



**Cal OES**

GOVERNOR'S OFFICE  
OF EMERGENCY SERVICES

# 2019 RIDGECREST EARTHQUAKE AFTER ACTION REPORT



*Highway destroyed by Ridgecrest Earthquake. Source: Shutterstock*

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Governor

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## FOREWORD

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Per the *Emergency Services Act, Article 9.5, Government Code Section 8607(f)*, the California Governor's Office of Emergency Services (Cal OES), in cooperation with involved state and local agencies, shall complete an After Action Report (AAR) after each gubernatorial-proclaimed disaster. This report shall provide a review of public safety response and disaster recovery activities and conclusions and recommendations based on the findings. Cal OES shall make the report available to all interested public safety and emergency management organizations.

An After Action/Corrective Action Report serves the following essential functions:

- Provides a source for documenting response and early recovery activities
- Identifies problems and successes during emergency operations
- Analyzes the effectiveness of the different components of the Standardized Emergency Management System (SEMS)
- Describes and defines a plan of corrective action for implementing recommended improvements to existing emergency response efforts

Representatives of public safety or emergency management organizations can obtain a copy of this report by submitting a request to:

[SharedMail.CalAAR@CalOES.ca.gov](mailto:SharedMail.CalAAR@CalOES.ca.gov).

## EXECUTIVE SUMMARY

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The 2019 Ridgecrest Earthquake sequence was a series of earthquakes and aftershocks. The disaster began on July 4, 2019, at 10:34 AM local time, with a magnitude 6.4 (M6.4) earthquake approximately 11 miles northeast of Ridgecrest, California, in Kern County. This initial earthquake was followed by numerous aftershocks on July 5, 2019, the most significant being a M5.4 earthquake. Then, later on July 5, 2019, a M7.1 earthquake occurred on an orthogonal fault and was followed by more than 14,000 aftershocks.

On July 4, 2019, Governor Gavin Newsom proclaimed a state of emergency for the M6.4 earthquake near the City of Ridgecrest. This allowed coordinated resource deployment to the impacted region that reported damages to roads, buildings, critical infrastructure, and utilities. Following the M7.1 earthquake on July 5, 2019, Governor Newsom requested and received a Presidential Emergency Declaration on July 8, 2019. The emergency declaration allowed the Federal Emergency Management Agency (FEMA) to supplement local and state resources to support the staging areas for critical emergency supplies, such as food and water, establish a large shelter and Community Points of Distribution (CPODs), and open cooling centers. Local and state agencies began focusing on performing damage and safety assessments and repairing local infrastructure systems in the impacted areas. This report provides an overview of actions taken at all levels of government.

### SUMMARY OF SUCCESSES

- Cal OES Disaster Logistics quickly mobilized cots, blankets, meals ready-to-eat (MREs), and water from Los Alamitos to the state staging area (SSA) for local assistance.
- Cal OES Seismic Hazard Branch (SHB) coordinated with Caltech, United States Geological Survey (USGS), counties, and other partners to provide real-time updates and briefings on the earthquake damage.
- Cal OES Recovery deployed Safety Assessment Program (SAP) staff, Individual Assistance, and Preliminary Damage Assessment (PDA) staff to Trona and the City of Ridgecrest.
- The California Department of Transportation (Caltrans) successfully repaired and reopened SR-178, a vital commercial route between Trona and the City of Ridgecrest.

- The California Department of Education (CDE) obtained waivers for the United States Department of Agriculture (USDA) school lunch program requirements on behalf of impacted school districts. The waivers allowed school meal programs to continue even though local schools were closed pending damage inspections.
- The California Highway Patrol (CHP) and California Military Department (CMD) provided aerial damage surveillance and transportation for geologists, allowing them to view local faults and damages from the air rather than waiting for on-the-ground damage assessments to be completed.
- Los Angeles County Fire and Orange County Fire Authority rapidly deployed mutual aid resources to assist Kern County.
- The Kern County Behavioral Health and Recovery Services Department provided extensive support to impacted individuals due to heightened anxiety caused by aftershocks.
- San Bernardino County provided bottled water and 16,000 pounds of ice to individuals in the scorching July heat.

### **SUMMARY OF AREAS NEEDING IMPROVEMENT**

- The California Short-Term Earthquake Prediction Response Plan must be updated, which provides direction and guidance to state agencies for earthquake response.
- Voluntary Organizations Active in Disasters (VOAD) and local faith-based organizations did not inform responders when assisting in the impacted area.
- There were challenges in collecting damage assessments from private businesses and accurately assessing individual needs.
- Mutual aid resource requesting systems and processes could use enhancements/updates.

## DESCRIPTION OF EVENTS

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### ***INCIDENT PERIOD***

July 4, 2019 – July 12, 2019

### ***DECLARATIONS AND PROCLAMATIONS***

#### **LOCAL**

Kern County July 4, 2019

San Bernardino County July 6, 2019

#### **STATE**

Ridgecrest Earthquake – Kern County July 4, 2019

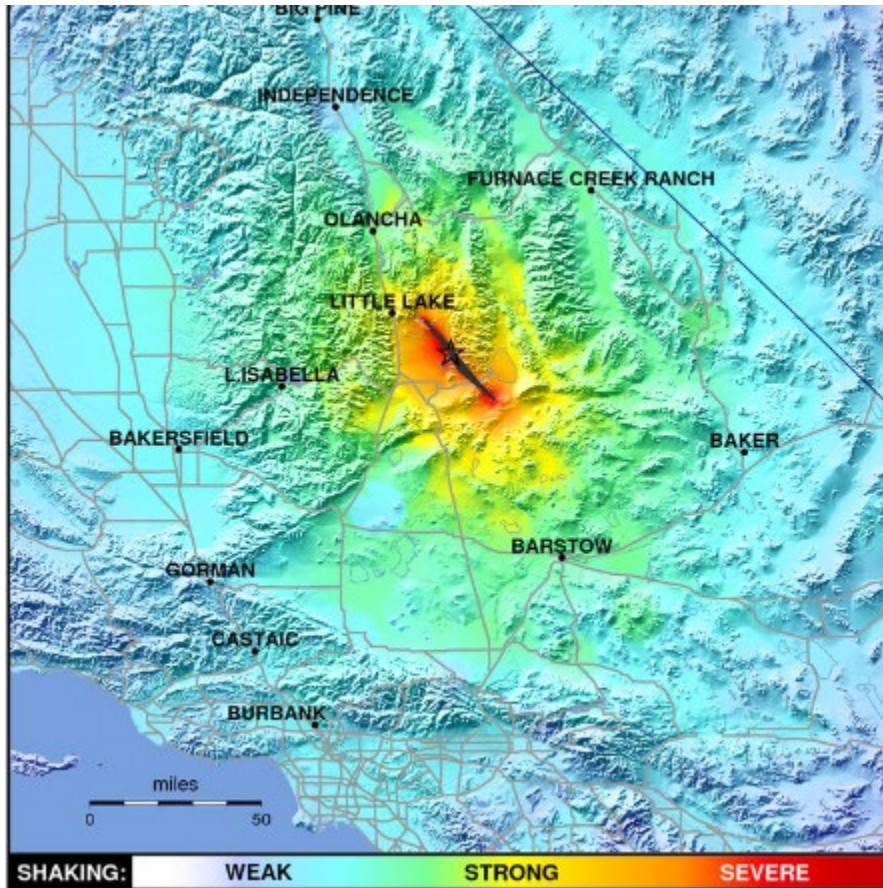
Ridgecrest Earthquake – San Bernardino County July 5, 2019

#### **FEDERAL**

California Earthquakes July 8, 2019

## INCIDENT BACKGROUND

On July 4 and July 5, 2019, earthquakes occurred northeast of the City of Ridgecrest in Kern County in the Eastern California Shear Zone. The series included three main shocks on a previously unknown fault line. The M6.4 earthquake occurred on July 4, 2019, at 10:33 AM. The M5.4 and M7.1 earthquakes occurred on July 5, 2019, at 4:08 AM and 8:19 PM, respectively. Along with these main shocks, more than 14,000 aftershocks occurred in the area over 11 days. These earthquakes were felt as far as Phoenix, Arizona, and caused significant damage.



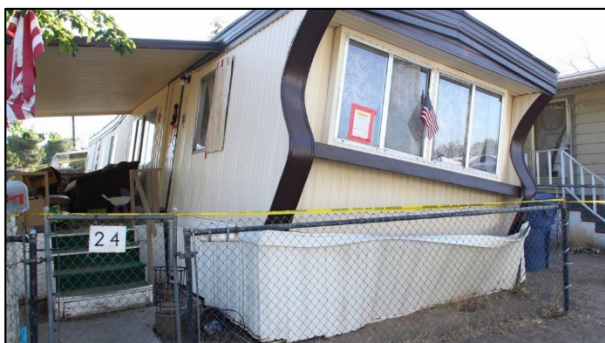
*Ridgecrest Shake map Source: United States Geological Survey*

On July 4, 2019, Governor Gavin Newsom proclaimed a state of emergency for the first earthquake. The State Operations Center (SOC), Inland Regional Emergency Operation Center (REOC), City of Ridgecrest Emergency Operations Center (EOC), Kern County EOC, and San Bernardino County EOC all opened and began coordinating response activities and damage assessments.

Damage assessments for the initial M6.4 earthquake indicated minimal damage to the City of Ridgecrest. In nearby Trona, an unincorporated community in San Bernardino County, several buildings and infrastructure sustained damage, including underground utility lines and power lines. Inspections of critical infrastructure in the area were conducted following the M6.4 earthquake. The Ridgecrest Regional Hospital suffered damage, evacuated twenty people to nearby hospitals, and began redirecting ambulances to other facilities as a precaution. In addition, the United States Navy (USN) began to inspect the Naval Air Weapons Station China Lake base just northwest of the City of Ridgecrest. The USN noted that 3,598 facilities were damaged at the base due to the earthquake.

Isolated fires were quickly extinguished, and damage to roads and infrastructure was minor. Utility workers began assessing gas lines and turning off gas, where necessary. The water system in the area was damaged, and a boil water notice (BWN) was ordered for parts of Trona due to low water pressure. A few documented injuries were reported, mostly from breaking glass or falling objects. Though repairs were needed, the Ridgecrest Regional Hospital was inspected and cleared to remain open.

Then, on July 5, 2019, an M7.1 earthquake occurred, interrupting ongoing damage assessments and response activities. Damage caused by the M7.1 earthquake was more severe than the previous earthquakes and compromised initial infrastructure and building repairs. Local water systems were impacted, leaving individuals without access to water for an extended period. Following this earthquake, Governor Newsom requested and received a Presidential Emergency Declaration from the federal government on July 8, 2019.



*A mobile home damaged by the Ridgecrest earthquakes. Source: Accuweather.com*

Damage assessments were challenging and time-consuming. While windshield surveys identified obvious problems like road damage, fires, or damage to a building's exterior, certified building inspectors were required to determine if structural damages were cosmetic or indicative of structural instability. Several state agencies, including the Department of General Services (DGS), the Department of Food and Agriculture (CDFA), the Office of Statewide Health Planning and Development, and Caltrans provided additional resources to



increase the capability to inspect damages. Thousands of aftershocks were recorded in July, with hundreds exceeding M3.0 and four exceeding M5.0, causing additional damage.

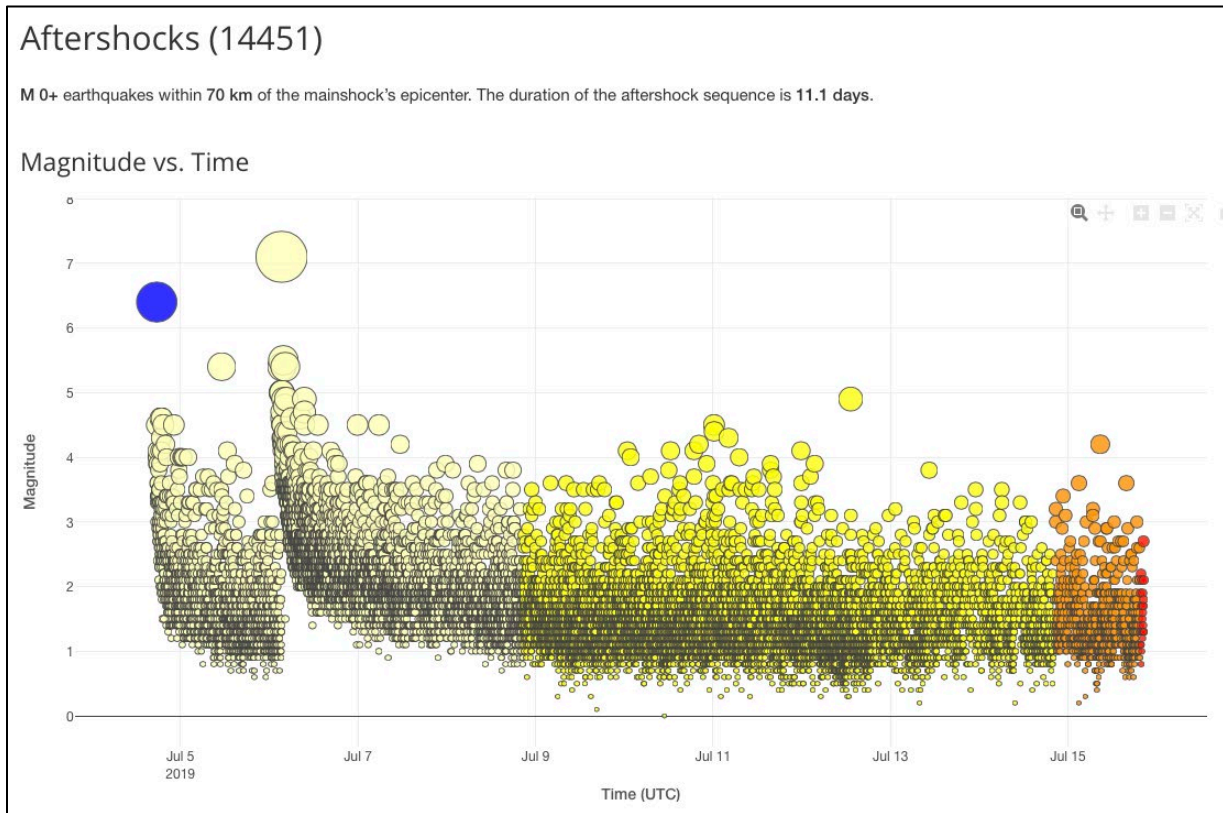


Figure 1 - Ridgecrest Earthquake Aftershock Scatter chart

The local water system was damaged at multiple points, and pipes and water tanks could not replenish their supplies due to damaged pumps. Local grocery stores and other retailers were temporarily closed due to building inspections. In Trona, the primary grocery store was red-tagged and unable to reopen. For impacted areas with running water, BWNs were in place from July 4, 2019, to July 17, 2019. Roughly 2,000 people were without water until repairs were completed. Multiple organizations – government, nonprofit, and private – worked together to ensure individuals had access to clean water until the system could be repaired.

**“Mobile homes were torn off foundations, chimneys fell, gas lines leaked, and some homes caught fire. Residents of Trona were without water service for four days.”**

Source: California Earthquake Authority

A Mass Care and Shelter Task Force (MCSTF) was established in the SOC. The California Department of Social Services (CDSS) and the American Red Cross (Red Cross) led the task force from July 5, 2019, to July 24, 2019, with support from Cal OES.

Before the earthquakes, the Kerr-McGee Community Center in the City of Ridgecrest was used as a cooling center due to high temperatures; it was quickly converted into a shelter for both the City of Ridgecrest and Trona. From July 4, 2019, to July 24, 2019, the Red Cross conducted its shelter operations with support from DGS, CDSS, local government organizations, and several Non-governmental Organizations (NGOs). Damage to state route (SR) 178 made travel from Trona difficult, so the Red Cross, Kern County, and San Bernardino County worked together to provide transportation between the shelter and the impacted communities. World Central Kitchen and the Salvation Army handled the feeding mission. In addition to sheltering services, the Red Cross provided Distribution of Emergency Supplies and comfort kits. The shelter was jointly used as a Local Assistance Center (LAC) from July 11, 2019 to July 13, 2019.

The earthquake affected 14 Sierra Sands Unified School District schools, including the Trona Joint Unified School District. Fortunately, most schools were out for the summer break, and extended-year classes were not in session due to the holiday. Initial damage assessments showed that most schools had minor damage. Other schools had more significant issues, like broken water mains and electrical damage. School buildings could not be used until safety inspections were completed. Extended-year classes and summer feeding programs had to be canceled until schools were cleared for use. Students utilizing the feeding programs were directed to other nearby schools that were not closed. Cerro Coso Community College in the City of Ridgecrest reported significant damage, with most campus buildings deemed unsafe to enter following a DGS Division of State Architects (DSA) inspection.

The constant seismic activity heightened anxiety in the community, and many were reluctant to return to their homes after being cleared. Individuals staying at the shelter preferred to camp outside the building rather than sleep inside. Kern and San Bernardino Counties provided extensive mental health support to the people of Trona and the City of Ridgecrest, with individuals who needed more intensive care being referred to local organizations.

## RESPONSE ACTIVITIES – STATE AGENCIES

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### CALIFORNIA GOVERNOR’S OFFICE OF EMERGENCY SERVICES (CAL OES)

#### CAL OES DISASTER LOGISTICS

From July 6, 2019, to July 16, 2019, Cal OES Disaster Logistics, in cooperation with DGS, coordinated the transport of commodities (cots, blankets, water, meals) and established an SSA at the Bakersfield Municipal Airport. Upon demobilizing, Cal OES Disaster Logistics staged six trucks containing drinking water (enough for 6,500 people for three days) for local use if needed. The concept of Cal OES storing commodities as a cache was new for this incident, which highlighted a need for a cache of MREs and water for rapid response.

#### SUCCESSSES

1. Cal OES Disaster Logistics quickly mobilized cots, blankets, MREs, and water from Los Alamitos and immediately established a staging area in Bakersfield.
2. Partnership with local government had a clear delineation of responsibilities.
3. Cal OES Disaster Logistics team partnered with CHP for escorts through affected areas while delivering resources to the local staging area at the fairgrounds and supplying water for the CPOD in Trona.

#### AREAS NEEDING IMPROVEMENT

1. The SSA was nestled in the farthest portion of the “Overrun Area”<sup>1</sup> of Bakersfield Municipal Airport making it difficult to access.
2. Cal OES Disaster Logistics identified the need for more staff to support operations and the state staging areas in Southern California.

#### CORRECTIVE ACTION

1. Pre-establish a list of sites approved for staging areas by conducting site surveys. This will also inform strategic transportation routes.
2. Cal OES Disaster Logistics will do an assessment to identify future staffing resource needs and options.

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<sup>1</sup> A cleared, paved area beyond the runway intended for planes that overrun the runway.

## **CAL OES FIRE & RESCUE**

Cal OES sent resources to Kern County to assist with damage assessments and confirmed no hazardous materials incidents occurred in the area. Cal OES Fire & Rescue Assistant Chiefs coordinated resource ordering from neighboring regions and Operational Areas (OA).

### **SUCCESSSES**

1. Cal OES Fire & Rescue and Kern County had great situational awareness of the incident and because of this were able to provide rapid assessment of buildings and infrastructure to disseminate among all public safety stakeholders.

### **AREAS NEEDING IMPROVEMENT**

1. Fire Resource Ordering and Status System (ROSS) and Interagency Resource Ordering Capability were not built to address resource needs for all hazards, creating issues when resources were ordered outside the systems.
2. Wildland resources do not match FEMA-typed resources, leading to the need for justification and extra documentation to seek federal reimbursement.
3. Global Positioning System (GPS) tracking surveys and searches and Geographical Information System (GIS) mapping could not differentiate between paved and dirt roads.

### **CORRECTIVE ACTION**

1. There is a need to create a California-based ordering system for all hazard needs that also pre-approves the emergency funding to utilize the resources required to address the rapid response to an incident.
2. Design a resource ordering system that addresses all-hazard resources and re-classifies wildland resources to match FEMA-typed resources.
3. Leverage new technologies to assist with GPS and GIS capabilities during incidents.

## **CAL OES OFFICE OF ACCESS AND FUNCTIONAL NEEDS (OAFN)**

OAFN worked with the Red Cross, CDSS, the California Department of Public Health, and the Emergency Medical Services Authority to ensure that access and functional needs (AFN) were met during evacuation and at the shelter. OAFN organized American Sign Language (ASL) interpreters from Disaster

Response Interpreter partner agencies and facilitated access to Video Remote Interpreter (VRI) services at the shelter and LACs. VRI technology allowed responders to assist individuals who were deaf or hard of hearing by providing access to online ASL interpretation services. VRI was also made available in the Kern County EOC.

OAFN also worked with the Office of Crisis Communication and Media Relations, formerly Cal OES Office of Public Information and Media Relations, to ensure that an ASL interpreter was present in the Joint Information Center (JIC) during all activations.

**SUCCESSSES**

1. VRI services at the shelter and LACs allowed for interpretation services in remote areas or situations where it is difficult to have an interpreter onsite.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

**CAL OES OFFICE OF INTERNATIONAL AFFAIRS (OIA)**

Cal OES Office of International Affairs monitored the event and shared information with the U.S. Office of Foreign Missions and the Mexican Consulate. OIA also contacted the Mexican Consulate in San Bernardino to inquire if Mexican nationals in the community had any impacts or unmet needs.

**SUCCESSSES**

1. No significant successes were reported.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

**CAL OES OFFICE OF LEGISLATIVE AND EXTERNAL AFFAIRS (OLEA)**

OLEA communicated with local, state, and federal officials to discuss status and follow-up for unmet needs. Local officials, Assemblyman Vince Fong, State Senator Shannon Grove, and U.S. House Minority Leader Kevin McCarthy received a briefing and tour of the City of Ridgecrest on July 6, 2019. OLEA also joined a call with U.S. House Minority Leader Kevin McCarthy's staff and FEMA Congressional Affairs to discuss school repairs.

**SUCCESSSES**

1. No significant successes were reported.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

**CAL OES OFFICE OF PRIVATE SECTOR/NGO COORDINATION**

The Business Operations Center (BOC) opened in the SOC to coordinate private sector and NGO activities. The BOC assisted with the coordination of donations in San Bernardino and Kern Counties, which included communications equipment and a truckload of water to the LAC set up at Trona High School.

**SUCCESSSES**

1. No significant successes were reported.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

**CAL OES OFFICE OF CRISIS COMMUNICATION AND MEDIA RELATIONS**

The Office of Crisis Communication and Media Relations created, shared, coordinated, and amplified information from numerous local, state, federal, and NGO agencies. The Office of Crisis Communication and Media Relations deployed personnel to Kern and San Bernardino Counties to assist with public information activities. A JIC was opened to ensure coordinated messaging among state agencies, including coordination with Cal OES OAFN for ASL interpretation services for press conferences and videos. The Office of Crisis Communication and Media Relations also worked with county staff to gather and amplify information regarding resources and other forms of support for impacted communities.

**SUCCESSSES**

1. No significant successes were reported.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

**CAL OES PUBLIC SAFETY COMMUNICATIONS (PSC)/TACTICAL COMMUNICATIONS**

PSC deployed two Mobile Interoperability Gateway Units to Kern County.

**SUCCESSSES**

1. No significant successes were reported.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

## **CAL OES RESPONSE OPERATIONS**

Cal OES activated the SOC from July 4, 2019, to July 16, 2019, and coordinated 39 mission requests during the event. Mission requests were focused on coordinating and deploying personnel for local damage assessments and supplies for use by SSA, CPODs, and shelters.

The Inland REOC was activated from July 4, 2019, to July 5, 2019, and the Southern REOC was activated from July 6, 2019, to July 10, 2019. The Coastal Region did not activate its REOC but deployed personnel to assist in the SOC and San Bernardino County.

### **SUCCESSSES**

1. No significant successes were reported.

### **AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

## **CAL OES SEISMIC HAZARDS BRANCH (SHB)**

Cal OES requested that the California Earthquake Prediction Evaluation Council convene to provide technical expertise and advise the governor on earthquake-related matters throughout the response.

### **SUCCESSSES**

1. Cal OES SHB coordinated with both Fire and Rescue Branch and Law Branch to fly a USGS seismologist over the impacted areas to assess and track the fault rupture through China Lake within the first hour of the earthquake. Early assessment of fault rapture provided real-time data and the magnitude of the hazard.
2. Cal OES SHB rapidly gathered information from counties, Caltech, USGS, and other partners to provide reports to the SOC.
3. Cal OES SHB provided quick briefs to the Kern County Sheriff's Office and connected them to experts at USGS.
4. Cal OES SHB identified a location for the earthquake clearinghouse to operate, which supported scientists and engineers deployed to the field. The clearinghouse allowed real-time updates from the field to be shared with locals.

**AREAS NEEDING IMPROVEMENT**

1. The California Short-Term Earthquake Prediction Response Plan, which provides direction and guidance to state agencies for earthquake response, should be updated.
2. Cal OES Duty Officers and field personnel require more training on earthquake-related topics.
3. Cal OES SHB staff require more training on SOC operations.
4. Cal OES SHB needs to identify staff that can represent Cal OES during press briefings.

**CORRECTIVE ACTION**

1. Cal OES SHB has been working with the California Geological Survey (CGS) on a process and timeline to update the plan. In 2024-25, the California Earthquake Prediction Evaluation Council is being reconstituted, and its first project is to review and provide recommendations for updating the plan.
2. Cal OES SHB has developed earthquake training and provided it to various Cal OES field staff and duty officers.
3. Cal OES SHB has hired staff already trained in SOC operations.
4. Cal OES SHB will work with Crisis Communications to train staff that will conduct media briefings.

**CALIFORNIA DEPARTMENT OF EDUCATION (CDE)**

CDE tracked school closures and coordinated the scheduling of school damage assessments by DSA. CDE also tracked meal programs in the Sierra Sands Unified School District and the Trona Joint Unified School District. Meal programs that were canceled due to school damage were supported by other local schools. The department also requested a waiver from the USDA, on behalf of the school districts, that allowed meals to be served at schools that did not meet the National School Lunch and National Breakfast Program requirements. The waiver allowed the schools to continue providing meals to students without fear that they would be ineligible for federal reimbursement.

**SUCSESSES**

1. CDE obtained waivers for the USDA school lunch program requirements on behalf of impacted school districts. The waiver allowed school meal



programs to continue while schools were closed during damage inspections.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

**CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE (CDFA)**

CDFA structural engineers performed inspections of buildings and facilities at fairgrounds in the affected area. The department recommended restricting access to the fairground buildings until damaged ceilings could be repaired. No mechanical or electrical damage was observed, and no gas leaks were detected.

**SUCCESSSES**

1. No significant successes were reported.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

**CALIFORNIA DEPARTMENT OF GENERAL SERVICES (DGS)**

DGS supported various efforts, such as establishing a local staging area for resource deployment at the Desert Empire Fairgrounds in Kern County. DGS procured commodities and rented equipment to support the Cal OES SSA at the Bakersfield Municipal Airport. At the Trona CPOD, DGS procured cots, blankets, meals, water, trailers for wastewater, and a water tanker. DSA staff assisted with safety inspections of local buildings, state department buildings, and schools.

**SUCCESSSES**

1. The DSA provided staff to assist with safety inspections of local buildings, state department buildings, and schools.
2. Initially, Disaster Logistics supported the water needs in Trona through a DGS vendor; however, during the transition to Recovery, DGS assisted locals in acquiring a private contractor to provide water, thus creating a seamless transition from state to local.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

## **CALIFORNIA DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION (HCAI)**

HCAI performed damage assessments for the City of Ridgecrest Regional Hospital. Out of an abundance of caution, patients were evacuated to nearby hospitals. The regional hospital was cleared for use on July 7, 2019, and was fully operational by July 8, 2019.

### **SUCCESSSES**

1. No significant successes were reported.

### **AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

## **CALIFORNIA DEPARTMENT OF SOCIAL SERVICES (CDSS)**

CDSS worked with SOC Operations to coordinate the delivery of resources to support shelter operations at the Kerr-McGee Community Center and co-led the MCSTF operation. CDSS served as the state lead for all shelter-related questions and built contingency plans should the event escalate.

### **SUCCESSSES**

1. No significant successes were reported.

### **AREAS NEEDING IMPROVEMENT**

1. CDSS noted conflicting information regarding shelters, which delayed operational decisions.

### **CORRECTIVE ACTION**

1. CDSS and Cal OES resolved this issue by ensuring that CDSS, as the MCSTF lead, is the only organization reporting out on shelter-related updates.

## **CALIFORNIA DEPARTMENT OF WATER RESOURCES (DWR)**

DWR inspected dams, aqueducts, aqueduct check stations, and other major water projects, identifying no significant damages. DWR also assisted with repairs to the water infrastructure of the Searles Valley Domestic Water Company (SVDWC).

### **SUCCESSSES**

1. No significant successes were reported.

### **AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

### **CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)**

Caltrans crews cleared and coordinated the repair of various state routes that connect the City of Ridgecrest and Trona. Caltrans contractors successfully repaired over 37,000 sq. ft. of roadway damage. Changeable message signs were deployed to inform travelers about damages and provide traffic control.



*Caltrans crews repairing Highway 178. Source: Reviewjournal.com*

### **SUCCESSSES**

1. Caltrans repaired roadway damage on SR-178 and reopened the vital commercial route between Trona and the City of Ridgecrest.

### **AREAS NEEDING IMPROVEMENT**

1. SOC roles and tasks for California Emergency Support Function 1 (CA-ESF 1) representatives, including Caltrans, were poorly defined.

### **CORRECTIVE ACTION**

1. Caltrans created a deployment manual for staff deployed to the SOC. This manual contains instructions, information, and resources that Caltrans staff need when deployed as the agency / CA-ESF 1 representative in the SOC.

### **CALIFORNIA HIGHWAY PATROL (CHP)**

CHP assisted with damage assessments of roads and provided traffic control as needed. CHP escorted vehicles transporting emergency supplies and equipment to their destinations.

### **SUCCESSSES**

1. CHP provided patrol escorts for vehicles transporting emergency supplies and equipment, allowing them to promptly reach the City of Ridgecrest

and Trona. CHP also provided reconnaissance flights for state geologists, which allowed an aerial view of local fault ruptures and damages.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

**CALIFORNIA GEOLOGICAL SURVEY (CGS)**

CGS deployed geologists to the field and opened the California Earthquake Clearinghouse in the City of Ridgecrest, coordinating post-earthquake field inspections and sharing observations with local, state, and federal responders. The Clearinghouse evaluated the local seismic activity and provided information showing the potential for ground shaking, fault ruptures, liquefaction, and other seismic-related impacts.



*Seismologists at a newly completed seismic station located near the southeastern end of the M7.1 earthquake fault. Source: Elizabeth Cochran (USGS).*

**SUCCESSSES**

1. CGS deployed geologists to the City of Ridgecrest shortly after the first earthquake, providing the SOC with geological information about aftershocks and local faults. In addition, their deployment to the area on the day of the initial quake allowed CGS to gather information immediately after the M7.1 earthquake.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

**CALIFORNIA STATE WATER RESOURCES CONTROL BOARD (SWRCB)**

SWRCB visited wastewater treatment facilities and sanitary sewer collection systems. SWRCB also provided the impacted communities with potable water and sanitary capabilities due to the BWNs.

**SUCCESSSES**

1. No significant successes were reported.

### **AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

### **CALIFORNIA UTILITIES EMERGENCY ASSOCIATION (CUEA)**

CUEA coordinated mutual aid from local utility-related agencies and companies to repair damaged infrastructure.

### **SUCCESSSES**

1. No significant successes were reported.

### **AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

### **CALIFORNIA MILITARY DEPARTMENT (CMD)**

CMD provided air resources (fixed wing, rotary wing, and drones) to assist with damage assessments and a combination of resources for personnel transport into the impacted area. CMD also provided personnel to the Trona High School CPOD from July 11, 2019, to July 15, 2019, to assist in distributing water and other commodities. Personnel were also pre-positioned for immediate deployment to potentially impacted areas.



### **SUCCESSSES**

1. CMD provided state geologists with helicopter transports, thus speeding up their initial response and assessments and allowing work to begin immediately.

### **AREAS NEEDING IMPROVEMENT**

1. CMD resources were ordered as “single resource” requests, causing issues with fulfillment and accountability.

**CORRECTIVE ACTION**

1. CMD recommends requesting military resources as pre-identified “capability force packages” rather than as single resources. CMD believes this would streamline the fulfillment of missions assigned to the National Guard and allow for better financial accountability for later reimbursements.

## RESPONSE ACTIVITIES – OPERATIONAL AREAS

### CITY OF RIDGECREST

The city opened an Earthquake Inspection Command Center to allow for the submission of local damage reports and restoration of infrastructure and services rendered inoperable by the earthquake.

#### SUCCESSSES

1. No significant successes were reported.

#### AREAS NEEDING IMPROVEMENT

1. No areas needing improvement were reported.

### KERN COUNTY

The county provided damage assessment services to the City of Ridgecrest. Kern County EOC produced an informational video with ASL interpretation to advise the community of available resources. The video was posted on the county website and social media sites. Kern County Behavioral Health and Recovery Services provided behavioral health services to individuals with heightened anxiety from the earthquakes.



*California Gov. Gavin Newsom examines earthquake damage in Ridgecrest, Calif., on July 6, 2019. Source: Cal OES photo/Twitter*

#### SUCCESSSES

1. The Kern County Behavioral Health and Recovery Services Department extensively supported impacted individuals.
2. Kern County received mutual aid resources from Los Angeles County Fire and Orange County Fire Authority.

#### AREAS NEEDING IMPROVEMENT

1. The county reported challenges with collecting damage assessments from private businesses and accurately assessing individual needs.

## **CORRECTIVE ACTION**

1. An online needs assessment tool was created to provide a fast, easily accessible way for private sector entities to submit information. Forms created in the system will be aggregated and used for requests for government assistance, such as SBA loans for homeowners and renters, the USDA Rural Development's Home Repair Loan and Grant Pilot Program, or volunteer services.

## **SAN BERNARDINO COUNTY**

On July 11, 2019, Trona High School was established as a CPOD, where San Bernardino County provided 60 pallets of bottled water and 16,000 pounds of ice daily to individuals in Trona.

In cooperation with the Red Cross, the county created transit plans to move individuals from Trona to the shelter at Kerr-McGee Community Center. Paratransit shuttles were arranged for transportation to and from the shelter at Trona High School. A total of nine people were moved from Trona to the shelter. A Functional Assessment Service Team (FAST) was deployed to support shelters. ADA and non-ADA showers, water, mental health, and medical services were provided for sheltered populations.

The San Bernardino County Department of Behavioral Health deployed six critical incident-trained mental health staff as part of a Community Crisis Response Team to assist the community of Trona. The county also provided damage assessment services to the community of Trona.

## **SUCSESSES**

1. San Bernardino County showed the capability to set up a functional CPOD and provided 60 pallets of bottled water and 16,000 pounds of ice daily to individuals in Trona.

## **AREAS NEEDING IMPROVEMENT**

1. The county EOC and responders were unaware of local faith-based organizations' efforts in the impacted area, which caused some confusion.

## **CORRECTIVE ACTION**

1. San Bernardino County offered SEMS training to these organizations to mitigate future issues.



## RESPONSE ACTIVITIES – NONPROFITS AND PRIVATE SECTOR

### AMERICAN RED CROSS

The Red Cross operated the Kerr-McGee Community Center shelter in the City of Ridgecrest from July 4, 2019, to July 24, 2019. It included door-to-door check-ins for individuals who required AFN assistance. Emergency supplies (meals, water, home cleanup, and comfort kits) were distributed to the community. They also performed outreach for mental health, spiritual care, and disability integration services.

During this response, the Red Cross deployed its liaisons to the San Bernardino County EOC, Kern County EOC, and the SOC and provided an initial presence at the Incident Command Post in the City of Ridgecrest. When mass care activities required resources, Red Cross liaisons worked with EOCs to fulfill those needs. The Red Cross collaborated with city and county partners to provide financial assistance information to impacted individuals. Close coordination with local health and mental health agencies enabled effective service delivery throughout the sheltering operation.

The Red Cross distributed bottled water at the Trona CPOD and delivered water and meals prepared by World Central Kitchen to those who could not reach the CPOD. They staged Emergency Response Vehicles in Trona to travel through neighborhoods and hand out supplies.

**209 people stayed at the American Red Cross shelter at the Kerr-McGee Community Center in the City of Ridgecrest.**

Source: American Red Cross

### SUCCESSSES

1. No significant successes were reported.

### AREAS NEEDING IMPROVEMENT

1. No areas needing improvement were reported.

### AT&T AND VERIZON

The area surrounding the City of Ridgecrest and Trona had poor cellular reception, which caused problems with maintaining communications between the field and EOCs. AT&T and Verizon deployed Cell on Wheels assets to boost cellular reception in the area. AT&T also assessed cellular coverage for both

shelter sites and optimized the cellular sites in the area to maintain and strengthen cellular service.

**SUCCESSSES**

1. No significant successes were reported.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

**SEARLES VALLEY DOMESTIC WATER COMPANY (SVDWC)**

SVDWC reported multiple line breaks and issues with powering water pumps in the affected area, resulting in a BWN in Trona. The company had already completed repairs to damage caused by the initial M6.4 earthquake, but the M7.1 earthquake caused additional damage and negated some of the previously completed repairs. No alternate sources of water production were available, so conservation was encouraged to maintain pressure across the water system. Water delivery was restored on July 12, 2019, but the BWN remained in effect until July 17, 2019. SVDWC provided bottled water to the community while repairs took place.



*The earthquake damaged a pipe. Source: Accuweather.com*

**SUCCESSSES**

1. No significant successes were reported.

**AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

## INITIAL RECOVERY ACTIVITIES

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### ACCESS & FUNCTIONAL NEEDS

The impacted area had a large population of elderly individuals. A local senior center, which generally provided them with various necessary services, was damaged in the earthquake. The San Bernardino Department of Aging and Adult Services collaborated to provide additional welfare checks and services to individuals impacted by the earthquakes. The San Bernardino Department of Behavioral Health expanded its contract with Lutheran Services to provide social and mental health services. FASTs were sent to assess both LACs to ensure access and functional needs were met. San Bernardino County arranged with Victor Valley Transit to deploy transportation services to and from Trona High School for individuals with AFN.

### CHINA LAKE NAVAL BASE

USN Damage Assessment Teams conducted assessments of the China Lake Naval Base's buildings, utilities, and structures. Around 70 structures sustained heavy damage. Naval staff and contractors began repairs to ensure the site was functional. An Earthquake Recovery Program, consisting of \$2.3 billion for military construction projects and \$400 million for restoration and modernization projects, was established to initiate reconstruction and upgrade projects. In August 2020, a Naval Facilities Engineering Systems Command Officer in Charge of Construction was established to provide engineering, acquisition, and execution oversight for construction and repair projects.

### FINANCIAL ASSISTANCE

Cal OES Recovery provided damage assessment teams to the impacted areas. Damages did not meet the indicators for a federal Major Disaster Declaration; however, they qualified for an Emergency Declaration. On July 4, 2019, and July 5, 2019, Governor's Proclamations were issued to secure funding to respond to and recover from the earthquakes, making California Disaster Assistance Act (CDAA) funding available for eligible emergency and permanent work in Kern and San Bernardino Counties. A CDAA applicant briefing was held on August 28, 2019.

**“Damages did not meet the indicators for a federal Major Disaster Declaration however qualified for an Emergency Declaration.”**

Source: Cal OES Recovery

Sixty Damage Survey Reports (DSR) were completed for nine CDAA applicants, totaling \$64,706,002 in damage; at the time of this report, six DSRs remaining to be completed.

On July 8, 2019, a federal emergency declaration (EM-3415) was received. The CDAA and federal incident periods for the earthquake are July 4, 2019, to July 12, 2019. Small Business Administration loans and USDA Home Repair Loan and Grant Program funds were available to impacted businesses and individuals.



*A cinder block wall collapsed onto the street outside a home in Trona. Source: Will Lester, Inland Valley Daily Bulletin/SCNG*

Other financial assistance included loans and grants from various entities, including the Governor's Office of Business and Economic Development, the California Infrastructure and Economic Development Bank, and the Community Foundations of Kern and San Bernardino Counties.

The Red Cross also made financial assistance available to the communities. There were 184 applications as of the date of this report.

## **HOUSING**

As a result of the earthquakes, 31 residential houses were red-tagged in the immediate area, with 53 tagged as damaged. Many of them were manufactured homes containing asbestos and did not meet modern building codes. The tenants have either chosen to stay and rebuild, live with other family members, or move out of the area.

**153 homes were damaged or destroyed in the City of Ridgecrest and Trona.**  
Source: Cal OES Recovery

## **INFRASTRUCTURE**

Repairs to local buildings and infrastructure continued after the earthquake response. The local high school in Trona had a red-tagged building and multiple yellow-tagged, but they have not yet been repaired. DSRs justified provisions for temporary classroom facilities as assessments and repairs continued. The

assessments later determined that it was more cost-effective for the applicant to build a new facility on stable ground to mitigate and reduce the risk of future damage.

There were extensive public works projects to repair roads, utilities, multiple schools, remove debris, and provide housing assistance. The Earthquake Engineering Research Institute provided SAP-trained engineers for PDAs.

### **SUCCESSSES**

1. Funding for Trona Joint Unified School District was obligated to replace the district's damaged campus totaling \$80,036,826. Under Title 19 of the California Code of Regulations, \$23,000,000 was advanced to Trona Joint Unified School District to assist with the financial constraints caused by the disaster.

### **AREAS NEEDING IMPROVEMENT**

1. No areas needing improvement were reported.

### **LOCAL ASSISTANCE CENTER**

A LAC was established at Trona High School from July 10, 2019, to July 20, 2019. The Kerr-McGee Community Center in the City of Ridgecrest was used as a LAC from July 11, 2019, to July 13, 2019. Due to the isolated nature of the City of Ridgecrest and Trona, entities from the government, nonprofit, and private sectors sent representatives to these LACs so individuals would not need to make the two-hour drive. The California Department of Housing and Community Development set up a satellite office in the City of Ridgecrest to ensure individuals could access services locally.

A large variety of activities were conducted at the LACs, such as providing medical and health services, food, water, and transportation services. Other services included information and assistance on property taxes, insurance coverage, damage assessments status, repairing/rebuilding of damaged homes/businesses, utilities, and public assistance benefits. Two LACs



*Young boy sits in his garage as his father cleans up.  
Source: Genaro Molina/Los Angeles Times/TNS*

served 1,569 households and provided services to over 5,000 individuals in Kern and San Bernardino counties.

**SUCCESSES**

1. Cal OES Recovery was able to immediately deploy staff to the LACs and to perform PDAs.
2. The local Sheriff's office provided police volunteers to escort staff that were conducting PDAs.

**AREAS NEEDING IMPROVEMENT**

1. Local accommodation and transportation resources were limited, and what was available was taken up by evacuees, which did not leave much for deployed staff.

**CORRECTIVE ACTION**

1. Staff should work with the travel unit to secure their transportation and accommodation needs before deployment. Staff should be directed to coordinate with local law enforcement for any escort needs in the damaged area.

**CAL OES SAFETY ASSESSMENT PROGRAM (SAP)**

The SAP deployed staff to Kern County on July 4, 2019, but Kern County was mostly able to utilize mutual aid within the county for their needs. As very little damage was noted during the City of Ridgecrest's windshield survey, it was determined that the city could manage its needs using mutual aid within the county. No additional SAP resources were requested from Cal OES.

**SUCCESSES**

1. This was the first earthquake incident the SAP program was successfully activated to assist locals with assessment needs.

**AREAS NEEDING IMPROVEMENT**

1. The SAP was underutilized as locals were unfamiliar with the program and did not know it could be requested through the SOC resource request process. Plus, as a relatively localized event, counties relied on mutual aid within the county to complete their safety and structural damage assessments.

**CORRECTIVE ACTION**

5. The SAP program benefits and process should be socialized with locals, counties, and regions through the Cal OES Recovery program and representatives at the Mutual Aid Regional Advisory Committees.

## **CONTRIBUTING AGENCIES**

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### ***STATE AGENCIES***

California Department of Transportation  
California Department of Education  
California Department of Social Services  
California Department of General Services  
California Department of Water Resources  
California Environmental Protection Agency  
California Geological Survey  
California Highway Patrol

### ***LOCAL AGENCIES***

County of Kern  
County of San Bernardino

### ***NONPROFIT ORGANIZATIONS***

American Red Cross



## LIST OF ACRONYMS

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AAR	After Action Report
AFN	Access & Functional Needs
ASL	American Sign Language
BOC	Business Operations Center
BWN	Boil Water Notice
Cal OES	California Governor's Office of Emergency Services
CDA	California Disaster Assistance Act
CDE	California Department of Education
CDFA	California Department of Food and Agriculture
CDSS	California Department of Social Services
CA-ESF	California Emergency Support Function
CGS	California Geological Survey
CHP	California Highway Patrol
CMD	California Military Department
CPOD	Commodity Point of Distribution
CUEA	California Utilities Emergency Association
DGS	California Department of General Services
DSA	Division of State Architects
DSR	Damage Survey Reports
DWR	California Department of Water Resources
EOC	Emergency Operations Center
FAST	Functional Assessment Service Team
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
GPS	Global Positioning System
HCAI	California Department of Health Care Access and Information
JIC	Joint Information Center

## AFTER ACTION REPORT: 2019 RIDGECREST EARTHQUAKE

LAC	Local Assistance Center
MCSTF	Mass Care and Shelter Task Force
MRE	Meals Read-to-Eat
NGO	Non-Governmental Organization
OA	Operational Area
OAFN	Cal OES Office of Access & Functional Needs
OIA	Cal OES Office of International Affairs
OLEA	Cal OES Office of Legislative and External Affairs
PDA	Preliminary Damage Assessment
PSC	Public Safety Communications
REOC	Regional Emergency Operations Center
ROSS	Resource Ordering and Status System
SAP	Safety Assessment Program
SEMS	Standardized Emergency Management System
SHB	Cal OES Seismic Hazards Branch
SR	State Route
SSA	State Staging Area
SOC	State Operations Center
SVDWC	Searles Valley Domestic Water Company
SWRCB	California State Water Resources Control Board
VOAD	Volunteer Organizations Active in Disasters
VRI	Video Remote Interpreter
USDA	United States Department of Agriculture
USGS	United States Geological Survey
USN	United States Navy