activities are conducted in structures having a total space of 186,000 gross square meters, or 1,990,000 gross square feet. Eighty-four percent of this space is on the main site, 6% is on the UC Berkeley campus (i.e., Donner and Calvin laboratories), and the remaining 10% is located in various other offsite buildings. The first onsite building was constructed in 1940. There are 76 permanent buildings, and 113 trailers and temporary buildings on the main site. Figure 1-3 shows the LBNL hill site.

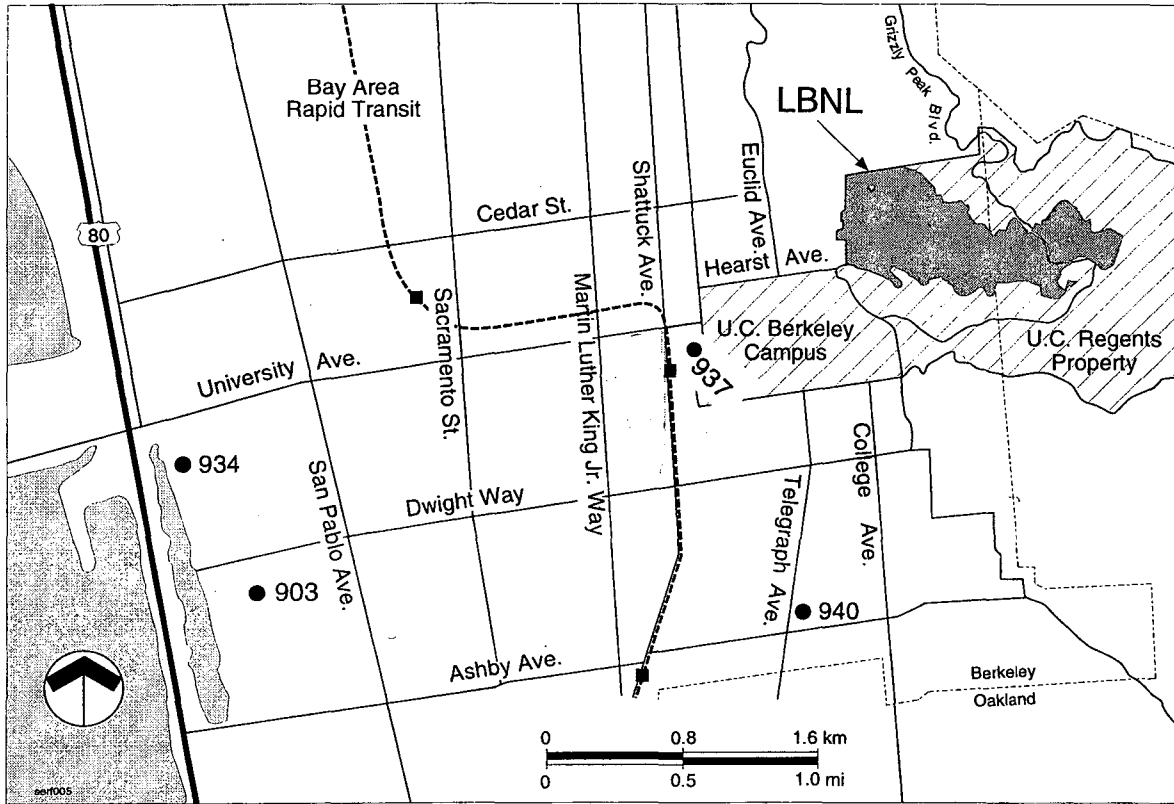


Figure 1-1. Location of LBNL with respect to the City of Berkeley

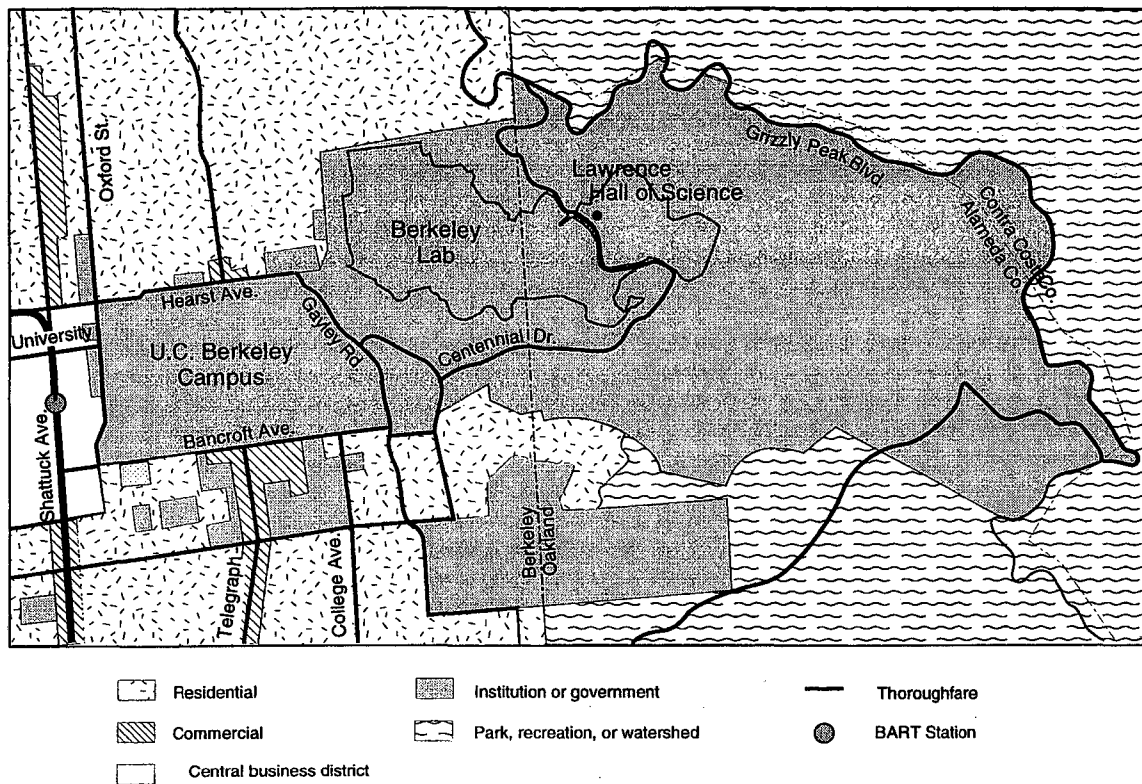


Figure 1-2. Land Use surrounding LBNL and the UC campus.

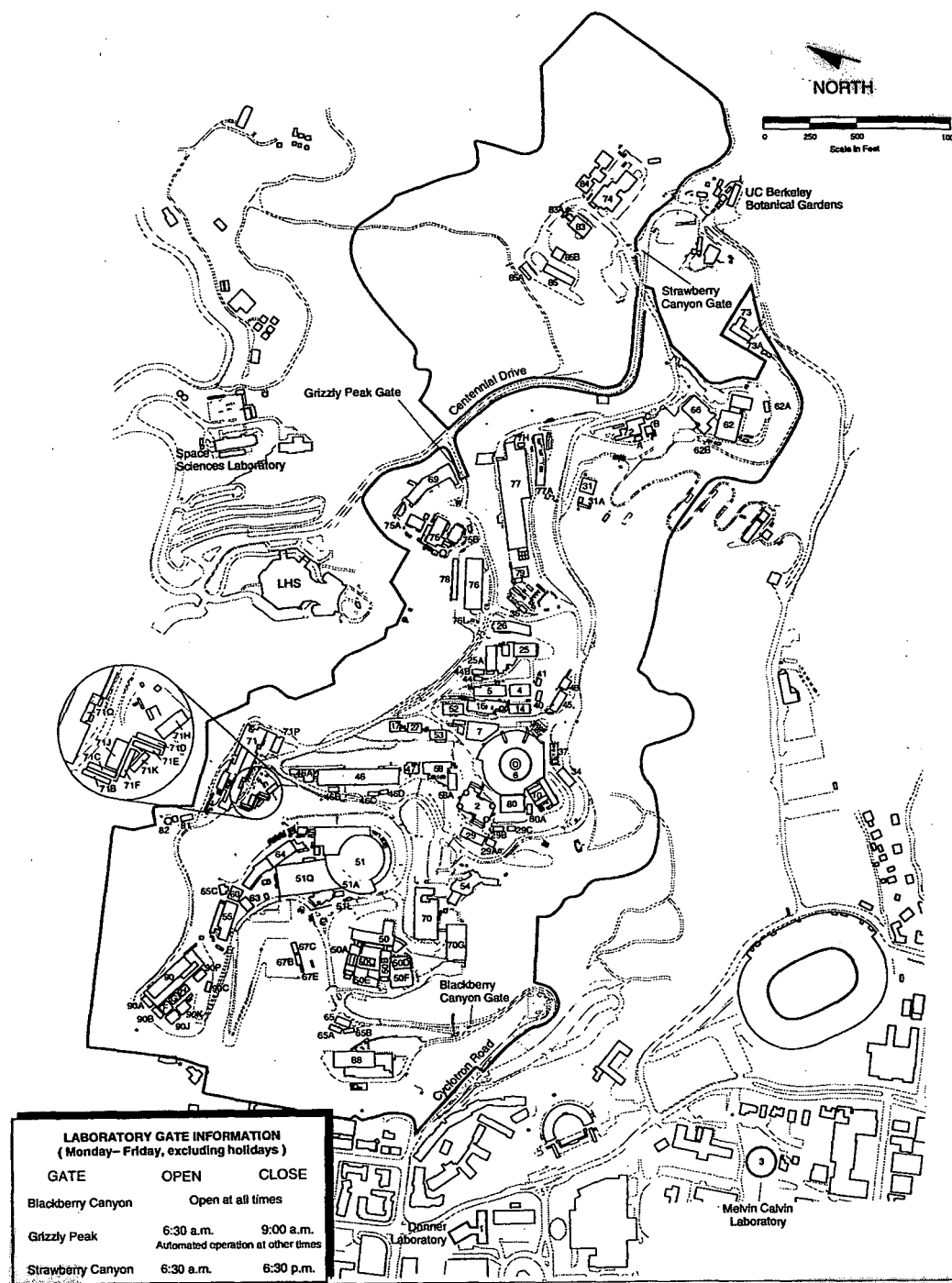


Figure 1-3. Map of LBNL hill site.



The offsite space, excluding campus space, is listed below.

- 903: warehouse and receiving, on Seventh Street, in Berkeley
- 934: Dymo Building, laboratory space used primarily by Life Sciences, near Aquatic Park in Berkeley
- 937: Berkeley Towers, located at the intersection of Shattuck and University avenues, in downtown Berkeley
- 940: Cholesterol Research Center on Telegraph Avenue in Berkeley; used by the Life Sciences Division
- 100 and 400: The Joint Genome Institute, located on Mitchell Drive, Walnut Creek, California
- 965: The Computing Services Telecommuting Office in Livermore, California
- 960: The Portals in Washington, D.C.; office space available for general Berkeley Lab use, as well as specific use by the Environmental Energy Technologies Division.

The Laboratory originated on the UCB campus in 1931. In 1940, it was relocated to its present site. It is one of three multiprogram national laboratories operated by the University of California for the DOE. Its present staff of full-time and part-time employees and students exceeds 3,000.

The Hayward Fault, which is a seismically active part of the San Andreas Fault System, trends in a northwest-southeast direction along the base of the hills below LBNL and has the potential to produce an earthquake of approximately Richter magnitude 7.5 (see Figure 1-4). The San Andreas fault zone, which has potential for a magnitude 8.3 earthquake, lies about 20 miles (32 km) west of the site, offshore beyond the Golden Gate. The San Andreas Fault and the Calaveras fault zone, which lies about 15 miles east of the site, would produce less intense ground shaking at the LBNL site than would the Hayward Fault.

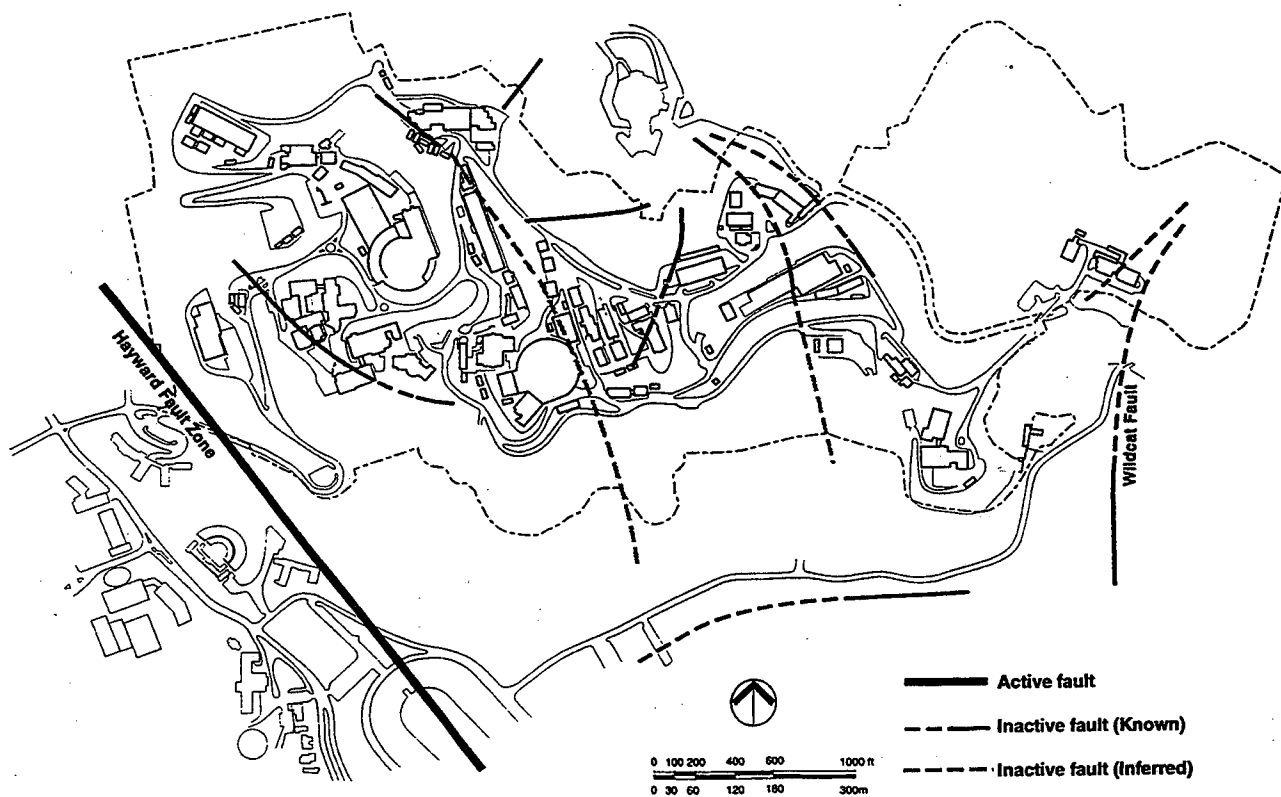


Figure 1-4. Relationship of LBNL to Local Faults



1.8 Meteorology

LBNL, located east of San Francisco Bay and the Pacific Ocean, benefits from the associated moderate climate. Temperature changes are not dramatic and rarely range below 30°F (-1°C) in the winter or exceed 80°F (27°C) in the summer. Weather patterns are normally influenced by the Pacific jet stream. Winters are usually mild, with a rainy season extending from late October through March. Rainfall averages 20 inches (57 cm), but periods of drought and heavy rain are not uncommon. April through September is a period of minimal precipitation because of the northern flow of the jet stream.

Winds generally flow from the west off the Pacific Ocean. An exception occurs when a high pressure system exists over the region, generally centered in Nevada. This situation produces warmer and less humid winds from the east (Diablo winds), which during periods of high fire danger increases the risk of wildland fires.

1.9 Population Distribution

The densely populated cities of Albany, Berkeley, Emeryville, and Oakland are located on the northwest to southwest perimeter of the Laboratory. The 1990 census populations for these cities are listed below.

Albany:	16,327
Berkeley:	102,724
Emeryville:	5,740
Oakland:	372,242

To the east of LBNL are sparsely populated regions of the Berkeley Hills, with the nearest city being Orinda.

1.10 Transportation Systems

LBNL transportation assets include shuttle bus service both on and off site. Three LBNL gates allow access and egress. These gates are shown on Figure 1-3. Public transportation off site includes local bus service and the Bay Area Rapid Transit (BART) system. The closest BART station is located at the intersection of Shattuck Avenue and Center Street in Berkeley. The LBNL offsite shuttle system serves this BART station and the Rockridge BART station in north Oakland.

Major highways near LBNL include Interstate 80, which can be reached by traveling west approximately 3 miles (5 km) from the LBNL Blackberry Canyon Gate along University Ave. Highway 24 is reached from the Strawberry Canyon Gate by traveling south on Gayley Road or College Avenue. The Grizzly Peak Gate on the northeast of the site allows access to a network of small two-lane roads in the Oakland-Berkeley Hills. Orinda can be reached through this road network on the eastern slope. Site evacuation by automobile during an emergency will be a challenge and is addressed in the LBNL Site Evacuation Plan.



Three major airports serve the Bay Area: San Francisco, San Jose, and Oakland. The San Francisco Airport is west of LBNL and can be reached by traveling west on I-80 across the Bay Bridge and traveling south on Highway 101 for 20 miles (32 km). The Oakland Airport is south of LBNL and may be reached by following I-80 south to I-880. The San Jose Airport is south of LBNL and can be reached by traveling south on I-880 to San Jose.

Ferry service across San Francisco Bay runs daily from Jack London Square in Oakland to the Ferry Building in San Francisco.

1.11 Utility Systems

Public utility systems providing service to LBNL are included in Section 1.12, *Hazards Assessment and Planning Scenario*.

1.12 Hazards Assessment and Emergency Planning Scenario

1.12.1 Earthquake

The most credible and potentially devastating hazard facing LBNL is a significant earthquake (7.0 or greater) along the Hayward Fault. This fault, located just west of the main hill site, runs through the Memorial Stadium on the University campus and continues northeast of the Foothill Housing facility (see Figure 1-4). While damage is difficult to predict, a large earthquake on the Hayward Fault with an epicenter in or near Berkeley will cause significant damage in the Berkeley area. The most exhaustive study of the effects of a magnitude 7.5 temblor on this fault was completed in 1987 by the California Department of Conservation, Division of Mines and Geology. This study was published in Special Publication 78.

The LBNL planning scenario is based on the maximum credible earthquake that could occur on the Hayward Fault. (The USGS has labeled the Hayward Fault the most dangerous fault in the country.) The assumed characteristics of this earthquake are:

- a Richter magnitude of 7.5 (M7.5) that results from the rupture of the entire 100-kilometer length of the fault from San Pablo Bay to east of San Jose,
- surface faulting that produces horizontal offsets averaging 5 feet (1.5 m) [10 feet maximum (3 m)],
- potentially damaging shaking that continues for 25–35 seconds within 20–25 miles (32–40 km) of the fault, and
- frequent aftershocks that continue for many weeks, including events of M6 or larger.



While this LBNL planning scenario is based upon a maximum credible event for the Hayward Fault, damage patterns would in many respects be similar for an event of smaller magnitude. An M7 event, for example, would result from rupture along only one half the length of the fault and would produce about 3 feet (1 m) of surface offset. The resulting damage to lifelines, critical facilities, and local utility distribution systems, while not as severe, would affect most of the same facilities along the ruptured segment of the fault. Shaking near the rupture zone would be as severe, but presumably not as prolonged. Ground failures would occur in the same general areas.

The following analysis describes the effects of a M7.5 earthquake on an area in and around Berkeley, including LBNL. This analysis will include possible deaths and injuries; and effects on structures, transportation lifelines, utilities, and major lifeline corridors.

Death and Injuries in the Bay Area

Deaths resulting from this scenario are estimated to range from 1,500 to 4,500, depending on the time and day of occurrence. Hospitalized casualties are estimated to be three times the number of deaths, and significant nonhospitalized casualties are estimated at 30 times the number of deaths. LBNL can expect to have its share of casualties based on this scenario.

Transportation Lifelines

Transbay Bridges

The transbay bridges may be temporarily closed due to ground and structural failures at the bridge approaches. Roadway clearance, emergency repairs, detours, and bridge inspections will prevent or severely restrict use of these bridges during the initial post-earthquake hours. The Oakland-San Francisco Bay Bridge may be effectively closed by major damage at the eastern approach interchanges and northward along Interstate 80/880. The Richmond-San Rafael, San Mateo, and Dumbarton bridges should be available to limited emergency traffic in less than 36 hours. The Golden Gate Bridge should remain open, but traffic will be severely limited by damage at its southern approaches.

Major Freeways

Roadway structure. All of the major freeway routes to the East Bay Region from the east and south either cross the Hayward Fault or are otherwise vulnerable to damage by strong shaking and ground failures. Major routes subject to surface fault offset include Interstate 80 at San Pablo, Interstate 580 in East Oakland, Interstate 680 at Fremont and south to Milpitas, Route 24 west of the Caldecott Tunnel, and most of Route 13. Ground failures due to liquefaction and strong ground shaking may cause major damage along Interstate 880 from Oakland to San Jose.



Freeway bridges. Virtually all older freeway bridges in the area have been retrofitted to increase their resistance to shaking. Nevertheless, damage to and collapse of some of these bridges is to be expected. Access to and travel within the East Bay region will be difficult and will thus be limited to emergency traffic. Most principal routes on the San Francisco and Marin Peninsulas and the western part of the San Jose area would be open to traffic, but subject to major delays and detours.

Airports

The runways of the major Bay Area airports are generally constructed on fill placed over bay mud of varying depths. Their performance when subjected to prolonged shaking is questionable, and liquefaction and differential settlement may render all or portions of many of these runways unusable for larger aircraft. For planning purposes, San Jose Municipal Airport is assumed to be available for larger transport aircraft. San Francisco and Oakland International Airports, the Hayward Municipal Airport, and other secondary Bay Area airports should be available for limited use by small aircraft and helicopters.

BART System

The Bay Area Rapid Transit (BART) system will probably shut down due to lack of electrical power and the need to assess and repair damage. Principal damage will be to the Berkeley Hills tunnels, which may be closed indefinitely as a result of fault rupture. Damage to a few elevated spans is postulated in the East Bay region. The transbay tube and the subway systems should survive with no major damage.

Rail System

Rail service to the Bay Area from the east and south will be curtailed due to fault rupture, ground failures at various locations around the Bay perimeter, and structural damage to numerous bridges. Railroad service via the coast route from Southern California to San Francisco will be restored rapidly, but all other lines to and from the East Bay region will be blocked for at least the initial 72 hours after the earthquake.

Bay Area Ports

Port facilities in San Francisco are not expected to suffer great damage and therefore should remain open. Operations may be curtailed initially by loss of power and impaired access. In the East Bay region, the major Port of Oakland and other smaller commercial port facilities at Richmond and in the Carquinez Straits will generally be nonfunctional as a result of prolonged power loss and damage to truck and rail access routes. Within the port areas, filled land will settle, disrupting both rails and streets. Damage to oil pipeline and storage facilities in Richmond and Carquinez poses a threat of contamination and fire in those areas.



Utility Lifelines

Communications

Local coordination. Telephone communications will be overloaded by post-earthquake calls from within and outside the area. This situation will be further complicated by physical damage to equipment due to ground shaking and loss of electrical power. Moreover, not all of the systems in the region are set up to automatically process emergency calls on a previously established priority basis, thus, the overloading of functioning equipment could be very significant.

LBNL communication system. LBNL has developed a hierarchical system of communications to ensure that communications are maintained both within and outside the Laboratory during major emergency events. This hierarchical system consists of a combination of the Laboratory's Integrated Communications System (ICS: a digital system for both voice and data), the use of business lines from Pacific Telesis as alternatives to the LBNL ICS system, cellular telephones (part of a commercial network); radio systems (both internal and on local police and fire department networks), and a receive-only satellite system. While the LBNL ICS telephone system, microwave towers, etc., are hardened for seismic events, a major earthquake along the Hayward fault is likely to render one or more of these hierarchical communication systems inoperative or inaccessible.

Electrical Power

During some portion of the first 72 hours following the earthquake, all portions of the Bay Area will experience some loss of power. It is reasonable to assume that about one-third of the service connections in the area will be without power for 24 hours. In the urban sections of Oakland and other East Bay cities, including LBNL, the power outage should be considered at 100% for the first 24 hours and 75% for an additional 24 hours. LBNL standby generators for key facilities are provided for use during total power outages.

Water

Water supply systems in the East Bay region will be severely crippled in this earthquake scenario. Displacement along the Hayward Fault will heavily damage all major tunnels, aqueducts, and the many distribution systems that cross the fault. The flow of water crossing the fault will be reduced significantly. Restoration of water service to all areas east of the fault in the East Bay hills will be greatly delayed. Restoration of full service could take months. LBNL has two separate public supplies, three incoming lines, emergency pumping stations, two 200,000-gallon (758,000-liter) storage tanks, and two looped systems (each served by separate onsite tanks).



Natural Gas

Horizontal displacement averaging about 5 feet (1.5 m) across the fault zone will cause thousands of breaks in mains, valves, and service connections. High intensity shaking, causing secondary ground breaks near the fault zone, will cause many additional breaks in the system. Some fires could occur in streets due to broken gas mains; structural fires will occur as a result of broken service connections. Fault rupture will also cause damage to the larger-diameter transmission pipelines where they cross the fault at San Pablo and Fremont. As a result, natural gas will be unavailable to all of the East Bay region from San Pablo to Milpitas. While gas supplies to most areas of the East Bay region will be restored rapidly, some areas in the hills immediately east of the fault could be without gas for several weeks. Damage will be minimized at LBNL due to the automatic shutoff valves located throughout the system.

1.12.2 Landslide

LBNL is situated on the western slope of the Berkeley Hills and, under conditions of heavy rain and/or earthquake, is vulnerable to landslides. While steps have been taken to mitigate this hazard, landslides could occur, which could result in road blockage that impair access and egress. Landslides, depending on their severity, could trigger secondary events such as utility failures. Since many effects of a landslide are similar to those of an earthquake, the same considerations must be included in emergency planning.

1.12.3 Wildland Fire

Drought conditions coupled with warm east winds make LBNL vulnerable to wildland fires, an extreme example of which was the Oakland-Berkeley Hills Fire of October 1991. Such wildland fires provide some warning but move very quickly under specific meteorological conditions. These fires could approach LBNL from almost any direction and extend to destruction of structures. Depending on the degree of containment and meteorological conditions, the size of such a fire could remain small (an acre or less) or spread to encompass much larger areas. Fires on or off site could trigger secondary events such as power failure, closure of roads, and reduction or loss of water pressure, and could involve multiple casualties.

Berkeley Lab has initiated an aggressive program to reduce the urban-wildland fire threat to the main site. Through coordinated efforts with its neighbors, LBNL has completed a program to reduce the vegetation fuel load. This vegetation management program is performed annually as a maintenance function. Reduced fuel load, combined with improved, coordinated fire response, makes LBNL significantly less vulnerable to wildland fires than in the past.



1.12.4 Hazard Assessments

Hazard assessments, including accident release scenarios, have been completed for the following facilities:

- Building 2, Advanced Materials Lab
- Building 6, Advanced Light Source
- Building 56, Biomedical Isotope Facility
- Building 70, Chemistry and Physics Laboratories
- Building 70A, Chemical Sciences Division Activities
- Building 75, National Tritium Labeling Facility
- Building 75C, Radiation and Analytical Measurements Laboratory
- Building 77H, Ultra-High Vacuum Cleaning Facility
- Building 84, Human Genome Facility
- Building 85, Hazardous Waste Handling Facility
- Building 88, 88-Inch Cyclotron

Accident analyses performed for each of the above facilities assumed the worst-case credible condition, which results in the highest estimates of potential offsite dose. Typical accident scenarios include a major fire or earthquake, or both. Potential radionuclide exposures were calculated for six of these facilities to determine if a credible accident scenario could result in an offsite dose. Most offsite dose estimates fell below 1 millirem. A few were higher, including a maximum dose of 5 millirems for a worse-case accident at the National Tritium Labeling Facility. The maximum calculated offsite dose—87 millirems—is less than 2 percent of the DOE standard of 5,000 millirems as defined in DOE Management Directive 5480.5.

All analyses in the above documents showed that potential accidental exposure to persons off site would be below Level 2 of the Emergency Response Planning Guidelines (ERPG-2), developed by the American Industrial Hygiene Association. ERPG-2 is the principal guideline for evaluating the acceptability of public exposure due to an accidental release of hazardous chemicals, and is defined as the maximum airborne concentration below which nearly all individuals could be exposed to up to one hour without experiencing or developing any irreversible or other serious health effects or symptoms that could impair their ability to take protective action.



2. Emergency Response Organization

2.1 Emergency Response Organization Structure

Emergency preparedness planning is the responsibility of the Emergency Manager (EM) in the Environment, Health and Safety Division. The EM develops this Master Emergency Plan and coordinates it with all Laboratory Divisions. In accordance with Chapter 9 of the LBNL Health and Safety Manual (PUB-3000),

- all LBNL employees must be familiar with the employee responsibilities described in building emergency plans,
- all supervisors must ensure that all employees under their supervision know the proper emergency actions, and
- all supervisors must assist the Incident Commander during an emergency and be familiar with safety equipment and shutdown procedures.

These provisions are LBNL's first level of response to an emergency. Professional and volunteer organizations described in the chapter are, by definition, response organizations. However, the training requirements outlined in 29 CFR 1910.120 for emergency responses apply only to the LBNL Fire Department and selected staff at the Hazardous Waste Handling Facility (Building 85).

The purpose of emergency planning is to ensure maximum use of resources during emergency response and recovery. The structure of the emergency response organization and that of the normal laboratory may differ, depending on the severity of the emergency. This is discussed in greater detail in Section 2.2. A description of each of these organizations follows.

2.2 Environment, Health and Safety Division

The Environment, Health and Safety (EH&S) Division is responsible for providing technical guidance and support in the area of health and safety, including emergency response support as required by LBNL management. To carry out these responsibilities, the EH&S Division maintains a staff of qualified specialists in the disciplines of Environmental Protection, Industrial Hygiene, Health Services, Health Physics, Fire Protection, Hazardous Waste Management, and Industrial Safety.

EH&S consists of six groups organized by functional areas. Responsibilities of each functional group in EH&S are described below.



2.2.1 Property Protection and Life Safety Group

Emergency Services

- Maintains all LBNL building emergency plans.
- Conducts emergency drills.
- Establishes and trains Building Emergency Response teams.
- Develops and updates the Master Emergency Plan.
- Coordinates the Building Manager program.

Site Access and Security

- Provides law enforcement and security services.
- Maintains site access control.
- Maintains physical security.

Fire Services

- Provides emergency fire protection services for LBNL.
- Participates in statewide fire/rescue mutual-aid programs with neighboring fire departments.
- Conducts fire prevention/fire safety education activities.
- Uses the Fire Services facility (Bldg. 48) as the LBNL Command Center during operational emergencies.
- Serves as first responder for hazardous material releases/spills.
- Provides first-responder (basic life support) emergency medical care and transportation.
- Coordinates and performs search and rescue operations.

2.2.2 Field Support Department

Industrial Hygiene Services

- Serves as a resource for information on hazardous agents, hazard mitigation methods, and ergonomics.
- Conducts occupational hazard analyses, including air monitoring, noise dosimeter, and medical surveillance referrals.
- Helps develop policies regarding chemical hygiene, lab safety, and biohazard control.
- Directs the annual LBNL chemical inventory collection, and issues the Hazardous Materials Management Plan.
- Assesses the adequacy of existing engineering hazard controls (e.g., lab hoods), and provides facility design support for selection of hazard control devices.
- Implements the Respiratory Protection Program, the Asbestos Program, and the Lead Program.



Occupational Safety Services

- Ensures adherence to all LBNL OSHA-related issues, including investigations and inspections, compiling OSHA statistics, equipment safety, and contractor safety.

EH&S Training

- Develops training courses, and establishes a system to implement health and safety training for all LBNL employees.
- Maintains documentation systems for all EH&S training.

2.2.3 Health Services Group

- Provides basic health services, including first aid and medical surveillance examinations, for all LBNL personnel.
- Provides health education and a wellness program.
- Issues safety and laser glasses.

2.2.4 Waste Management Group

- Manages the storage and treatment of hazardous, radioactive, and mixed (hazardous and radioactive) waste effectively and efficiently at LBNL's Hazardous Waste Handling Facility (HWHF).
- Transports radioactive and mixed waste from LBNL waste generators to the HWHF in accordance with all applicable laws and regulations.
- Ensures safe offsite transport and disposal of hazardous, radioactive, mixed, and biohazardous/medical waste in accordance with all applicable laws and regulations.

2.2.5 Environmental Protection Group

- Conducts environmental monitoring at LBNL, including measuring air emissions, soil contamination, groundwater releases, and surface water releases.
 - Prepares applications for all required environmental permits.
 - Conducts environmental characterization of the LBNL site in accordance with the LBNL Site Characterization Plan.
 - Produces the annual LBNL Site Environmental Report.
 - Performs spill/release reporting.
-



2.2.6 Radiation Protection Program

- Is responsible for all radiation-related issues at LBNL, including field operations (i.e., source inventory), and responding to requests for information or assistance from LBNL employees, etc.
- Performs dosimetry (i.e., issues and measures radiation on radiation badges).
- Transports hazardous materials from the LBNL site to LBNL University campus sites, and to LBNL offsite facilities in the City of Berkeley.
- Provides health physics support.
- Provides emergency response support.

2.3 Law Enforcement

Law enforcement is provided by the University of California Berkeley Campus Police Department (UCBPD). The department enforces both the laws of the State of California and the regulations of the University of California, and conducts preliminary investigations to determine violations of the laws of the State of California.

2.4 Site Access, Property Protection, and Traffic Control

A contract security agency is responsible for Laboratory access, property protection, and traffic control. Staffing and resources consist of an onsite manager, two roving patrols 24 hours per day, and gate access at the Blackberry Gate 24 hours per day. The LBNL *Safeguards and Security Plan* provides a more comprehensive description of these services.

2.5 LBNL Volunteer Teams

Volunteer teams are readily available to assist in emergencies. All teams participate regularly in sitewide drills to ensure emergency preparedness. These teams are described below.

2.5.1 Amateur Radio Operators

This team, administered by the Emergency Preparedness Coordinator, communicates outside LBNL via amateur radio operators using both personal and Laboratory equipment. It responds automatically during a widespread emergency by providing backup communications services.

2.5.2 Ambulance Team

This team is administered by the Fire Department. Should the need arise, it assists the Fire Department by manning three delivery vans that can serve as temporary ambulances. The team responds automatically during any widespread emergency, and consists of three persons who are certified in advanced first aid and CPR.



2.5.3 Auxiliary Fire Fighting Team

This team is administered by the Fire Department. It assists the Fire Department when additional trained personnel are needed. Team members undergo training and orientation in all aspects of fire fighting, and respond automatically following a widespread event, such as a large earthquake.

2.5.4 Auxiliary First Aid Team

This team is administered by the Health Services Group and assists by providing support during any multicasualty situation. Following any widespread disaster situation, such as a severe earthquake, team members automatically meet at Building 26 or Building 55.

2.6 Building Emergency Teams

These teams are administered by the building managers, who report to the Emergency Manager in matters concerning emergency preparedness. Each occupied building has an emergency team headed by an Emergency Team Leader. The team's primary responsibility is to assist the building manager until a Professional Emergency Response Group arrives. The current list of building managers can be found on the LBNL web site: from the LBNL home page, click on "Site Index," click on "B," and click on "Building Managers."

2.7 Command Center Team

This team is administered by the Emergency Manager. The team is made up of a broad cross section of management personnel led by the Deputy Laboratory Director for Operations. The members report automatically to the Command Center following any major emergency situation. The team's function is to gather emergency incident information and coordinate resources to deal with each incident.

2.8 Facilities Department

2.8.1 Damage Assessment Team (DAT)

There are two Damage Assessment Teams, consisting of engineers, skilled trades, and EH&S specialists. They report to and are dispatched from Building 76 by the Facilities Coordinator at the ECC. The teams inspect buildings for structural and other infrastructure damage after seismic activity, explosions, fire, etc. The Chief Structural Engineer coordinates the membership, planning, and training for the teams.



2.8.2 Architecture and Engineering (A&E)

The Architecture and Engineering Group is composed of professional architects and civil, mechanical, and electrical engineers. They are responsible for the planning, design, and construction management of the physical plant. This group is available to advise the ECC. Construction inspectors, not administratively in this group, are also available.

2.8.3 Operations and Maintenance (O&M)

The Operations and Maintenance Group operates and maintains the physical plant infrastructure. Maintenance technicians are on duty seven days per week, 24 hours per day. Also available are custodians, groundskeepers, and lighting technicians. Equipment available includes portable generators, trucks, loaders, mobile cranes, portable cooling units, etc.

2.8.4 Technical Services

The Technical Services Group of the Facilities Department is composed of skilled trades, including electricians, plumbers, carpenters, and laborers. These personnel are available for repairs to the infrastructure and for restoring utilities. This group also provides support for the Laboratory radio system, radio paging system, sitewide public address system, card access systems, and alarm systems.

2.8.5 Support Services

The Support Services Group consists of Stores, Transportation, Shuttle Buses, and Fleet Operations. During and following an emergency, Stores will provide materials and supplies from stock as required. Transportation will provide two delivery vans outfitted as auxiliary ambulances with drivers. These vehicles will rendezvous with the volunteer ambulance team and pick up medical supplies at the Fire Station (Building 48) or as instructed by the ECC. Buses, large and small trucks, and other fleet vehicles will be made available.



2.9 Emergency Direction and Control

During emergencies requiring activation of the LBNL Emergency Command Center, the Director has overall responsibility for emergency response and policy decisions. If the Director is not on site, the sequence of delegated authority is

- Deputy Director for Operations
- Deputy Director
- Division Director, Environment, Health & Safety
- Associate Laboratory Director, Computing Sciences
- Area Coordinator, General Sciences
- Area Coordinator, Life Sciences
- Area Coordinator, Energy Sciences

To assist the Director during operational emergencies are

- The Emergency Response Organization, consisting of the Command Center team and first responder groups. Typically, the Laboratory Deputy Director for Operations is the Incident Commander in charge of the Emergency Response Organization.
- The Policy Group, whose members are the members of the Director's Action Committee: Deputy Directors, Associate Laboratory Directors, and area coordinators. Typically, the Deputy Director chairs the Policy Group.

LBL's emergency management organization is consistent with the Incident Command System used in states other than California and with the State Emergency Management System (SEMS) used by state and local jurisdictions within California to manage emergency response to disasters.

Upon notification of a major emergency, the Emergency Response Organization and the Policy Group report to the Emergency Command Center in the Fire House, Building 48.



2.10 The Emergency Command Center (ECC)

The ECC is located in the Firehouse, Building 48, and is activated under the following conditions:

1. Upon request of the On-Scene Commander (normally a fire captain) due to an incident requiring resources much greater than those normally employed during response.
2. The Deputy Laboratory Director for Operations may activate the Command Center based on the emergency situation.
3. The Director may activate the Command Center.

The Emergency Command Center staff perform many functions. The members of the Command Center staff and their primary functions are listed below. Detailed procedures are found in the Emergency Program Implementation Procedures (EPIPs), maintained at the ECC.

2.10.1 Incident Commander in the ECC

The Incident Commander (IC) coordinates and manages the Laboratory's response to a disaster. The Command Center members report to the IC during activation of the ECC.

2.10.2 Fire Coordinator

The Fire Coordinator

- manages the activities of personnel engaged in fire and rescue, as well as other emergency operations,
- maintains communications with field units,
- evaluates status reports,
- makes decisions regarding the commitment of resources,
- determines the need for additional resources, and
- keeps the IC informed.

2.10.3 Law Enforcement and Traffic Control Coordinator

The Law Enforcement and Traffic Control Coordinator

- manages the activities of law enforcement and traffic control personnel on site and coordinates these activities for LBNL facilities off site,
- manages the movement of people from hazardous or threatened areas to lower-risk areas, and
- maintains communications with field units.



2.10.4 Medical Coordinator

The Medical Coordinator

- ensures that all personnel involved in medical support are apprised of the current status of the disaster to ensure that medical resources are properly assigned, and coordinates with the presiding physician on commitment of resources and the need for additional supplies,
- maintains communications with the clinic and/or triage areas at the scene,
- maintains communications with Alameda County Emergency Medical Services,
- supports public health measures,
- supports efforts in communicable disease control, and
- keeps the IC informed.

2.10.5 Facility Coordinator

The Facility Coordinator

- accumulates damage assessment information;
 - maintains communications with damage assessment teams;
 - makes decisions on reoccupying vacated buildings;
 - manages and commits engineering resources;
 - determines the need for additional resources;
 - manages the allocation of resources required for emergency debris removal, ventilation systems, alarm systems, road clearance and repair, utility repair, and restoration;
 - maintains communications with field units and local utility companies;
 - makes recommendations on commitment of resources;
 - determines requirements for additional resources; and
 - keeps the IC informed.
-



2.10.6 Logistics Coordinator

The Logistics Coordinator

- manages logistics operations in support of disaster response and recovery, including transportation and distribution of available stored supplies and equipment;
- provides auxiliary ambulance support; keeps records of supplies and equipment used to respond to the emergency; and
- keeps the IC informed.

2.10.7 Finance Coordinator

The Finance Coordinator

- provides purchasing, contracting, and procurement services;
- tracks budget functions in support of disaster operations; and
- keeps the IC informed.

2.10.8 Public Information Officer

The Public Information Officer (PIO) or alternate handles all inquiries from the media concerning any emergency incident. All media and public contact will be referred to that person or their designee. The PIO keeps the IC informed of all requests for information and inquiries.

2.10.9 Internal Information Coordinator

The Internal Information Coordinator is a member of the Public Information Officer's staff and is responsible for disseminating information internally to LBNL staff on the status of the emergency, evacuation information, and return-to-work instructions.

2.10.10 Environment, Health and Safety Coordinator

The Environment, Health and Safety Coordinator

- coordinates activities of EH&S groups in the performance of monitoring and evaluation of spills and releases;
- ensures regulatory agencies are informed, if appropriate;
- coordinates the commitment of EH&S resources, with the exception of Fire and Health Services, which are represented in the ECC; and
- keeps the IC informed.



2.10.11 Status/Planning Coordinator

The Status/Planning Coordinator

- gathers, analyzes, and coordinates information on the nature, severity, and extent of the emergency and response operations; and
- briefs the IC and other ECC staff on the overall status of operations.

2.10.12 Communications Coordinator

The Radio/PA Coordinator

- maintains readiness of all radio/PA communication equipment, and coordinates normal and emergency use;
- operates the Building Manager radio network; and
- keeps the IC informed.

2.10.13 Networking and Telecommunication System Coordinator

The Networking and Telecommunication Department (NTD) System Coordinator maintains readiness of all ICS telephone and network systems and communication equipment, and coordinates normal and emergency use.

2.10.14 DOE Oakland/Berkeley Site Office (DOE/BSO)

Members of the DOE/BSO staff are present in the LBNL ECC. BSO serves as liaison to DOE/Oak in the Federal Building in Oakland and DOE/Oak at Lawrence Livermore National Laboratory. DOE OAK/BSO also communicates with the DOE HQ Emergency Operations Center to provide situation reports and request resources as necessary.



3. Offsite Support Response

3.1 General

Some emergencies may warrant the interface, coordination, and use of offsite organizations and agencies at the federal, state, and local level. Agreements have been made with offsite agencies to provide support services; these include medical assistance, fire mutual aid, evacuation, ambulance services, and law enforcement. Since it is imperative that such support be provided on short notice, written agreements have been entered into with local support agencies. These written agreements outline the support services that will be provided when requested. These requests for assistance will be initiated by the Incident Commander. Requests to local jurisdictions will be in accordance with the written agreement. Request for federal assistance will be made through the Department of Energy Oakland Operations Office (DOE/Oak).

3.2 Communications

Communications with participating offsite response agencies must be in clear text; code language will not be used. During ECC activation the LBNL Fire Department Dispatcher will convey mutual aid requests for fire, medical, and police support. Other offsite support will be requested by the appropriate service coordinator in the ECC. All requests for mutual aid must be approved by the IC.

3.3 Local Support Services

LBNL is located in Alameda County, and its main site is located in the cities of Berkeley and Oakland. Alameda County maintains an emergency operations center and has a full-time emergency management staff. Alameda County has been designated as an operational area by the State Office of Emergency Services (OES) and as such, maintains direct satellite communications with state agencies and serves as the focal point for emergency responses in Alameda County. The cities of Berkeley and Oakland have designated emergency managers and can activate an EOC during emergencies.

The Joint Genome Institute is located in Contra Costa County; its emergency response is provided by the local fire department.

3.3.1 Fire Support

LBNL participates in the California Master Mutual Aid Agreement whereby fire support may be requested through the local mutual aid coordinator or directly through the Oakland Fire Department.



3.3.2 Medical Support

LBNL has an agreement with the Berkeley Fire Department for paramedic ambulance support to the Laboratory. This support may be requested from the Berkeley Fire Department by the LBNL fire dispatcher. LBNL also has a memorandum of understanding with Alta Bates Hospital for the treatment of patients contaminated with radiation.

3.3.3 Hazardous Material Controls

Although LBNL has the capability to respond to and control spills and releases of hazardous materials, additional support is available from the Berkeley Fire Department HAZMAT unit. This support is available under the mutual aid agreement and is requested through the LBNL Fire Department dispatcher.

3.3.4 Law Enforcement Support

LBNL's law enforcement support is provided by the Police Department of the University of California at Berkeley through a memorandum of agreement. Other security services, including access control, are provided by a vendor through a contract.

3.4 State of California Support Services

The State Office of Emergency Services in Sacramento maintains regional offices to facilitate support and emergency assistance. LBNL is located in the OES Coastal Region, with its headquarters in Oakland. During a widespread local disaster, regional offices provide assistance to local jurisdictions. LBNL will notify the Coastal Region Office upon activation of the ECC. Communications and coordination with the Coastal Region Office will remain in effect until the emergency conditions are mitigated.

3.5 Federal Assistance

Federal assistance may be requested through the DOE/Oak representative to the LBNL Command Center. Depending on the nature of the emergency, support from any federal agency may be requested.



3.6 Memoranda of Agreement/Understanding

All Memoranda of Agreement and Understanding (MOAs and MOUs) are on file in the LBNL ECC. Following are general descriptions of these MOAs and MOUs:

3.6.1 Emergency Medical Support with the City of Berkeley

This mutual aid agreement sets forth the procedures for emergency medical mutual aid between the City of Berkeley and LBNL.

3.6.2 Bay Area Inter-County Fire Mutual Aid Plan

This document, issued March 12, 1987, by the County Fire Mutual Aid Coordinator, describes procedures for requesting fire mutual aid from other counties and cities in the Bay Area.

3.6.3 Fire Mutual Aid with the City of Oakland

This agreement describes the fire-support mutual aid agreement with the City of Oakland.

3.6.4 Emergency Radiological Assistance Agreement with Alta Bates Hospital

This agreement sets forth the terms under which Alta Bates Hospital will treat radiation-contaminated patients.

3.6.5 Law Enforcement Agreement with the University of California Berkeley

This agreement outlines the law enforcement services to be provided to LBNL by the University Police Department.



4. Notification and Communication

4.1 General

LBNL employees, guests, and contractors are responsible for recognition of emergencies and the importance of timely notification. In accordance with LBNL health and safety policy, each employee, guest, and contractor must be familiar with the Building Emergency Plan for the building or complex in which he or she works. These plans contain information on notification procedures. Employees normally report emergencies by dialing extension 7911 (9-911 for offsite buildings) or by pulling fire call boxes. Once the incident is reported to the professional first responder, reporting requirements to employees, offsite agencies, and DOE are the responsibility of the Environment, Health and Safety Division.

4.2 DOE Notification

Incidents or events not classified as operational emergencies in accordance with DOE 151.1 must be reported as prescribed by DOE 231.1, *Occurrence Reporting and Processing System (ORPS)*. LBNL Occurrence Reporting and Procedures are contained in the LBNL ORPS manual, LBID-1694. The Berkeley Site Office (BSO) and DOE/Oak are notified in accordance with the EH&S Division Duty Officer procedure and the DOE/Oak-BSO Emergency Plan and implementing procedures.

4.3 Offsite Notifications

State and local organizations are notified of spills and releases in accordance with standards adopted in Appendix G, Contract 98. The EH&S Duty Officer Procedure describes the process used to initiate offsite notifications.

4.4 Onsite Notifications

The communications system described in this chapter may be used to notify the general Laboratory population of any emergency. These systems may also be used to notify the emergency response organizations and provide instructions to employees. Should an emergency occur during other than normal working hours, employees may call toll free 1-800-445-5830 for recorded emergency information pertaining to the Laboratory. Messages for emergency response team members may also be recorded at this number.



4.5 Communications

4.5.1 Communication Systems/Equipment Description

The Laboratory communications systems include a VHF multichannel radio system, a sitewide radio paging system with telephone access, a sitewide public address system, an in-house telephone system with battery backup, a satellite telephone, and a backup microwave link to LLNL. In addition to these electronic means of communication, messengers are available.

4.5.2 Emergency Alarms

Alarms reported via telephone through the emergency extension 7911 are handled by the Fire and Security dispatchers, who then alert the appropriate response unit. Fire alarms and other chemical/gas detection alarms report to the Fire Dispatcher. Security alarms report to the Security Dispatch Center.

4.5.3 Tactical Communication Systems

Security Services

The LBNL contract security force communicates on an LBNL radio frequency. Dispatch points are located at the Blackberry Canyon gate and the Security Manager's office in Building 90 communicate with the two mobile units in the field. Roving units also carry portable radios.

LBNL Fire Department

LBNL fire engines, the ambulance, and dispatch center are equipped with the following high-band VHF channels:

- LBNL fire channels 1 and 2
- LBNL security
- Building manager
- Berkeley fire channels 1, 2, 3, and 4
- Facilities channel
- Alameda County channels 4 and 5
- Oakland fire channels 1 and 2
- Fire white channels 1, 2, and 3
- Transportation
- Buses



The LBNL fire engines also have low-band VHF radios provided by the Contra Costa County Fire Department for communications with the Orinda Fire Department and the East Bay Regional Parks District. The LBNL ambulance is also equipped with Alameda County VHF Med Net frequencies, but it does not have a lowband VHF radio.

The LBNL Fire Chief's vehicle is equipped with all the above channels and can be used as a mobile command center if necessary.

All LBNL fire fighters carry portable scanning VHF radios that operate on all the above channels.

Health Services

The LBNL Health Services Group is equipped with several remote desk sets tied directly into the Fire Department base station. These desk sets can transmit and receive on the Fire Department channels. The Health Services Group also has several portable radios with the Fire Department channels and the Building Manager channel.

ECC and Building Managers

Each of the above are equipped with radios on LBNL Emergency Channel G.

Facilities Department

Radio communications include base stations on the Facilities channel and the Building Manager channel. Shop supervisors and leadpersons carry portable transceivers equipped with the fire, security, medical, and radio pager channels. Project managers and construction managers carry cellular telephones, as do selected other personnel. A PECS (portable emergency communication system) unit is situated at Building 76.

4.6 Communication Systems/Equipment

4.6.1 Primary System

The primary LBNL communication system consists of a multichannel VHF FM radio network, the sitewide public address system, the LBNL phone system, and a digital data network that connects the Laboratory computing resources. The phone system provides general voice communications and some digital data transfer via modems. The LBNL digital data networks includes both circuit and packet-switched networking in support of computer system interconnection, terminal access, distributed file and print services, and access to external (offsite) networks.



4.6.2 *Alternate/Backup System*

All critical radio base stations can be switched to emergency power. The Fire Department radio systems are provided with battery backup as well. All critical radio systems, such as the Fire Department and building managers' systems, have alternate or backup power. All LBNL communication nodes have more than two hours of emergency power and an automatically started generator. These generators are provided with 24 hours of fuel and an alarm system, with annunciators to indicate operation on battery or that the generator has started.

Two portable dispatch communications units are maintained in the ECC. Known as the PECS (portable emergency communication system), these units may be deployed to any location in the Laboratory and may operate independent of other systems for up to 24 hours.

4.6.3 *System Dedication*

The telephone system used at LBNL, based on the IBX S/80 switch, is nonblocking, so it can support all the communication paths possible between installed ports.

4.6.4 *Systems/Equipment Testing*

Testing

The building managers and sitewide public address systems are tested monthly. Other systems are in daily operation and are tested by actual usage.

The IBX S/80 and the voicemail system are maintained under Networking and Telecommunications Department (NTD) contracts. Preventive-maintenance activities are overseen by the NTD Telephone Operations Engineer, who ensures that the equipment is being maintained in strict accordance with manufacturers' specifications. Support power, HVAC, fire alarm, and emergency-generator equipment are maintained by the Laboratory's Facilities Department, in accordance with scheduled inspection and preventive-maintenance programs. Uninterruptable power supply (UPS) batteries are maintained under NTD contracts. This activity is overseen by the NTD Communication Support Manager.

Problem Resolution

Issues affecting the telephone system are directed to the maintenance help line or the supervisor. For issues affecting underground cables, NTD personnel should contact the Networking and Telecommunications Coordinator.



4.7 Offsite Communications Systems

The LBNL Fire Department has offsite communications capability with the Cities of Oakland and Berkeley, UCPD, the Orinda Fire Department, East Bay Regional Parks District, and regional mutual-aid channels. UCPD has links to the Alameda County Sheriff's Office and the California Highway Patrol through the California Law Enforcement Telecommunications System. LBNL has direct radio communication with DOE/OAK. In addition, LBNL and LLNL are connected by a digital microwave link.

The telephone system uses the services of AT&T, FTS2000 (Federal Telecommunication System), Pacific Bell, Cellular One, and GTE Mobilnet.



5. Medical Support

5.1 General

5.1.1 Policy

Medical support is provided by the Health Services Group. The objectives of this group are to

- ensure that employees are assigned duties they are physically able to perform,
- provide medical care and facilitate return to work for occupationally ill or injured employees,
- provide emergency treatment of serious illnesses or injuries,
- encourage the overall physical and mental health of employees, and
- assist in maintaining a healthful and safe work environment.

5.1.2 Overview

An occupational health program has been in effect at LBNL for the past fifty years, with a special emphasis on problems relevant to the Laboratory's research activities. Employees receive preplacement, periodic, special, medical surveillance, and termination examinations. First aid, emergency care, and other services are provided. Potentially hazardous occupational situations and the use of chemical agents are investigated on a continuing basis in cooperation with Industrial Hygiene, Occupational Safety, and other staff in the Environment, Health & Safety Division (EH&S). Diagnosis and treatment of nonoccupational illnesses or injuries are limited to minor first aid, emergencies, and special situations for which treatment is in the best interest of the patient and the Laboratory.

5.1.3 Health Services Facility

The Health Services staff, which carries out the Medical Surveillance Program, the Injury and Illness Reporting and Prevention Program, and the Eye Protection Program, is housed in Building 26. The Health Services facility has a first aid room, clerical and administrative space, examination rooms, a two-bed holding ward, a clinical laboratory, and a room for fitting and dispensing prescription safety glasses, performing refractions, and examining the eyes of laser users.



5.1.4 *Alternate Facility*

Since Building 26 is at a higher elevation and some distance from the largest populated areas of the Laboratory, Building 55 has been designated as a secondary or alternate Health Services site at which additional basic first aid supplies are stored.

5.2 **Staff**

The Health Services Group is managed by the Physician-in-Charge, assisted by the Managing Nurse. The Occupational Health Program is under the leadership of LBNL health care professionals who are also available to respond to emergencies. The clerical staff oversees the scheduling of medical appointments using a computerized data base. Nurses are on duty from 7:30 a.m. until 4:30 p.m. on workdays. Basic Life Support (BLS) level emergency care is available from the LBNL Fire Department at all times during the week and on weekends. All LBNL nurses are encouraged to be certified in Occupational Health. The clinical laboratory is staffed by licensed Medical Laboratory Technologists. Physical examinations are performed by LBNL physicians.

5.3 **Equipment**

5.3.1 *Health Services Description*

The following health services are available on site:

- physical examinations
- vision and hearing tests
- measurement of pulmonary function
- electrocardiograms
- blood counts
- blood chemistries
- urinalysis
- other special procedures as required.

Emergency equipment also includes a defibrillator and a few oxygen tanks. For any emergency that exceeds and/or overwhelms the LBNL Health Services capability, the Laboratory has established a Memorandum of Understanding with the Alta Bates Hospital in Berkeley.



5.3.2 Bioassay

The Laboratory physicians and bioassay personnel are advised regarding personnel exposure to radiation by the Radiation Protection Group (RPG). The procedure and urgency of notification and subsequent actions by the LBNL physician depend on the particulars of the exposure or spill. In the event of contamination by radioactive isotopes or possible activation by a high-energy beam, an employee may receive a whole-body count and/or bioassay analysis of excreta. RPG maintains a memorandum of understanding with Lawrence Livermore National Laboratory to provide internal and external dosimetry support during emergencies. Dose estimates are the joint responsibility of RPG and the Health Services Group. Health Services may assist in decontamination of personnel when necessary—especially contaminated wounds. The Laboratory has a written mutual aid agreement with a local hospital to admit and care for contaminated, injured personnel.

5.4 Transportation and Evacuation

During a disaster, when ambulance service is in great demand, injured employees who are able to walk will be encouraged to proceed to the first aid facilities at either Building 26 or Building 55. Employees injured severely or who become seriously ill at work will be transported to nearby hospitals or clinics by City of Berkeley Fire Department ambulances or, on specific request by Health Services staff, by the LBNL Fire Department ambulances or other forms of transportation. Large-scale evacuation of employees during a disaster would be coordinated with the LBNL Director or designee as the situation dictates.

5.5 Communications

All emergency (7911) calls are monitored at the Fire Department, Health Services, and EH&S in Building 90 by means of a direct-wired audio system. In addition, the Health Services Group has several desk-type radio remote sets connected to the Fire Department communications, allowing direct monitoring of the fire radio channel. This monitoring provides the medical staff with information regarding the number and location of casualties, the severity of injuries, and the availability of the LBNL ambulance or other vehicles that could be used to transport injured personnel.

LBNL Security may be contacted by telephone for information on the condition of roads and of the status of the secondary first aid station in Building 55. Amateur radio teams will also support medical communication needs. If the radio system is inoperable or unsatisfactory, messengers will be dispatched to obtain necessary information.



6. Recovery

6.1 General

Recovery is the process of putting the Laboratory back on line (i.e., restoration of utilities, systems, and buildings to serviceability) following the response phase of an emergency incident. The Incident Commander may change as the emphasis goes from response to recovery, but the Emergency Command Center will still fulfill its command decision making and authorization role until the normal situation is restored.

6.2 Emergency Termination or Downgrade

The Incident Commander (IC), with advisory support from the Emergency Command Center (ECC) Team, will terminate the response phase of the emergency when all injured have been treated, all deceased have been recovered and turned over to the coroner, and all fires and other hazards are controlled to the extent that there is no remaining danger to LBNL employees or the public. It is likely that various stages of response and recovery will exist at the same time in different buildings or facilities (i.e., one building may still be in the response phase while others have already begun recovery). The emergency is considered terminated when the recovery-phase IC determines that all personnel and facilities have returned to a normal operating condition.

6.3 Re-entry

Following an emergency, the Building Managers, LBNL Fire Department, and/or Security Force will evacuate and/or cordon off all entrances to buildings where a potential hazard exists to prevent unauthorized re-entry. The ECC will dispatch one or both of the damage assessment teams (DATs) to assess damage. Each DAT consists of a engineers and/or technicians from Facilities and EH&S specialists. These teams will survey a building exterior to determine if it is safe to enter the building. If the building contains known hazardous materials, the team may ask Fire Department personnel equipped with self-contained breathing apparatus to check for spills. If so requested, Fire Department personnel will assess conditions inside, open windows for ventilation, and determine when it is safe for the inspection team to enter and complete their survey. Teams will then complete the assessment of each damaged building and make a recommendation to the IC regarding occupancy. The IC, in consultation with ECC Operations personnel, will make final decisions regarding re-entry.



If re-entry is not possible, thus preventing an employee from attendance at or continuance of work in a normal manner, the cognizant Division Director may request that the Deputy Laboratory Director for Operations grant leave with pay to such an affected employee. (See the LBNL Regulations and Procedures Manual.) Such leave would be granted in the following circumstances:

- Public Emergencies: Fire, earthquake, riot, sabotage, explosion, and other comparable occurrences.
- Civil Disaster Units (CDUs): Search-and-rescue or disaster-control work by an employee as a member of an organized civil disaster unit. (CDUs do not include auxiliary and/or volunteer LBNL emergency teams.)
- Anticipated Power Interruptions: Periods of reduced and/or interrupted power that prevent an employee from performing his or her work.

6.3.1 Verification of Safety

Prior to entry for restoration operations, utmost care must be used in restoring all buildings assessed as unsafe. Exterior bracing may be required prior to reentry when structural integrity is in doubt. EH&S, in conjunction with the occupant programmatic leadership, will provide monitoring of radiation and toxic gas sources during restoration. Contracts are in place for professional support from specific vendors if hazmat cleanup assistance is necessary following large spills.

6.3.2 Restoration of Vital Systems

Upon completion of the assessment, those buildings or facilities found to be unsafe must have all utilities isolated by Facilities personnel. For those buildings deemed safe for occupancy, Facilities will evaluate the status of the utilities to the building and restore them within appropriate safety considerations. The ECC will be kept informed of the status as utilities are restored.

6.3.3 Security Procedures

LBNL has no classified operational areas. Therefore security measures need only protect personnel from entering normally restricted and now unsafe areas.



6.4 Damage Assessment Team Procedure

6.4.1 Buildings

- (1) Assess damage from exterior inspection. If warranted and deemed safe, assess interior damage. Radio communications must be established with Building 76 or another exterior party before entering a damaged building. On conclusion of inspection, complete assessment form ATC-20, making special note of usable office space.
- (2) Post signs at building entrances as necessary, using the following types of signs:
Red for NO ENTRY (chain/padlock all entrances).
Yellow for LIMITED ENTRY (with authorized escort).
Green for UNLIMITED ENTRY.
- (3) Barricade all areas subject to hazards (e.g., falling walls, exposed utilities, etc.)

6.4.2 Facilities

Roads and bridges. Assess damage to roads and bridges and provide a report to the ECC. Unusable roads and/or bridges must be barricaded to prevent use.

External plant. Inspect site for outdoor physical plant damage due to ground motion; (i.e., water lines, sewers, power lines and underground rights of way). Assess damage, isolate damaged systems if possible, and report to ECC.

6.5 Recovery

6.5.1 Transition

The transition process from the response phase to recovery phase involves a change of emphasis from response to restoration of the Laboratory to pre-emergency operations. Fire, spills, and other hazards will be contained and mitigated. Restoration will involve all functional managers on the ECC team. The IC, supported by the ECC operations team, remains in charge.

6.5.2 Priorities

Systems, processes, buildings, and equipment supporting Laboratory infrastructure will be a high priority for restoration of services. These include Communications Networking, Information Systems Support, Financial Operations (including Procurement and Physical Operations), and Human Resources systems. Restoration of these systems is fundamental to addressing restoration of the scientific and engineering functions.

The Senior Management Policy Group and/or DAC (when the DAC can convene) will determine the priority to restore the scientific programs and facilities.



7. Public Information

7.1 General

The Public Information Department (PID) is responsible for the dissemination to the public of information about all activities occurring at the Laboratory. In an emergency, unless authorized by the Laboratory Director or ECC staff, no other personnel may give information to the news media or general public. In supporting the ECC during an emergency, the Public Information Officer and staff will develop appropriate information, obtain official clearance for its release, deliver this information to the news media and/or the public, and respond to specific requests from the news media and the public. In addition to its emergency functions as described here, PID also handles routine publicity for the Laboratory.

7.2 Public Information Organization

PID is an integral part of the ECC support staff. Direction and authorization for its activities during an emergency derive from the ECC. Thus information being developed for release to the news media or the public must be coordinated with the ECC and with the responsible DOE official(s). The PID Department Head is designated as the Public Information Officer (PIO) during an emergency. If the PID Department Head is not available then the Media Relations Coordinator or Publications Coordinator, in this order, will act as PIO. The PIO will have three designated public information telephone lines and one within the ECC, to serve as primary conduits for releasing and receiving information or requests from off site. The PID will work closely with all members of the ECC team but will be under the direct command of the Incident Commander.

7.3 Public Information Facilities

The PIO's representative to the ECC will be located in Building 48, Room 116. If Building 48 cannot be occupied, phone services will be patched through to another secure location. News conferences will be held in the Building 50 Auditorium or, as an alternate location, in the Building 66 Auditorium.

If the LBNL telephone system is out of service, emergency communications will be established through the LBNL emergency radio system, available microwave links, or amateur radio operators.



7.4 DOE Field/HQ Coordination: Joint Information Center

A member of the Berkeley Site Office (BSO) will be located in the ECC. The PIO will coordinate all information, and any release of it, with the IC and BSO. The BSO representative is responsible for coordination with DOE/Oak. If the BSO representative is not available, the ECC will interact directly with DOE/Oak. If the nature of the emergency and the number of organizations affected by it make it advisable, the PIO may establish a Joint Information Center with these agencies and organizations.

7.5 Public Inquiries

In an emergency, the PIO coordinates all requests for information from the public. After confirming information being considered for release and obtaining authorization for the release, the PIO may release it to the news media and the public. Each request for information from off site must be handled individually. If confirmation and/or authorization are not obtainable, then no information will be released. (LBNL will hold briefings for local news media on its procedures for releasing information about incidents or emergencies that concern the Laboratory.)

7.6 Security of Classified Material

LBNL maintains no classified material or information; therefore there is no potential for a breach of security.

7.7 Emergency Information Number (1-800-445-5830)

The PIO is responsible for updating emergency information accessible via the above toll-free number. Employees should use this number to ascertain the status of the Laboratory, and whether (or when) they should report for work following a disaster or other unusual event. (The main Laboratory number should not be used for this purpose.)



8. Emergency Facilities and Equipment

8.1 Emergency Facilities

LBNL has extensive emergency facilities, equipment, and materials. These are established and maintained to adequately support LBNL's emergency response. The Incident Commander and the ECC staff will ensure that these resources are used and allocated properly to mitigate the effects of an emergency and to return LBNL to normal operating conditions as soon as possible.

8.2 Emergency Command Center (ECC) Activation

The ECC is located in the LBNL Fire Station (Building 48), and will be activated under the following conditions:

1. On the request of the on-scene commander (normally a fire captain) when the incident requires more resources than those normally or routinely available.
2. On the order of the Deputy Laboratory Director for Operations.
3. On the order of the Laboratory Director or delegated successors.

8.3 Alternate or Secondary ECC

The alternate ECC may be established in one of many LBNL conference rooms. Portable communications systems allow flexibility in establishing an alternate command center.

8.4 Decontamination Facilities

The LBNL Health Services building (Building 26) serves as the primary site for decontamination. (See Chapter 5, *Medical Support*.) In addition, the Fire Station (Building 48) houses decontamination equipment, and Building 75 houses supplies and equipment for radiation emergencies.

8.5 Medical Facilities

The primary LBNL medical facility on site is the clinic in Building 26. An alternate site is Building 55, where auxiliary medical supplies are stored (see Chapter 5).

8.6 Security Dispatch Center

The Security Dispatch Center is located at the Blackberry gate kiosk.



8.7 Emergency Equipment

All facility communication and alarm systems, fire protection, spill control and decontamination equipment must be tested and maintained as necessary to ensure its proper operation in time of emergency.

8.7.1 Communication Equipment

A complete description of the Laboratory communication system is provided in Chapter 4, *Notification and Communication*.

8.7.2 Heavy Construction Equipment

The following equipment is available from Facility Maintenance and Operations.

crane	forklift	compressors
bulldozer	shovels	jackhammers
backhoe	picks	hydraulic jacks
dump truck	axes	lifts (riser equipment)
Bobcat		

8.7.3 Alarm Equipment

A Class A proprietary fire alarm system is installed throughout the Laboratory. All buildings and automatic extinguishing systems are connected to this alarm system. Alarms are initiated by manual pull-down boxes, automatic smoke detectors, heat detectors, water flow switches, and other such devices. The primary terminal is located in the Fire Station Alarm Room (Building 48). A secondary system is also provided in the Fire Station Alarm Room. The Facilities Department tests and maintains fire alarms and sprinkler systems at LBNL.

8.7.4 Rescue Team Equipment

LBNL Fire Department personnel constitute the Laboratory's primary rescue team. Rescue equipment is stored in 22 rescue boxes located throughout the Laboratory. The locations of these rescue boxes are shown in the LBNL telephone directory.

8.7.5 Transportation Equipment

The Facilities Department maintains a fleet of vehicles that can be adapted for emergency use. These vehicles include buses, delivery vans, trucks, and passenger automobiles.



8.7.6 Personnel Protection Equipment

The Laboratory provides suitable equipment to protect its employees from hazards in the workplace. The EH&S Division will advise as to what protective equipment is required for a task, but the supervisor of the operation must obtain the equipment and see that it is used. Listed below are the categories of equipment provided for personnel protection:

- protective clothing
- hand protection
- head protection
- eye protection
- ear protection
- respiratory protection

8.7.7 Firefighting Equipment

In addition to the alarm system described above, the LBNL Fire Department maintains the following equipment:

Designation	Description
2300 Chief's car	Mobile command post
2349 Engine No. 2	1000-gpm pumper truck
2348 Engine No. 1	1250-gpm pumper truck
Patrol 2388 Patrol	4 × 4 grass-firefighting truck
Rescue 2390	Intensive care ambulance (BLS)
2393 van	Hazmat response vehicle

The Fire Department has standard turnout clothing for each firefighter and suits that provide full encapsulation.

8.7.8 Standby Power Equipment

The Fire Station (Building 48) and the Health Services Building (Building 26) are provided with standby generators that start automatically if there is a power failure. Nineteen other standby generators presently protect other important activities at the Laboratory.



9. Training

9.1 General

The LBNL Emergency Preparedness Training Program is tailored to meet the credible emergencies described in Section 1.12 and focuses on skills required to execute this plan. The program includes both individual and collective training. This training may be conducted on and off site and includes classroom work, drills, and exercises.

9.2 Training Documentation

The Emergency Preparedness Coordinator develops training schedules of available courses supporting the EP program. This training plan includes a schedule for the training sessions, drills, and exercises. When training has been completed, it is documented by being entered in the training data base. This documentation establishes the audit trail for emergency preparedness training.

In addition to the training for the emergency response organization, LBNL complies with regulatory guidance on health and safety training. DOE and other federal and state agencies mandate specific health and safety training as specified by the OSHA standard, Hazardous Waste Operations and Emergency Response 29 CFR 1910.120 (HAZWOPER). In compliance with OSHA specifications, LBNL policy requires that all personnel, guests, and visitors undergo basic introductory training and that managers ensure that all appropriate additional training is identified, conducted, continued, and documented.

9.3 Emergency Response Organization Training

9.3.1 *Building Manager/Emergency Team Leader Training*

Building Managers, Emergency Team Leaders, and their deputies and assistants are required to complete the following training:

- Emergency Team Training
 - First Aid
 - Fire Extinguisher Training.
-



This training is in addition to LBNL employee orientation, which includes Hazard Communication and General Employee Radiation training. This training is supplemented by annual drills that include demonstrating proficiency in building search and evacuation. Building Manager communications exercises are conducted monthly. If required, specialized training is conducted by Building Managers for emergency team members. Building Manager training is conducted at least once annually by the Emergency Preparedness Coordinator. This training normally consists of assembling all Building Managers and presenting relevant program information and training, then scheduling special events such as the annual exercise.

9.3.2 Auxiliary Emergency Team Training

Emergency auxiliary teams participate in drills and exercises covering their assigned emergency team functions to maintain their proficiency. This auxiliary team training is described below.

Auxiliary Medical Team

The Auxiliary Medical Team, at a minimum, is trained in basic first aid, which includes 4 hours of American Red Cross-Certified Training. This Auxiliary Medical Team is sponsored by the Health Services Group and meets at least once annually for training.

Auxiliary Fire Department

The auxiliary Fire Department is sponsored by the LBNL Fire Department and trains once a month at the LBNL Fire Station. The Assistant Fire Chief for Operations supervises its training, which includes a training schedule adopted by the NFPA standards for a Fire Brigade.

Amateur Radio Operators

The amateur radio operators are sponsored by the Emergency Preparedness Coordinator. This group conducts a periodic radio check for the purposes of training and equipment check.

Damage Assessment Teams

Two damage assessment teams (DATs) are sponsored by the Facilities Department. They meet at least once annually for orientation and training.

Auxiliary Ambulance Team

The Auxiliary Ambulance Team is sponsored by the Fire Department and trains monthly with the Fire Department. The Assistant Fire Chief for Operations supervises the training of this team. The minimum training level is American Red Cross Advanced First Aid Certification.



9.3.3 Command Center Team Training

Members of the Emergency Command Center team are provided with emergency preparedness implementing procedures (EPIPS) that outline their duties and responsibilities in the ECC. ECC team members receive refresher training at least once annually in command-center procedures. They demonstrate their proficiency by participating in an exercise involving command-center activation.

9.3.4 Professional Response Group Training

The professional response groups for LBNL are the Fire Department, the security force, the Health Services Group, the Facilities Department and the departments within the EH&S Division. Each department is highly specialized and conducts its own internal training program. The Emergency Preparedness Coordinator is responsible for the coordination and integration of these internal training programs to ensure that they meet the requirements of the LBNL Master Emergency Plan.



10. Drills and Exercises

10.1 Description

Drills and exercises are an integral part of the LBNL emergency preparedness program. They are conducted to provide emergency response training and to evaluate the Laboratory's capability to respond effectively to an emergency. Analysis of the results from an exercise provides the necessary information for improvement. Emergency drills and exercises require substantial effort to plan and coordinate effectively. To adequately train personnel or validate the adequacy of operational procedures and emergency plan implementation procedures, a realistic scenario and proper control must be used for drills or exercises. LBNL uses the following definitions to distinguish between drills and exercises.

10.1.1 Drills

A drill is a supervised hands-on event that develops, tests, or maintains a specific operational or emergency response capability. The scope of LBNL drills includes operational aspects in support of the Master Emergency Plan, its implementation procedures, and operational training. LBNL drills include specific activities such as notification, emergency communication, fire, medical emergencies, hazardous material detection and monitoring, environmental sampling and analyses, security, personnel accountability, evacuation, emergency categorization, decontamination, facility activation, public information, and health physics.

10.1.2 Exercises

Exercises are comprehensive performance evaluations of the integrated capability of most aspects of the emergency management program associated with the Laboratory. LBNL exercises assess the adequacy and effectiveness of

- organizational command and control
- implementation procedures
- notifications and communications networks
- emergency equipment
- response organization personnel performance
- overall emergency response program performance.

Exercises must be designed and conducted for maximum realism and must attempt to duplicate the sense of stress inherent to an actual emergency situation. When appropriate, tabletop exercises are conducted to minimize the impact on other Laboratory employees.



10.2 LBNL Drill and Exercise Program

10.2.1 Exercises

Laboratory exercises are conducted at least annually. Typically the Emergency Command Center team rotates between tabletop and full-participation exercises each year. During full-participation exercises, all first-responder organizations are integrated into the activities and the emergency command center is staged. At least once annually is an exercise involving an evacuation of all buildings Laboratory-wide. This evacuation exercise is in conjunction with Earthquake Preparedness Month activities in April or May of each year. Exercise planning will begin 6 to 9 months before the scheduled date for the exercise. Exercises normally focus on one major event in a scenario. Coordination with local jurisdictions and DOE/Oak is established.

10.2.2 Drills

Drills are conducted more frequently. The number, frequency, and type of drills depends on the results of the previous drills and required corrective actions. Drills focus on a building or facility and involve emergency response organizations and selected personnel from the affected building or complex.

10.2.3 Participants and Nonparticipants

With the exception of the annual evacuation drill, the LBNL exercises and drills are transparent to many LBNL employees. During the quarterly drill, those people occupying affected buildings participate to the extent necessary to make the drill realistic. The exercise coordinator determines the necessary participation of personnel. If an evacuation is required, the occupants may be allowed to return to the building when the exercise objectives are met and it is safe to do so. Consequently, drills and exercises are designed to allow for building occupants to respond appropriately and then return to work. First responders and Building Emergency Teams participate for the full duration of the exercise.

10.2.4 Safety

The safety of personnel and the facility is paramount during drills and exercises. The planning and management of drills and exercises must ensure that sufficient precautions and limitations are established and adhered to for their safe conduct. A safety engineer is assigned to the planning group to ensure that safety is observed during the planning and conduct of the exercise. This representative has authority during a drill or exercise to halt all activity if unsafe practices are observed.



10.3 Drill and Exercise Planning Process

10.3.1 Drill and Exercise Coordination

A member of the Emergency Preparedness Office coordinates the drills and exercises. This coordinator assembles a planning and coordinating committee to establish the goals and objectives, determine resource requirements (including evaluators and controllers), and coordinate with all involved onsite and offsite agencies. Members from the Laboratory divisions will be asked to participate in this planning and evaluation process as necessary.

10.3.2 Drill and Exercise Schedule

The type and number of drills and exercises are set during July of each year, during the performance planning cycle. Drills and exercises are assigned to specific organizations and individuals by the Emergency Manager. The exact dates and locations are determined by the exercise/drill planner.

Drills

In accordance with the established plan, objectives are established for the drill to be staged at a building/complex three months in advance. The objectives are developed by the planning committee and line management of the affected building. Drills are planned around the specific activities and hazards associated with a building/complex. Objectives of the drill focus on an integrated response by first-responding organizations and the Building Emergency Team. The Incident Command System is used in all drills.

Exercises

Planning begins at least 6 to 9 months before the exercise. Since the scope of exercises is broader than drills, the requirement for resources, planning and coordination is much greater. As with drills, exercises are based on specific objectives but include a scenario that covers the entire Laboratory, both on and off site. The exercise is coordinated with the emergency managers of the Cities of Berkeley and Oakland, and with Alameda County, as appropriate.



10.4 Evaluations

10.4.1 Evaluation and Critique

Drills and exercises provide feedback to resolve deficiencies and incorporate improvements into the emergency management program. Evaluators monitor the performance of participants to determine if procedures, equipment, communications, references, maps, and other materials meet designed purposes. All evaluations are made using defined criteria such as the Master Emergency Plan, Master Emergency Plan Implementing Procedures, exercise objectives, and industry standards.

10.4.2 Evaluators

Evaluators are provided with an exercise package that includes the scenario and master events list (MEL). A communications network is established for evaluators and controllers. A checklist is provided to ensure standardization of the evaluation process. All comments are written. Evaluators are assigned specific locations that allow them to effectively evaluate the drill or exercise.

10.5 Critiques

Critiques, both verbal and written, are conducted after each drill or exercise. All participating groups, such as Fire, Security, Building Emergency Teams, Auxiliary Teams, and any others, conduct a verbal critique immediately following the drill or exercise. Evaluators take part in these critiques. These groups designate a recorder and forward the written results to the Emergency Preparedness Coordinator within two days. The evaluators and controllers also provide their written evaluations to the EPC within two days. The EPC will track corrective actions to ensure that they are complete.



11. Emergency Management Policy and Administration

11.1 Policy

During all emergencies, LBNL policy requires that an organized effort be made to protect personnel from injury and minimize damage to property and the environment. All Laboratory resources can be made available to respond to an emergency.

11.2 Responsible Parties

Specific responsibilities are assigned to the

- LBNL Director
- Emergency Response Organization
- Policy Group
- Emergency Preparedness Subcommittee of the Safety Review Committee, EH&S Division, Emergency Program Manager (formerly the Emergency Services Group)
- Supervisors
- Employees

11.2.1 LBNL Director

During emergencies requiring activation of the LBNL Emergency Command Center, the Director has overall responsibility for emergency response and policy decisions. If the Director is not on site, the sequence of delegated authority is

- Deputy Director for Operations
 - Deputy Director
 - Division Director, Environment, Health & Safety
 - Associate Laboratory Director, Computing Sciences
 - Area Coordinator, General Sciences
 - Area Coordinator, Life Sciences
 - Area Coordinator, Energy Sciences
-



To assist the Director during operational emergencies are

- The Emergency Response Organization, consisting of the Command Center team and first-responder groups. Typically, the Laboratory Deputy Director for Operations is the Incident Commander in charge of the Emergency Response Organization.
- The Policy Group, the members of which include the Deputy Directors and Associate Laboratory Director. Typically, the Deputy Director chairs the Policy Group.

LBNL's emergency management organization is consistent with the Incident Command System and the State Emergency Management System (SEMS) used by federal, state, and local jurisdictions to manage emergency response to disasters. Upon notification of a major emergency, the Emergency Response Organization and the Policy Group report to the Emergency Command Center in the Fire House, Building 48.

11.2.2 Emergency Preparedness Subcommittee

The Emergency Preparedness Subcommittee of the Safety Review Committee may be requested to review the Emergency Preparedness Program and make recommendations regarding emergency preparedness matters.

11.2.3 EH&S Division Emergency Program Manager

The Emergency Program Manager has Laboratory-wide responsibility for developing and implementing the Laboratory's Emergency Preparedness policy.

Functions of the Emergency Program Manager are

- Developing and updating the Laboratory's Master Emergency Plan, LBNL PUB-533.
- Developing and updating building emergency plans.
- Planning and conducting emergency drills and exercises.
- Coordinating volunteer emergency teams (Building Emergency, Auxiliary Ambulance and Fire, Amateur Radio Operators, Auxiliary Medical, and Facility Inspection).
- Maintaining the LBNL Emergency Command Center.
- Maintaining and managing emergency supplies, including disaster rescue boxes, first aid kits, and emergency food.
- Providing emergency preparedness training (First Aid, CPR, Fire Extinguisher Use, Building Emergency Team, and Earthquake Safety).
- Coordinating emergency preparedness functions with state and local jurisdictions and agencies.



11.2.4 Supervisors

All supervisors are responsible for

- Ensuring that their staff is familiar with the emergency plan for the building and preventing their employees from reentering an evacuated area until it is safe.
- Assisting the Incident Commander during an emergency.
- Understanding shutdown procedures for all equipment used by their staff and knowing the location and use of all safety equipment in their area.

11.2.5 Employees-at-Large Involved in an Emergency

All employees not in emergency response groups but involved in a major emergency are responsible for

- Reporting the emergency promptly by phone, stating their name and telephone number, types of injuries, location, and nature of the emergency.
- Showing the ranking emergency response officer where the incident occurred, summarizing the hazards associated with the area, and providing any other information that will help avoid injuries.
- Removing the injured persons, if there is threat of further injury or further exposure to hazardous conditions.
- Administering first aid or trying to control the incident, only if they can do so safely. They must have been trained in first aid or the appropriate emergency response.
- Leaving the immediate vicinity. If leaving an injured person, employees must report to a Building Emergency Team member or professional responder.

11.2.6 Employees-at-Large Not Involved in an Emergency

All employees not involved in an emergency are responsible for

- Staying away from the scene, evacuating immediately by the nearest safe exit when a fire alarm sounds, and refraining from re-entering an evacuated area until notified by the Incident Commander or the Building Manager.
- Following instructions given over the public address system or directly by the Incident Commander or the Building Manager.



11.3 Standards

- 29 CFR 1910, *Occupational Safety and Health Standards for General Industry*
- NFPA 1600, *Disaster Management*
- 40 CFR 68, *Chemical Accident Prevention Provisions*
- 40 CFR 355, *Emergency Planning and Notification (SARA III)*
- DOE Order 151.1, Chapter VIII, paragraph 4a and 4d; Chapter I, paragraph 3
- DOE Management Directive 5480.5

11.4 Related PUB-3000 Chapters

- General Policy and Responsibilities (Chapter 1)
- EH&S Charter (Chapter 2)
- Emergency Management (Chapter 9)
- EH&S Training (Chapter 24)
- Seismic Safety (Chapter 23)

11.5 References

- *LBL Building Manager Program* (January 1999)
 - *LBL Master Emergency Plan*, PUB-533, Lawrence Berkeley National Laboratory, latest revision
 - Policy and Procedure Memo, Volume XXIII, No. 11, May 21, 1997, *LBL Emergency Command Center Operations*
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Appendix A. Glossary

Drill A supervised hands-on event that develops, tests, or maintains a specific operational or emergency response capability. The scope of LBNL drills includes operational functions to support the Master Emergency Plan, its implementing procedures, and operational training. Laboratory drills include specific activities such as notification, emergency communication, fire, medical emergencies, hazardous material detection and monitoring, environmental sampling and analyses, security alerts, personnel accountability, general evacuation, emergency categorization, decontamination, facility activation, public information, and health physics.

Emergency Any significant deviation from planned or expected behavior or course of events that could endanger or adversely affect people, property or the environment.

Emergency Equipment Any equipment that may be required to measure, control, or mitigate the consequences of an emergency.

Emergency Resources Any individual, group of individuals, equipment, instrumentation, or specialized services that have been assembled, organized, or developed for the purpose of assisting in alleviating the consequences of an emergency.

Exercise A comprehensive performance test of the integrated capability of most aspects of the emergency management program associated with the Laboratory. LBNL exercises test the adequacy and effectiveness of organizational command and control; implementation procedures, notifications, and communications networks; emergency equipment; response organization personnel performance; and the overall emergency response program performance. Exercises must be designed and conducted for maximum realism and to duplicate the sense of stress inherent in an actual emergency situation.

Off site All areas not on site and not within the control of the Laboratory.

On site The area within the Laboratory over which it has authority to control all activities, including exclusion or removal of personnel and property.

Recovery Action taken after an affected facility has been brought to a stable or shutdown condition, including those actions taken to mitigate the emergency and return the facility to normal operation.



Appendix B. Abbreviations and Acronyms

AIHA. American Industrial Hygiene Association
ALARA. As Low As Reasonably Achievable
BET. Building Emergency Team
BLS. Basic Life Support
BSO. Berkeley Site Office
CNFO. Communication and Networking Facilities Office
CPR. Cardio Pulmonary Resuscitation
DAC. Derived Air Concentration
DAT. Damage Assessment Team
DOE. Department of Energy
DOE/Oak. Department of Energy Oakland Operations Office
EBMUD. East Bay Municipal Utility District
EBRPD. East Bay Regional Parks District
ECC. Emergency Command Center
EEGL. Emergency Exposure Guidance Level
EH&S. Environment, Health and Safety
EMT. Emergency Medical Technician
EPC. Emergency Preparedness Coordinator
EPIPs. Emergency Program Implementation Procedures
HAZMAT. Hazardous Material
HATMAT TECH. Hazardous Materials Technician
HAZWOPER. Hazardous Waste Operations and Emergency Response
HMMP. LBNL's Hazard Materials Management Plan
IC. Incident Commander
ICS. Incident Command System or Integrated Communication System
IDLH. Immediately Dangerous to Life and Health Level
LBNL. Lawrence Berkeley National Laboratory
LLNL. Lawrence Livermore National Laboratory
MEP. Master Emergency Plan
MOAs. Memoranda of Agreement
MOUs. Memoranda of Understanding



OES. California Office of Emergency Services
ORPS. DOE's Occurrence Reporting and Processing System
OSC. On-Scene Commander
OSHA. Occupational Safety Health Administration
PIO. Public Information Officer
PUB-3000. Environment Health and Safety Manual
SRC. LBNL Safety Review Committee
TOMES. Toxicology, Occupational Medicine & Environment Series
UCB. University of California at Berkeley
UCBPD. University of California Berkeley Police Department
UPS. Uninterruptable Power Source

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