

California Post-Earthquake Information Clearinghouse

DRAFT

Operation Plan

March 24, 2009

Operation Plan: California Post-Earthquake Information Clearinghouse

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This document is maintained and periodically updated by representatives of government agencies, research institutions, and universities who participate in the functions of the California Post-Earthquake Information Clearinghouse. Please log onto www.eqclearinghouse.org for more information.

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California Post-Earthquake Information Clearinghouse

The California Post-Earthquake Information Clearinghouse was established in 1972 to provide State and Federal disaster response managers, affected agencies, and the scientific community with prompt information on ground failure, structural damage, and other consequences of a significant seismic event. The information is collected by scores of scientist, engineers, and other professionals who commonly arrive in affected areas to conduct research and/or assist in a Clearinghouse operation. The Clearinghouse core group is a collection of earth scientists, engineers and other professionals representing various state agencies, federal bureaus, universities, and private institutions. The group meets on a tri-annual basis to maintain operational preparedness and strong working relationships among the participating organizations.

Mission Statement

To facilitate the gathering and dissemination of post-earthquake information using the talents of scientists, engineers, sociologists, economists, and other professionals who arrive in the affected area.

Products and Services

Following a significant, damaging earthquake in California, a Clearinghouse operation will be established to:

Provide a location, real or virtual, where scientists, engineers, and other professionals can become part of a larger, temporary organization (the Clearinghouse) whose primary purpose is to collect and disseminate perishable field data.

Provide a daily forum where geologists, engineers, researchers, emergency managers, and other practitioners can assemble to share and discuss the observations they have made during their field investigations.

Provide data collection forms to participants to facilitate systematic gathering, documentation, and dissemination of perishable field data, observations, and findings.

Track fieldwork progress of investigators in order to minimize duplication of efforts and maximize examination of the affected area.

Provide, using Geographic Information System(GIS) technology, data, imagery, and maps to field investigators and digitally process for electronic dissemination, the data, maps, overlays, and photographs generated by them.

Compile, synthesize, and quickly pass along critical information collected by field investigators to Federal and State Emergency Operations Centers, the State Geologist, the U.S. Geological Survey, and other appropriate recipients.

Accommodate officials from other regions, states, and countries.

Provide a designated person to handle media representatives who arrive at the Clearinghouse.

Note: The Clearinghouse is not intended as a “gatekeeper,” but will channel researchers and observers away from overburdened local government officials and toward specific damaged areas. Arrangements for access into secured areas will be made by the Clearinghouse through provision of letters of passage and contacts with local governments.

I Clearinghouse Operation Plan

A. Introduction

The California Post-Earthquake Information Clearinghouse was established in 1972 by Governor Reagan to facilitate the collection, interpretation, and dissemination of critical geological and engineering observations following a significant earthquake event. The Clearinghouse concept has since been formalized as an important element of earthquake response in both the California State Emergency Response Plan and the National Earthquake Hazards Reduction Program (NEHRP).

The Clearinghouse includes participants from various agencies and institutions based in the state. It is managed by representatives from four core groups: the California Geological Survey (CGS), the U.S. Geological Survey (USGS), and the Earthquake Engineering Research Institute (EERI), and the California Emergency Management Agency, formerly the Governor's Office of Emergency Services (OES). The Clearinghouse normally meets three times a year to maintain strong working relationships among participating agencies and institutions and to continue to improve operational preparedness through both desktop and field exercises.

When the Clearinghouse is activated following a significant earthquake in the state, its principal functions are to: 1) coordinate the field investigations of earth scientists, engineers, and other participating researchers; 2) facilitate the sharing of observations through regular meetings and thru the Clearinghouse website; and 3) notify disaster responders of any crucial observations or results. This document outlines Clearinghouse functions, agency involvement, management, operating procedures, equipment needs, and policies. For a list of the various acronyms used in this document refer to Appendix A.

B. Operational History

The first collaborative Clearinghouse was established after the 1971 San Fernando earthquake in the California Geological Survey's (CGS) downtown Los Angeles office. Personnel from the California Institute of Technology (Caltech), EERI, Los Angeles City and County, and CGS met to exchange information. Small Clearinghouse operations were established after the 1973 Pt. Mugu and 1975 Oroville quakes. EERI and CGS set up clearinghouses at El Centro in 1979, at Mammoth Lakes in 1980, and at Coalinga in 1983. The operation at Mammoth Lakes lasted a few weeks and accommodated both researchers as well as local and national media representatives. Following the 1989 Loma Prieta quake, no formal Clearinghouse was established because two of the management organizations were located in the midst of the damage. EERI coordinated field reconnaissance from its El Centro office, while the USGS at Menlo Park--25 miles from the epicenter--filled many needs typically handled by a Clearinghouse.

A streamlined Clearinghouse was operated after the Landers/Big Bear earthquakes in 1992, when CGS and Cal_EMA-coordinated reconnaissance activities of primarily earth science field investigators. A modern Clearinghouse was established in a regional office of the OES (now Cal-EMA) in Pasadena following the 1994 Northridge earthquake. It was in operation for over one week. The information gathered by multi-disciplinary field investigations was, in some cases, the only damage intelligence available to OES and the Federal Emergency Management Agency (FEMA) for a number of days. A geoscience Clearinghouse was established after the 1999 Hector Mine earthquake by USGS on the Twentynine Palms Marine base.

In 2002, the USGS, as part of its congressional mandate to coordinate post-earthquake investigations, developed *A Plan to Coordinate NEHRP Post-Earthquake Investigations (USGS Circular 1242)*. That document provides guidance in coordinating domestic and foreign post-earthquake investigations supported by the National Earthquake Hazards Reduction Program (NEHRP). The USGS plan addresses coordination of the NEHRP agencies – FEMA, National Institute of Standards and Technology (NIST), National Science Foundation (NSF), USGS – and their partners. It provides a framework for:

- Determining if the earthquake is significant and what level of implementation of the NEHRP plan is warranted.
- Coordinating what is going to be done.
- Identifying responsibilities for post-earthquake activities.

Part of the NEHRP plan is devoted to Clearinghouse operations and states: “Within 1 day after a significant earthquake, a place should be established in the region affected by the earthquake where post-earthquake field investigators can meet to review progress and to organize and coordinate their activities. . . The USGS, FEMA, and EERI shall work together on behalf of NEHRP and develop a general procedure for establishing (such) a Clearinghouse. The procedure shall be formulated in collaboration with state emergency management, state geological surveys, and appropriate multi-state consortia.”

The NEHRP plan recognizes that the State of California already has “formalized the process for establishing a Clearinghouse coordinated by the California Geological Survey, with the principal NEHRP-sponsored participants being FEMA (Region IX), EERI, and the USGS. Both the specific design and operations of the Clearinghouse are the responsibility of these participants, but general operational plans must be prepared in advance if a fully functional Clearinghouse is to be quickly established. The organizations and individuals represented by the management group of the Clearinghouse are committed to working cooperatively with all NEHRP agencies, state and local governments and with non-government organizations (NGOs) to improve the investigation of earthquakes within the State of California.

C. Activation

The Clearinghouse will be put into operation only after earthquakes that meet any of the following parameters:

- When an urban area is struck by a damaging earthquake that has a magnitude of 6 or above.
- Upon recommendation of CGS, USGS, EERI, and Cal-EMA, even when the above magnitude threshold is not exceeded, but damage is significant.
- In a remote, less densely populated area, when an earthquake is large enough to damage structures and lifelines.

Note: A federal disaster declaration is not necessary to activate the Clearinghouse, but the Clearinghouse will always be activated when there is a federal disaster declaration. Also, a “virtual Clearinghouse” may be established for earthquakes that do not justify field-based operations. In some cases, it is likely that a combination of physical and virtual services may be established. Procedures for contacting all participating organizations and informing them of Clearinghouse start-up and location are listed in Appendix B.

1. Location

The Clearinghouse management group (CGS, EERI, Cal-EMA, and USGS) will arrange for the establishment of a Clearinghouse with input, if possible, from the Cal-EMA Regional Administrator of the region in which the earthquake strikes (see Cal-EMA Regional Administrative map, Appendix C). The primary consideration for establishing a Clearinghouse is to locate it as close as possible to the area where ground failure and damage are most severe so that investigators can minimize travel time to and from the field for check-in, daily reporting, and evening information sharing purposes. Selecting the location of a Clearinghouse should also take into account whether dependable traffic and communication exist between it and the EOC, although physical proximity may not be as important as electronic connectivity.

If fault rupture and associated damage occurs over a long distance, such as was the case in the 1857 Fort Tejon and 1906 San Francisco earthquakes, which had 200 and 270 miles of fault surface rupture, respectively, one or more satellite clearinghouses may need to be established to meet data collection needs. Satellite clearinghouses will perform all the basic functions intended for any Clearinghouse operation, although perhaps with less equipment than is desirable. Proximity to ground failure, damage and convenience for the researchers will outweigh the need for sophisticated equipment. Also, a web-based, virtual Clearinghouse may be set up on an as-needed basis with support from agencies participating in the response operation.

2. Facility

The size and staffing of a Clearinghouse will be event-specific. A Clearinghouse operation requires adequate internet service, electricity, phones, fax, copiers, working, and display space. It could be necessary to have a meeting room large enough to accommodate as many as 100 people, depending on event size and location. Although a Clearinghouse facility may not meet all needs, the following are priority considerations:

- Open office space with adequate telephone and network access
- Wall space for maps and other documents
- Work stations for a minimum of three people
- Conference room accommodating up to 100 people, if necessary.
- Parking
- Access to airport, roads, and damaged areas

This space may need to be leased, which is possible in a federally declared disaster. After an earthquake for which there has been no federal declaration, the Clearinghouse operation, which will be small or moderate, may be quartered in facilities belonging to one of the organizations in the management group or other participating organizations, such as CalTrans.

A field Clearinghouse may not meet all these characteristics, but should have as many as possible. For example, if the operation is set up in a facility obtained from a state, county or local government, or in a large tent, wall space or configured office space may not be an option.

3. Timing

The Clearinghouse should be operational by the time the first reconnaissance organization arrives on the scene; ideally within 24 hours of the earthquake. The duration of Clearinghouse operation depends on the magnitude of the damage and extent of the response and early recovery periods. Clearinghouse operations can be reduced as the need for field reconnaissance declines. The management group will determine when to terminate operations.

D. Management and Staffing

The Clearinghouse Management Team will designate a member of one of the management group organizations to be the Clearinghouse Manager. The manager will be responsible for coordinating activities, overseeing operational logistics, facilitating meetings, and assuring the effective dissemination of information. In addition, the manager will act as, or designate, a technical liaison to the State EOC Planning/Intelligence function and will be responsible for maintaining voice and data communication between the Clearinghouse and the REOC, if possible.

The Clearinghouse is presently made up of representatives of government agencies, private institutions, and universities that will be active in and contribute to its operation (See appendix D for list of member organizations). Some agencies may assign professional, technical, and/or clerical staff to the operation while others provide student assistants. The operating procedures of Clearinghouse staff are listed in Appendices E. At a minimum, operational staffing requirements will be a Clearinghouse manager, Geographic Information System (GIS) analysts, clerical/data entry staff and an information technology (IT) staff person.

Some participant organizations' staff members will be elsewhere (for example, at Caltech or UC Berkeley), but in close contact with the Clearinghouse. Other research institutions, professional organizations, and out-of-state agencies (most likely those from Oregon, Nevada, and Arizona) might take part in Clearinghouse activities. Their participation will be determined by the location and the impacts of the earthquake in. All participating organizations may collaborate in joint activities, coordinate research activities, and communicate findings through the Clearinghouse.

E. Operations

1. Primary Clearinghouse Functions

Under the 2008 National Response Framework, the Clearinghouse functions as a Technical Specialist group in the Planning Section of the Communications and Information Management Component of the National Incident Management System (NIMS). The Clearinghouse will supplement the intelligence-gathering, damage assessment, and archiving activities of the SOC, EOC, and JFO and will be viewed as an extension of the reconnaissance capabilities of the EOC in post-earthquake damage assessment.

The primary functions of the Clearinghouse will be to 1) facilitate the collection and verification of perishable reconnaissance information; 2) convey that information to the appropriate Cal-EMA Emergency Operations Center and others; 3) serve as the "check-in" and "check-out" point for all researchers and officials who arrive at the scene (see

Appendix F for the *Clearinghouse Participation Instructions* distributed to field investigators); 4) provide updated damage information to all investigators, through daily briefings and reports; 5) track where investigators are; and 6) introduce a systematic approach into what is frequently haphazard by guiding investigators to cover areas not sufficiently investigated.

In the first few days, the buildings and ground deformation in the regions with greatest impacts, based on ShakeMaps and media reports, will be investigated and perishable data will be documented. In the following days, the buildings and nature of the ground failure in these areas will be compared to those in neighboring undamaged areas. After the field investigations, the data will be further analyzed to determine what happened and why.

Every evening the Clearinghouse will hold a reconnaissance briefing, during which researchers and field observers will report their observations of damages or impacts. This information will also be summarized and made available to the SOC, EOC, and JFO and all other participants. Clearinghouse staff will update databases (including RIMS) on a daily basis, create maps from the data, and keep track of participants' whereabouts. It will be desirable for a Clearinghouse staff person to be in the EOC to collect, process, and transmit the information both to and from the EOC.

FEMA immediately deploys an advanced Incident Management Assistance Team (IMAT) which is concerned with gaining an immediate intelligence picture of the disaster for the purpose of estimating resource needs in advance of any actual resource requests. The ERT-A includes an Information and Planning element (Emergency Support Function [ESF]-5), which operates jointly with the Planning and Intelligence Section in the EOC, and may be co-located. As the lead federal earth science agency, and signatory to the Federal Response Plan (through the Department of the Interior), the USGS will assume liaison responsibilities with ESF-5 in order to be available for possible Mission Assignment tasking from FEMA. The Clearinghouse may be asked to contribute to this effort.

The Clearinghouse is not intended as a "gatekeeper," but will channel researchers and observers away from overburdened local government officials and toward specific damaged areas. Arrangements for access into secured areas will be made by the Clearinghouse through provision of letters of passage and contacts with local governments.

2. Overflights

The goals of the overflights requested by the Clearinghouse will be to provide emergency response managers with ground failure, geologic hazard, and structural damage information and deliver information from aerial resources to field investigators. The overflight function will be arranged by Cal-EMA after receiving a mission number request from the Clearinghouse. Funding of flights can also be made under provisions of the Federal Response Plan (FRP). Such requests will define the requirements for both emergency response and scientific purposes. Members of the Overflight work group will consult on the types and numbers of overflights requested.

3. Media

The location and operation of the Clearinghouse will not be advertised to any media organizations by Clearinghouse staff. However, reporters are certain to learn of the operation and are likely to show up. The media will be welcome, but they must observe a few policies established by the Clearinghouse and strictly enforced by the Clearinghouse manager.

There is no spokesperson for the Clearinghouse per se. Contact between the Clearinghouse staff and the media should be minimized. All media questions should be handled by the manager, who may refer them to one or more Public Information Officers of appropriate organizations.

Media representatives are allowed to attend daily briefings, but cannot ask questions, or in any other way distract the briefing from its central purpose. However, they may approach individual field investigators following the briefing sessions and request permission to interview them. Accepting such a request is left to the discretion of individuals, but it must be understood that the individuals are speaking on their own or their organization's behalf, independent of the Clearinghouse.

F. Funding

Each organization participating in a Clearinghouse will be responsible for its own accounting and costs. Because the Clearinghouse is an emergency response function, it may be possible to cover some of its costs in a federally declared disaster. This possibility will be determined after the scope of the disaster is known, but federal reimbursement should not be counted upon.

In disasters for which there is no federal declaration, costs are generally much smaller and arrangements to participate in a Clearinghouse will be likely be based on the understanding that member organizations would undertake and fund many of the Clearinghouse-related tasks, irrespective of the activation. In this case, each organization would likely bear the costs as part of in its normal post-earthquake investigation effort.

G. Equipment Needs

Equipment and office supply items required to conduct a viable Clearinghouse operation are listed in Appendices G and H. Given the core data gathering and dissemination function of the Clearinghouse, it is essential to have a functional GIS computer system ready for implementation at any moment. The Clearinghouse management team continues its efforts to improve access to, robust, comprehensive, and user-friendly systems. Until that system is fully implemented (or in the case where it there is no internet access), alternate methods and equipment are also identified in Appendix G.

H. Committees

In preparation for post-earthquake activities, three functional committees will be maintained in order to address details critical to optimal operation. Each of these committees will meet once or twice a year, as needed, to maintain logistical capabilities. Their recommendations will be conveyed to the management group. These committees are described below: See Appendix I for a list of committee members serving currently.

1. Information Technology Committee

This work group is responsible for identifying the IT needs of the Clearinghouse, including hardware, software, and data gathering/archiving. This requires a multi-phase plan for managing these needs now and in the future (see equipment section below). The group will request information about each organization's data-gathering activities in order to understand how to link these separate activities into the Clearinghouse operation.

2. Outreach Committee

This work group is responsible for providing information to the professional community who may participate in Clearinghouse activity, as well as developing and maintaining an education program aimed at local governments so that they are more likely to cooperate with Clearinghouse investigators during emergency situations.

3. Overflight Committee

This work group is responsible for establishing procedures for requesting overflight reconnaissance (in advance of Clearinghouse activation). When the Clearinghouse is activated the work group will arrange for the funding of flights under the Federal Response Plan, and will define the requirements for both emergency response and scientific purposes.

APPENDICES

- Appendix A: List of Acronyms Used in this Document
- Appendix B: Initial Membership Notification Protocol
- Appendix C: Map of Cal-EMA Administrative Regions
- Appendix D: List of Participating Agencies
- Appendix E: Clearinghouse Operating Procedures
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- Appendix I: Committee Member Rosters
- Appendix J: Clearinghouse Management Group Roster

Appendix A: List of Acronyms Used in this Document

ATC	Applied Technology Council
Cal-EMA	California Emergency Management Agency (formerly OES)
Caltech	California Institute of Technology
CalTrans	California Department of Transportation
CGS	California Geological Survey (formerly CDMG)
CSSC	California Seismic Safety Commission
CUREE	Consortium of Universities for Research in Earthquake Engineering
DFO	Disaster Field Office
EERI	Earthquake Engineering Research Institute
EOC	Emergency Operations Center
ERT	Emergency Response Team
ESF	Emergency Support Function
FEMA	Federal Emergency Management Agency
FRP	Federal Response Plan
GEER	Geo-Engineering Extreme Events Reconnaissance
GIS	Geographic Information System
GPS	Global Positioning System
ICP	Incident Command Post
ICS	Incident Command System
JFO	Joint Field Office
NASA	National Aeronautics and Space Administration
NEHRP	National Earthquake Hazards Reduction Program
NIMS	National Incident Management System
NIST	National Institute of Standards and Technology
NSF	National Science Foundation
PDA	Personal Digital Assistant
PDF	Portable Document Format
PEER	Pacific Earthquake Engineering Research Center
REOC	Regional Emergency Operations Center
RIMS	Response Information Management System
RRCC	Regional Response Coordination Center - FEMA
SCEC	Southern California Earthquake Center
SEAOC	Structural Engineers Association of California
SEMS	Standardized Emergency Management System
SOC	State Operations Center of the Cal-EMA
SQL	Structured Query Language
TCLEE/ASCE	Technical Council on Lifeline Earthquake Engineering
UCBSL	University of California Berkeley Seismological Laboratory
USB	Universal Serial Bus
USGS	United States Geological Survey
WDC	Western Disaster Center
WSSPC	Western States Seismic Policy Council

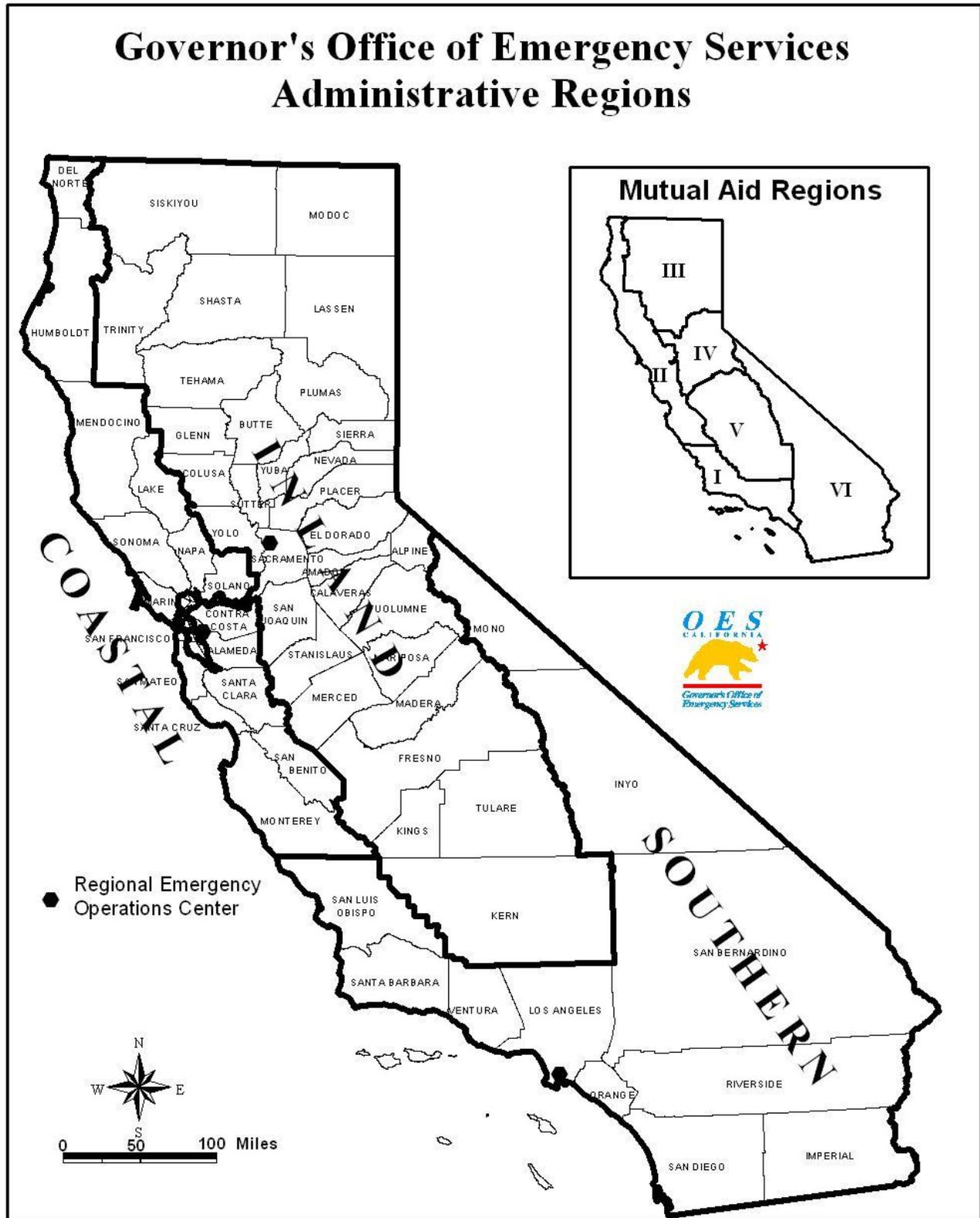
Appendix B: Initial Membership Notification Protocol

The task of contacting all participating organizations and informing them of a Clearinghouse start-up and its location could be time-consuming if only one group or person is responsible. The process will be made less complicated if each group follows the steps below:

- 1) After people either feel or hear about a big earthquake, they should contact whomever they usually do to verify such occurrences. There will be no announcement of Clearinghouse establishment in less than one hour because it takes time to determine the extent and location of damage. It then takes a little more time to decide if a Clearinghouse is called for.
- 2) If the management group or Cal-EMA can't get the word out in an hour or so, first check the Clearinghouse webpage www.eqclearinghouse.org or call/email EERI.
- 3) If communication with EERI is not possible, call or e-mail other members of the management group: CGS, Cal-EMA, or USGS. Alternate phone numbers are listed for all of them in the roster (Appendix Z actual member list). Management organizations will have consulted, and all will have the latest word.
- 4) The CGS and USGS have primary responsibility for securing a facility for the Clearinghouse, but may delegate the task to other organizations in the management group. They will work with Cal-EMA to determine which locations best facilitate communications with the EOC. It may take a number of hours to determine the physical location of the Clearinghouse. Once that has been determined, the information will be disseminated to all Clearinghouse organizations by members of the management group and will be available at www.eeri.org/eqclearinghouse
- 5) Some organizations (EERI and USGS, for example) plan to carry the announcement and location of the Clearinghouse on their members-only Internet homepage. Information about a Virtual Clearinghouse will also be made available at these locations.
- 6) By phone, FAX, Internet, and the other communications networks of which we are all part, word will spread fairly rapidly, from participating organizations to their members and volunteers.
- 7) The management group assigns a team to set up the Clearinghouse, and provides periodic updates as needed.

Appendix C: Map of Cal-EMA (Formerly OES) Administrative Regions

Need an updated map (contact Kevin Miller of Cal-EMA)



Appendix D: List of Participating Agencies

(As of April 2009)

ATC	Applied Technology Council
CalTrans	California Department of Transportation
CEA	California Earthquake Authority
CGS	California Geological Survey
Cal-EMA	California Emergency Management Agency (formerly OES)
Caltech	California Institute of Technology
CSSC	California Seismic Safety Commission
CUREE	Consortium of Universities for Research in Earthquake Engineering
DHS	Department of Homeland Security
EERI	Earthquake Engineering Research Institute
FEMA	Federal Emergency Management Agency (within DHS)
GEER	Geo-Engineering Extreme Events reconnaissance
NASA	NASA/Ames Research Center
PEER	Pacific Earthquake Engineering Research Center
SCEC	Southern California Earthquake Center
SEAOC	Structural Engineers Association of California
TCLEE	Technical Council on Lifeline Earthquake Engineering
UCBSL	UC Berkeley Seismological Laboratory
USGS	U.S. Geological Survey
WDC	Western Disaster Center
WSSPC	Western States Seismic Policy Council

Appendix E: Clearinghouse Operating Procedures

Thank you for your willingness to provide support to the California Post-Earthquake Information Clearinghouse. Below are instructions on the stations you'll need to set up (Part I), and explanations of the functions that need to be performed (Part II). Beneath each heading are listed the tools and materials that you'll need. Clearinghouse setup, functions, and assignments are overseen and directed by the Clearinghouse manager.

I. STATIONS

A. Registration Table for Scientists and Engineers--2 *staff members*

- 1) Set up at door entry. Identify with sign.
 - a) Log sheet for mandatory daily sign-in & collection of following information:
 - 1) Name
 - 2) Organization
 - 3) Purpose of field work
 - 4) Location of Field work
 - 5) Others in group?
 - 6) Contact info: Cell #, Satellite phone #, radio?
 - 7) Departure time
 - 8) Expected return time
 - b) *Instructions for Field Researchers*
 - c) I.D.'s
 - e) Release forms
 - f) Letters of intro
- 2) Media Representative Station. Identify with sign.
 - a) Handout Clearinghouse media policy (annex to plan)

B. INFORMATION TABLE--1 *staff member*

- 1) Set up spacious table near registration table. Identify with sign.
 - a) More *Instructions for Field Researchers*
 - b) Bulletin board
- 2) Distribute *Field Investigation Forms*--ENCOURAGE THEIR USE
Equipment needed
 - a) Copier
 - b) Phone
 - c) Computer
- 3) Distribute all of the previous day's damage updates
- 4) Distribute all press releases, weather reports, road closure info, reports on utilities availability , maps and other useful info for field investigators

Appendix E: Clearinghouse Operating Procedures

C. COMPUTER WORK STATIONS—*as available*

D. DAILY BRIEFING AREA

- 1) Arrange space to accommodate about 100 people, depending on the earthquake's impact, for daily discussions
 - a) Chairs
 - b) Podium or table
 - c) Black or white board
 - d) Flip charts
 - e) Wall space for posting materials
 - f) PowerPoint projector
 - g) White wall or screen for projections

II. FUNCTIONS

A. PROVIDE LETTERS OF INTRO & PASSAGE--*1 staff member*

- 1) Letter(s) of Introduction from Cal-EMA/CGS
- 2) Make them available to Field Investigators
 - a) Letterhead
 - b) Computer
 - c) Log
- 3) Request permission from authorities for passage into restricted areas
 - a) Phone
 - b) Map
 - c) Directory

B. COLLECT/VERIFY INFO ON DAMAGE & EQ EFFECTS--*3 staff members*

- 1) Collect and disseminate damage survey and media reports
- 2) Enter the information into the database system
- 3) Moderate daily briefings
- 4) Record evening proceedings & report to REOC
- 5) Check /verify damage information
- 6) Retrieve and present information on the Internet for use by Clearinghouse participants (see below)
- 7) Prepare update for next day's field assignments
- 8) Immediately notify the REOC and DFO of findings relevant to emergency response

C. TRACK INVESTIGATORS--*1 staff member*

- 1) Review updated check-in/check-out logs

Appendix E: Clearinghouse Operating Procedures

- 2) Review updated damage survey reports
- 3) Plot locations of observed/not observed areas on map
- 4) Work with check-in/check-out to get priority areas and issues covered
- 5) Report at daily briefings

D. CONNECTION TO Cal-EMA REOC--1 *liaison person*

- 1) Establish Connection
 - a) Phone-based
 - b) Computer-based
 - c) GIS linkage
- 2) Maintain connection--hardware
- 3) Funnel damage reports & assorted info
 - a) By phone and email
 - b) By RIMS
 - c) GIS data
 - d) In person if necessary

E. CONNECTION TO OTHER ORGANIZATIONS--1 *staff member per mode (phone or electronic)*

- 1) UC Seismology labs
- 2) CGS & USGS data centers
- 3) Archiving/info dissemination hubs
- 4) Web pages
- 5) FEMA RRCC

F. KEEP CLEARINGHOUSE RUNNING--1 *staff member*

- 1) Identify/procure needed supplies and equipment
- 2) Equipment check-out & check-in
- 3) Arrange for trash pick-up/cleaning
- 4) Arrange for food/water
- 5) Deal with security issues and parking

G. FINANCE/ADMINISTRATION-- 1/2 STAFF MEMBER

- 1) Keep track of expenditures/borrowings/gifts

III. FIELD OPERATIONS

Appendix E: Clearinghouse Operating Procedures

A. ORGANIZATIONAL RESPONSIBILITY—

Each participating organization is responsible for the safety, coordination and priority setting for their members.

B. FIELD PARTICIPANT INFORMATION

Participants in the field shall provide numbers/addresses (cell phone, satellite phones, emails) so that the Clearinghouse is able to contact them and also a summary of their specialties and field investigation priorities.

C. COMMUNICATION WITH THE CLEARINGHOUSE-- Participants in the field shall:

- 1) Check in with the Clearinghouse to communicate itineraries before going into the field at the beginning of each day
- 2) Contact the Clearinghouse as priorities or itineraries change
- 3) Contact the Clearinghouse at least once daily with an update on observations

APPENDIX F: Instructions for Field Investigators

Welcome to the Earthquake Clearinghouse. These instructions will save you time, improve your access to damage sites, and ensure that your observations will be noted and used by other field investigators and subsequently archived.

Geologists:

Geologic field investigators are expected to assess the nature and extent of earthquake-induced ground failures, namely fault rupture, landslides, and liquefaction. Geologists and geotechnical engineers are asked to report their findings on the *Geologic Hazards Field Assessment* and *Geotechnical Investigation* forms developed by California Geological Survey and the U.S. Geological Survey. These forms, which provide a systematic field assessment of fault rupture, landsliding, and liquefaction, will be available at the Clearinghouse or can be downloaded from its website: www.eqclearinghouse.org

Engineers:

Engineering field investigators are expected to assess the nature and extent of earthquake ground effects and damage to structures. In addition to documenting structural damage, field investigators should attempt to determine failure mode, factors such as geologic site effects that may have contributed to failure, possible implications of the damage, and any secondary impacts. You should also be prepared to note any recommendations that may improve seismic performance of structures. Engineers will report their findings on the Field Investigation form developed by EERI

Social Scientists: Social Scientists are expected to gain an overview of the impacts of the earthquake on human behavior and community institutions, noting where possible, impacts on special “at risk” populations, government operations, and commercial and economic activity.

All Investigators:

Before you leave for the field, please do the following:

- 1) Sign in at the Registration Table.
- 2) At the Information Table, collect all press releases, daily damage updates, and information about local conditions, road closures, water, power, communications status and sanitation availability.
- 3) Download from www.eqclearinghouse.org, or pick up at the Clearinghouse, an adequate number of blank *Field Investigation* forms to record the assessments you make in the field, with emphasis on your particular field of expertise as follows:

a. Geologic Hazards Mapping

- Geotechnical Aspects
- Engineered Buildings
- Industrial Facilities
- Lifelines
- Transportation Structures
- Architectural/Nonstructural
- Emergency Management and Response
- Societal Impacts
- Tsunami Impacts (if applicable)

Should you wish to contribute to the EERI Reconnaissance effort, you may obtain from the check-in table a list of Investigation Team Leaders that includes their respective fields of expertise (see expertise categories at left). Please try to contact a Team Leader with expertise similar to your own to maximize your effectiveness in the field.

APPENDIX F: Instructions for Field Investigators

Pick up and fill out a Release Form at the Clearinghouse Sign-In Table. You will then be given an identification badge and letters of introduction to help you gain access to blocked-off damage sites. In addition, performing the following steps can help you maximize your effectiveness as a Clearinghouse participant:

- Coordinate your planned field investigation with others in your discipline, so that the whole region of strong shaking is covered rapidly with minimal duplication.
- While in the field, complete one Field Investigation form or one section of the Geologic Hazards Field Assessment form for each significant damage site, effect, or interview you conduct. Please NOTE THE LOCATION of each observation point so the data can be incorporated into GIS maps.
- Each evening, after sundown, field investigators return to the Clearinghouse for a lively debriefing session. We encourage you to participate.
- Every morning, before heading back out into the field, please stop by the Clearinghouse to pick up the updated damage reports and GIS maps that will help you focus your investigations.

Please bring your completed Field Investigation Forms to the Clearinghouse so your observations can be incorporated into the damage and effects database. GIS maps will be generated from that database, and all field observations are important in the creation of damage and effects maps.

Photography Requests:

Take (or scan from film) digital images of preferably 300 dpi, 4x6 (2 or so megabytes in size) and submit to the Clearinghouse a CD, DVD, or transfer images from a memory stick that has your initials etched on it.

For your most informative photos taken each day, please record them in EERI Field Investigation Form Section V of the Geologic Hazards Field Assessment form and submit it to the Clearinghouse with the rest of the completed sections forms along with a CD, DVD, etc of the images.

or

If you don't have a Clearinghouse Geologic Hazards Field Assessment or an EERI Field Investigation form, record the photo locations (addresses, cross-streets or preferably lat/long) and generate captions for non-technical audiences. Title file names to include the participant's first, middle, last name initials followed by a short sequential numbering system of your choosing. If possible, link the image locations and captions to the image filenames in an Excel database that can be uploaded to the Clearinghouse. Include your name, initials, email address, cell phone, participating organization, and mailing address.

GOOD LUCK & BE CAREFUL OUT THERE!

APPENDIX G: Equipment Needs For A Clearinghouse Operation

Although some of the below items may be purchased or leased when needed, critical items should be located now and earmarked for use in a Clearinghouse operation. If you have any of these items available, please let the management group know as soon as possible following Clearinghouse activation. Also see Appendix H for a “go list” of personal supplies every member should bring.

Equipment	Quantity Needed	Quantity Wanted	Notes
LOGISTICS			
Sign-in tables	2	2	6'
Computer tables	4	4	6'
Work tables	2	3	6'
Layout tables	2	2	
Bulletin boards	2	2	
Lights	4?	4?	
Power strips	4	6	
Appropriate wall maps			
STAFF NEEDS			
Coffee makers	1	10	
Refrigerator	1	1	
Microwave	1	1	
DATA ACQUISITION			
Digitizer	1	2	
Scanner (color)	1	2	11X17
DATA ANALYSIS and ARCHIVING			
Additional computers with GIS	3	5	
Server	1	2	
USB Hub	2	3	
PRESENTATION EQUIPMENT			
Computer projector	1	2	
Screen	1	2	
Map plotter	1	1	36"
Black and white printer	1	2	11X17
Color printer	1	1	11X17
High-speed copier w collator	1	1	
Television	1	2	
Blank DVD disks			
COMMUNICATIONS			
Land-line Telephones	2	3	
Long phone cables	2	3	
Faxes--one incoming, one outgoing	2	2	
Satellite phones	2	3?	
800 Mhz radios	?	?	
2-way radios	3	5	

APPENDIX H: Personal Office Supply List

The items listed below are miscellaneous office supplies that Clearinghouse staff should plan to bring, if available, to support general Clearinghouse operations. As there are no funds for operations, please bring enough supplies to cover your needs as well as any helpful items and equipment that could be loaned or donated.

1. Electrical extension cords
2. Strip plugs w/ surge protection
3. Flashlights
4. Local road maps (AAA)
5. Office supplies: name tags, note pads, phone message pads, pens, rubber bands, staplers, scotch tape, scissors, tacks, etc.
6. First aid kit
7. Laptops with GIS and CD/DVD burners/players
8. Digital cameras
9. Smart phones
10. GPS units & software
11. Thumb drives
12. Blank CD ROMs
13. USB mouse
14. Cellular phones & chargers
15. Air cards or modems
16. Portable uninterruptible power supply (UPS)

Appendix I: Committee Member Rosters

(As of April 2009)

INFORMATION TECHNOLOGY

USGS	Luke Blair
Cal_EMA	Diane Vaughan
Cal_EMA	Kevin Miller
CalTrans	Jaro Simek
EERI	Marjorie Greene

SCEC	Mark Benthien
WDC	Rich Davies
UCBSL	Peggy Hellweg
Caltech	Vikki Appel
TCLEE	Curt Edwards

OUTREACH

CGS	Ralph Loyd
EERI	Susan Tubbesing
EERI	Marjorie Greene
USGS	Steve Walter
SSC	Fred Turner
FEMA	Johanna Fenton

OVERFLIGHT

WDC	Rich Davies
Cal-EMA	Jim Goltz
CGS	Bill Bryant
CGS	Chuck Real
FEMA	Mike Hornick
USGS	John Tinsley

Appendix J: Clearinghouse Management Group Roster

(As of April 2009)

Contact Information: California Post-Earthquake Information Clearinghouse Management Group				
Organization	CGS	USGS	EERI	Cal-EMA
Lead Office	Loyd, Ralph Sacramento	Walter, Steve Menlo Park	Tubbesing, Susan Oakland	Goltz, Jim Pasadena
Work Phone	916-322-9207	650-329-4748	510-451-0905	626 356-3810
Cell Phone	916-813-2274	650-862-5125	510-301-8408	800-971-6202 (pager)
Email	rloyd@constrv.ca.gov	swalter@usgs.gov	skt@eeri.org	jim.goltz@oes.ca.gov
Alternate Office	Real, Chuck Sacramento	Tom Brocher Menlo Park	Greene, Marjorie Oakland	Mark Seemann Menlo Park
Work Phone	916-323-8550	650-329-4737	510-451-0905 x17	650-462-9724
Cell Phone	916-803-4787		510-469-9079	510-326-1141
Email	creal@constrv.ca.gov	brocher@usgs.gov	mgreene@eeri.org	mark.seemann@oes.ca.gov