

Earthquake

This Action Plan applies to earthquake events. In general, these events occur without any lead times, making it impossible to take proactive measures. Response and recovery can be time consuming during such events, and they can involve loss of electrical power supply, damage of structures and equipment, disruptions of service, and injuries to utility personnel.

INITIATION AND NOTIFICATION

An earthquake usually occurs without any type of warning. Due to the suddenness, all personnel should attempt to find immediate shelter. This may include:

- Standing in a doorway and bracing your hands and feet against each side.
- Getting under a desk or heavy table.
- Standing flat against an interior wall.
- Do not seek cover under laboratory tables or benches as chemicals could spill and harm personnel.

After an earthquake has stopped, initiate this earthquake AP.

SPECIFIC ACTIVITIES

I. Assess the Problem

In general, the waterworks should organize an assessment team to undertake the following activities:

- Inspect all structures for obvious cracks and damage
- Assess condition of all electrical power feeds and switchgear
- If SCADA is working, immediately review system for all types of malfunctions, including telemetry, pressure in the distribution system, and operation of pumps and other equipment.
- If buildings have any sign of damage, such as cracked walls, broken windows, downed power lines, do not enter, but wait for trained personnel.
- If buildings appear safe, cautiously inspect condition of interiors for damaged equipment, leaks, chemical spills, etc.

- Communicate all findings via radio to Emergency Operations Center (EOC) or waterworks, as appropriate
- Activate personnel accountability network to check for injury of staff.

Earthquakes can cause significant power outages because of the impact on outside generation and transmission lines. After a major earthquake, power interruptions may occur for an extended period over the entire operations area. In this instance, power restoration will most probably be slow and, depending upon the infrastructure damage, localized. Some isolated areas could take considerably longer for power restoration than others could.

II. **Isolate and Fix the Problem**

General earthquake procedures during an earthquake are as follows:

1. Seek shelter under a deck, table, doorway, or inside wall.
2. Once the shaking has stopped, gather valuables and quickly make your way outside. (DO NOT USE ELEVATORS.)
3. Avoid electric wires, poles and equipment, once outside.
4. Prepare for aftershocks.

III. **Monitoring**

At all times, personnel should observe the following general steps:

- Stay calm and await instructions from the designated official.
- Keep away from overturned fixtures, windows, filing cabinets, and electrical power.
- Provide assistance and/or call for medical help for injured employees as needed.
- If major structural damage has occurred, order a complete evacuation. Trained personnel should inspect the building for damage before reentry.
- Protect from further danger by putting on long pants, a long-sleeved shirt, sturdy shoes, and work gloves.
- Look for and extinguish small fires. Eliminate fire hazards.
- Monitor the radio for instructions.
- Expect aftershocks.
- Use the telephone only to report life-threatening emergencies.

IV. **Recovery and Return to Safety**

General earthquake procedures after an earthquake are as follows:

1. Activate Emergency Operations Center (EOC).
2. Contact emergency assistance (local police, local fire department, rescue squad, etc) as necessary to respond to injuries of staff.
3. The waterworks is to notify customers, media, and state and local authorities if service disruption or if significant demand management is necessary.
4. Inspect facilities for structural damage, including buildings, storage tanks, pipelines, and process equipment. Consider the use of an outside engineering consultant.
5. Prioritize and repair water main leaks.
6. Contact neighboring purveyors for mutual aid arrangements, and open connections as needed.
7. Respond to side effects (loss of power, fire chemical spills, etc.).

V. **Report of Findings**

Assemble relevant personnel to review effectiveness of action plan and reinforce lessons learned.