



LAWRENCE
LIVERMORE
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LABORATORY

EM9001-RW Emergency Response Organization Training Refresher (FY 2014)

EM9001-RW, Rev. 11.0.0

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Emergency Response Organization – FY2014Annual Refresher

Course Goal:

After completing this course, the student will demonstrate an understanding of updated information regarding the LLNL Emergency Response Organization policies and procedures; lessons learned from drills, exercises, and actual emergency responses; and new processes or facility changes, in accordance with the LLNL Emergency Plan and Emergency Plan Implementing Procedures.

Course Objectives:

- I Describe your roles and responsibilities as part of the LLNL Emergency Response Organization in relation to the lessons learned from the FY2013 drills, exercises, and actual emergency responses.
- II Identify the new processes, procedures, or facility changes that may affect your roles and responsibilities as a member of the LLNL Emergency Response Organization.

Emergency Management System

The Command and Management component within the Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS) are designed to enable effective and efficient incident management and coordination by providing flexible, standardized incident management structure. The structure is based on three key organizational constructs:

1. The Incident Command System (ICS),
2. Multi-Agency Coordination Systems (MACS), and
3. Public Information System.

These three organizational constructs are designed to allow personnel from a variety of agencies to meld rapidly into a common management structure with common terminology, meet the needs of incidents of any kind or size, provide logistical and administrative support, and be cost effective by avoiding duplication of efforts.

The Field Response Level is where emergency management/response personnel, under the command of the Incident Commander, carry out tactical decisions and activities in direct response to an incident or threat. The Incident Command System is used to organize on-scene operations for a broad spectrum of emergencies (small to complex, both natural and manmade).

At LLNL, the Field Emergency Response Organization (ERO) consists of Alameda County Fire Department (ACFD), Security Protective Forces Division (PFD), and the ES&H Teams.

The LLNL Multi-Agency Coordination System (MACS) consists of the Emergency Operations Center (EOC), the Department Operations Centers (DOCs), and the Executive Business Coordination Center (EBCC). The MACS provide the architecture to support coordination of multiple incident prioritizations, critical resource allocation, communications system integration, and information coordination.



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The LLNL Public Information System is managed by the Public Affairs Office and consists of the processes, procedures, and systems to communicate timely, accurate, and accessible information on the incident's cause, size, and current situation to the public, our employees / sub-contractors, and additional stakeholders (both directly affected and indirectly affected).

Facility-Level Emergency Program and Disaster/Self-Help Program:

The Facility-Level Base Program differs from the Disaster/Self-Help Program in that it focuses on events where emergency response personnel are immediately available to take charge of the emergency response efforts at the facility upon arrival. The Disaster/Self-Help Program focuses specifically on large-scale disasters that would impact the entire site and overwhelm emergency response personnel, when there may be little or no immediate response from professional emergency response organizations.

During the FY2013 Shaker Exercise, the **Building Emergency Coordinators (BECs)** were extremely instrumental in providing pre-exercise information to their facility personnel. Many BECs conducted facility briefs on the exercise and went over exit routes, Assembly Point locations and took facility personnel out to review the new Disaster/Self-Help boxes.

During the exercise, the BECs were engaged at the Assembly Point locations in providing assistance to Assembly Point Leaders, facility personnel, and emergency response personnel.

The Zone Control Point and Assembly Points reported that for the first time they were able to complete a full communication pathway from the Assembly Point to Zone Control Point to the EOC and back again.

The **Volunteer Emergency Radio Group (VERG)** *{formally known as the Amateur Radio Emergency Services (ARES)}* provided great communication assistance and remains one of the most used and reliable means of communications during a disaster.

Initial Response / Call-Out

LLNL Emergency Plan – General Concept of Operation:

Upon discovering an abnormal event/condition, Alameda County Regional Emergency Communications Center (ACRECC) receives a 911 call, monitored by Security's Central Alarm Station (CAS), and dispatches the LLNL Field Emergency Response Organization (ACFD, PFD, and ES&H Teams). The Incident Commander (IC) will gather information about the incident and relay it to the Laboratory Emergency Duty Officer (LEDO) and/or the Emergency Management Duty Officer (EMDO). The Incident Commander will implement initial protective actions and, if required, provide protective action recommendations to appropriate offsite authorities. The EMDO will determine the categorization/classification of the event, activate the appropriate level of the LLNL Multi-Agency Coordination System (MACS), and initiate appropriate off-site agency notifications, including the LEDO.

The  **Communicator!NXT** system is designed to dispatch the LLNL Multi-Agency Coordination System staff when they are needed.

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EOC Activation Levels:

There are two formal activation levels for the EOC. The decision to activate the EOC takes into account what level of emergency or planned event LLNL is experiencing.

Key - The EOC is operated by key staff. Depending on the circumstances of the event, additional EOC staffing and DOC activation decisions are made by the Emergency Director, with recommendation from the Section Chiefs and Emergency Management / EOC Coordinators.

Full - The EOC and appropriate DOCs are fully staffed and begin operations. Full EOC operations are required due to a major emergency, such as an earthquake, significant hazardous materials release, or terrorist event.

Activation is required for emergencies classified as Site Area Emergency or General Emergency. For Alert or Operational Emergency Not Requiring Further Classification (OENRFC), the decision on whether to activate is at the discretion of the LEDO, in consultation with the EMDO.

For a variety of situations below an emergency declared as an Alert or OENRFC, the Emergency Response Organization (ERO) may be asked to report to the EOC without formal activation for the purpose of monitoring events and performing actions, as directed by the LEDO. Such situations can range from:

- Protests, where only a few people report;
- An ORPS-reportable event or OENRFC where all key staff report;
- A change in SECON levels due to a serious regional or national security threat, where the full ERO reports and takes actions as the LEDO directs.

If the ERO is staffed as a precaution or in anticipation that an event might escalate, the EOC can quickly become activated and declared operational.

The EOC is not declared **operational** until the LEDO/Emergency Director determines they have sufficient situational awareness and have established the level of organization needed. The LEDO/Emergency Director determines the level of organization needed in a top-down modular fashion that is based on the size and complexity of the incident. The staffing level or functional areas are determined based on the need to effectively manage the incident. The minimum functional areas the Emergency Director must have present to declare the EOC **operational** are:

Management functional area:

- Emergency Director
- Public Information Manager *
- Emergency Management Coordinator and EOC Coordinator

Operations Section functional area:

- Operations Section Chief

Planning & Intelligence Section functional area:

- Consequence Assessment Analyst (*HazMat event*) or Planning & Intelligence Section Chief (*non-HazMat event*)

* *Either in the EOC or direct communications established (e.g., the Public Affairs Office [PAO] DOC or Joint Information Center [JIC]).*

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EOC “Key Staff” includes:

* Management:

- Emergency Director
- Emergency Management Coordinator
- EOC Coordinator
- Public Information Manager
- NNSA/LFO Emergency Manager

* Operations:

- Operations Section Chief

* Planning & Intelligence:

- Planning Section Chief
- Consequence Assessment Analyst
- Notifications Officer
- WebEOC Operator

* Administration, Logistics & Finance (ALF):

- ALF Section Chief
- IT Specialist Employee

DOC Activation:

The DOC Procedures / Manuals discuss the same staffing concept – the primary DOC personnel (e.g., DOC Commander, Information Manager, WebEOC Operator, etc.) are included in the *Communicator! NXT* system activation.

Specialist personnel (e.g., Industrial Hygienists, Explosives Safety, Structural Assessment, Utilities, etc.) and additional DOC staffing are requested to report to the DOC depending on the circumstances surrounding the event.

Additional EOC / DOC staffing can be made by:

- *Communicator! NXT – Instant Activation.* Individuals or groups can be notified by multiple devices (e.g., pagers, work phone, cell phone, and/or home phone).
 - This activation is typically performed in the EOC.
- *EPO-List-04 Emergency Response Organization (ERO) Notification List.* Using a “phone tree” concept, group or single paging, etc., individuals can be notified.
 - This activation can be accomplished in the EOC or DOCs.
- *Emergency Voice Alarm (EVA) System.* ACRECC can be contacted to make an announcement that the EOC and DOCs are being activated.
 - This request must come from the LEDO/Emergency Director.

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Lessons Learned – Multi-Agency Coordination Entities:

1. **Event Monitoring:** The use of the EOC as a central location for personnel and information flow was very successful for actual events that occurred during FY2013. Emergency Management Department will be using the EOC more often to support events in the field.
2. **On-Demand Conference Call System:** During actual events and exercises, the use of the On-Demand Conference Call System proved to be a very effective means of allowing all parties to hear the same information at the same time.

Phone numbers and access codes are identified in the EPO-List-02 *Emergency Operations Center (EOC) Telephone List*. To contact the On-Demand Conference Call System, dial 925-424-8105. There are three (3) separate lines or access codes available for use:

- Access Code: 882050 (*Management*)
- Access Code: 943272 (*Operations*)
- Access Code: 674524 (*Planning & Intelligence / Administration, Logistics & Finance*)

Initial Actions and On-Going Actions

Protective Action Orders / Protective Action Recommendations:

The Alameda County Fire Department Senior Officer or LLNL Security Duty Officer (SDO) will gather information about the incident and relay it to the EMDO to determine the categorization / classification of the event/situation. The Alameda County Fire Department or LLNL Security Department will implement initial protective actions and, if required, provide protective action recommendations to appropriate offsite authorities (e.g., Livermore-Pleasanton Fire Department, Livermore Police Department, Alameda or San Joaquin County Sheriff, etc.).

After the EOC becomes operational, the Incident Commander retains responsibility for protecting *only* what is defined as the incident scene. Any onsite area outside of the incident scene falls under the protection of the Emergency Director.

The Incident Commander and the ED must therefore have a conversation to define and agree on what falls within the incident scene onsite. This decision should be briefed to responders at the scene and to the Emergency Response Organization.

Protection of offsite areas always remains the responsibility of the Incident Commander; however, it is the duty of the Emergency Director to issue protective action recommendations to the Incident Commander, as well as to offsite authorities. Under state and local statutes the Alameda County Fire Department has legal authority and responsibility to take appropriate actions (evacuation, shelter in place, etc.) necessary to protect the public and residents of the county during an emergency such as a hazardous material release. This includes the unilateral decision authority to alert the public of a hazardous incident, restrict or close access of public areas, and/or evacuate the affected area. The authority necessary to carry out these actions at the direction of the Alameda County Fire Department rests with local law enforcement (Livermore Police or Alameda or San Joaquin County Sheriff, etc.).

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Lessons Learned:

Need for LLNL Multi-Agency Coordination Entities (EOC, DOCs, EBCC) to focus on emergency management outside the incident scene (the rest of the Laboratory):

Focus areas to be considered:

- Relocation of evacuated personnel to a safe area outside the area of protective action orders. Accountability and care/shelter of evacuated or relocated personnel.
- Protective Actions for remaining Laboratory personnel *outside* the incident scene. Track and maintain status of personnel remaining on-site that are not emergency response personnel – determine safe haven location(s), if needed.
- Provide periodic event status information to all LLNL personnel during emergencies (e.g., status of protective actions).
- Activities in the Livermore Valley Open Campus (LVOC), the LLNL Discovery Center or other visitors, dignitaries, tour groups, etc.
 - * **DOE Order 151.1C Guidance: Unescorted Access:** If the general public can gain unescorted access to areas of the DOE site, such as highways or visitor centers, those areas should be considered as “offsite” for the purposes of emergency classification definition (i.e., a General Emergency declaration), *unless* it is assured that those areas can be evacuated and access control established within about one (1) hour of any emergency declaration.
- Planning and implementation of a site-wide evacuation, including on-site traffic control. Obtain status of nearby highways, roads and other means of mass transportation.
- Initiate a “Critical Facilities Log” that indicates the disposition of the facilities.
 - * For example; during a recent power-outage, a list of affected facilities was identified as well as the population of each building and if it was a “cold, dark and dry” facility. The list identified those “critical facilities” that required monitoring when the power was re-established.

Emergency Action Levels (EALs):

EALs are specific, pre-determined, observable criteria used to recognize and identify that the incident is an “Operational Emergency.” EAL information is included with Fire Department “run cards” brought to the event scene. The Battalion Chief or Captain gathers information about the incident and contacts the EMDO, who consults with the Fire IC to determine whether or not the incident is an OE based on the applicable EALs. Likewise, the PFD Security Incident Commander gathers information about the incident and contacts the SDO, who consults with the EMDO to determine whether or not the incident is an OE based on the applicable EALs.

For each facility that an Alert, Site Area Emergency or General Emergency is defined, the EALs describe the distances for the protective actions and protective action recommendations. The EAL Index and Protective Actions/Protective Action Recommendations pages are being modified to incorporate new terminology.

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Index Page:

- The **Isolation Distance or Zone** defines an area surrounding the incident in which persons may be exposed to dangerous and life threatening concentrations of material.
- The **Protective Action Distance or Zone** defines an area downwind from the incident in which persons may become incapacitated and unable to take protective actions and/or incur serious or irreversible health effects.
- **FWCS (BDB) – Facility Worst Case Scenario (Beyond Design Basis Type Event)**. This new designation will direct the First Responders and/or EMDO to quickly identify the protective actions and CAT/CLASS for the “worst case scenario.”

Isolation Distance Maximum Distance to TEL (100 rem/ AEGL ₆₀₋₃ or equivalent)	Protective Action Distance Maximum Distance to PAC (5 or 1 rem/ AEGL ₆₀₋₂ or equivalent)
1338 ft (408 m)	2775 ft (846 m)
N/A	2132 ft (650 m)
0.6 mile 3133 ft (955 m)	~ 1.7 mile (9186 ft) (2800 m)
TBD based on event	TBD based on event

332-03 * FWCS (BDB)	7-10	*BEYOND DESIGN BASIS EARTHQUAKE (or similar event causing equivalent damage)	Earthquake, or equivalent event, with enough force, causing up to total collapse of the roof and damage to support structures and confinement	GE
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Protective Actions/Protective Action Recommendations Page:

- The choice of protective actions for a given situation depends on a number of factors. For some cases, evacuation may be the best option; in others, sheltering-in-place may be the best course. Sometimes, these two actions may be used in combination. In any emergency, the Incident Commander needs to quickly give instructions.

SAE:	<p>1. Move personnel to a safe location as indicated below:</p> <ul style="list-style-type: none"> • If criticality involving Uranium or unknown (based on 1E+18 fissions involving uranium): <ul style="list-style-type: none"> – Isolation Distance: consider evacuating B332 to assembly point, if appropriate, and [TEL (100 rem) not exceeded] (See Note 5) – Protective Action Distance: consider Shelter In Place facilities downwind to a distance of 2132 ft (650 m) [distance to PAC (1 rem)] (See Note 6) • If criticality involving Plutonium (based on 1E+18 fissions involving plutonium): <ul style="list-style-type: none"> – Isolation Distance: consider Evacuate B332 to assembly point, if appropriate, and [TEL (100 rem) not exceeded] (See Note 5) – Protective Action Distance: consider Shelter In Place facilities downwind to a distance of 1410 ft (430 m) [distance to PAC (1 rem)] (See Note 6) <p>2. Consider closing on-site roads as necessary</p> <p><i>Reference—EPHA-B332 Rev 4; Scenario 5.5.4 & 5.4.4</i></p>
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Incident Command System Concept – Common Terminology / Clear Text:

One way to ensure communications are verified and validated is to practice and use the Active Listening concept. Put emotions aside during the conversation and try to overcome environmental distractions; ask questions and paraphrase back to the message sender so they can confirm or clarify understanding.

Simply put: Repeat the message back!

- *Sender’s Message*
- *Receiver Repeats Message; allowing*
- *Sender to Confirm or Clarify*

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Operational Emergency Termination / Recovery Activities

Accident/Incident Scene Management (Post Emergency Response):

Procedure “PRO 0081 01” describes the control, management, and chain of custody responsibilities of an accident/incident scene for the safety of personnel and preservation of materials and evidence for follow-on investigative/analysis efforts, after emergency response activities have been completed. It describes the process to respond to the following scenarios:

1. Scenario 1: Emergency response with Incident Command established.
2. Scenario 2: Line management responds to an event during normal working hours.
3. Scenario 3: Line management is notified of an event during off-working hours.

	Phase 1	Phase 2	Phase 3	Phase 4
Scenario	Level of Emergency Response	Scene Stabilization & Control	Scene Management	Analysis
1	Incident Commander (IC)	LEDO	Geographic DAD Ops (or designee)	IA Committee Chair
2	Line Manager – Working Hours	ES&H Team facilitates	Payroll or Program DAD Ops (or designee)	Mgt assigned – IA Committee Chair or Assurance Manager
3	Line Manager – Off-Hours	LEDO facilitates	Payroll or Program DAD Ops (or designee)	Mgt assigned – IA Committee Chair or Assurance Manager

Figure 1 – Scene Control Flow Diagram

Accident/incident scene management is necessary after the emergency response to ensure that the scene is effectively preserved and controlled until all fact finding and evidence gathering is complete. This facilitates the conduct of a root cause analysis by LLNL or DOE, should one be required.

A key concept for the successful implementation of this procedure is that individuals assigned the function of scene control/management should assume that further analysis is required, and act accordingly, until further analysis is deemed not required.

A copy of Procedure “PRO 0081 01” is available on the [Emergency Preparedness & Planning](#) web site.

Lessons Learned:

1. Identifying a Recovery Manager and Scene Control Manager **as early as possible** during an incident is essential to ensure positive steps can be taken after the urgent response is complete to further stabilize and control access to the scene and to ensure any physical items involved in the event are not operated, moved or otherwise altered.

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New Processes, Procedures, or Facility Changes

Emergency Plan

The Emergency Plan is reviewed, revised, and released on an annual basis. Revision 19 is available on the EM9001-RW home page as well as the Emergency Preparedness & Planning web site: <https://www-epp.llnl.gov/epp/Resources.html>

New Disaster/Self-Help Zones

The Disaster/Self-Help Plan and Zone Maps are available on the Emergency Preparedness & Planning web site: https://www-epp.llnl.gov/epp/D_SH.html

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