

## Tips for Worker Safety During Cleanup and Recovery Operations

Assuring the safety and security of workers in the aftermath of a disaster requires planning and consideration of several issues. These operations can be very hazardous to workers. Cleanup and recovery of minor damage can be handled with internal resources, whereas a major recovery operation will require working with contractors and salvage specialists.

After the initial damage assessment and securing the facility, salvage operations may be undertaken. Salvage operations may range from securing undamaged equipment and goods to salvaging of electronic equipment, documents, furniture and other items. Care must be taken while working with any equipment that is water damaged to minimize electrical hazards and damage to the equipment itself. Many of the salvage tasks require specialized skills and knowledge. Salvage of telecommunication equipment, electronic data and documents is a highly specialized task that is better left to professionals.

Zurich Services Corporation is providing the following tips for worker safety during cleanup and recovery operations. They are general in nature, not all-inclusive and may have to be modified based on your specific situation. Several additional resources from governmental agencies and others are listed that provide useful information to help you protect your workers.

### General safety/personal protective equipment

- Equip workers with a minimum complement of routine safety equipment, such as hard hats, safety glasses, heavy work gloves and steel-toed safety shoes or boots.
- Workers should be prepared for the same types of conditions as when working at an outdoor construction site, except that the conditions and work will be extreme.
- Additional protective equipment, such as respirators, chemical protective gloves or suits, etc. should be provided as needed. Selection of proper equipment should be made by a qualified safety professional.
- All activities should have a pre-plan meeting and be clearly communicated to all workers.
- Clean, cool, portable water should be available for workers. In addition, workers should be encouraged to practice good personal hygiene, such as washing thoroughly before eating or at the end of a work shift.
- Commercially available disinfecting solutions may be useful in allowing workers to practice good personal hygiene.
- Use of chain saws and other equipment may present a noise exposure requiring the use of hearing protection.
- Flood and other disasters may result in hazardous material spills and leaks that can present significant environmental issues and injury potential for workers.

### Structural safety

- A visual inspection by a competent person for structural safety should be completed before entering any type of structure.
- Emergency repairs of structural areas may have to be undertaken to secure the structural members including walls, ceilings and roof.
- Any severely damaged areas should be reviewed by a qualified structural engineer prior to entry or any work being performed.
- Watch for damage to structural members of the building that may be weakened by standing water or during removal of debris.
- Isolate unsafe area by use of physical barricades and other means, i.e. signage to restrict access.

## Tool safety

- Tools to be used should be examined to be sure they are in good working order. Any damaged tool should be taken out of service.
- The electrical supply for power tools should be equipped with GFI protection.
- Appropriate guards and safety devices should be in place on all chain and circular saws, drills, grinders and other equipment.
- If gasoline or diesel generators or compressors are used, they should be placed in a manner to allow adequate venting of exhaust gases out of the work area to minimize creating a carbon monoxide exposure.

## Work at heights

- Assure a steady, solid work area for all work at heights.
- Use tie-off procedures if adequate guardrails are not present.
- Inspect all ladders to assure that they are in good condition and monitor placement/use to assure they are placed and used properly.
- In unusual circumstances or when in doubt, wait to perform work at heights until adequate man lifts, scaffolding and/or other equipment is present.

## Electrical hazards

- Electrical and gas utilities may have been shut off by emergency service personnel. Ensure worker safety before they are turned back on.
- Care should be taken around downed power lines until it can be verified from the local utility that they have been de-energized. All downed power lines should be treated as "live" until de-energized process confirmation is received.
- Caution should be taken with the potential for live electrical lines in standing water.
- Shorted wiring and interior electrical systems may inadvertently energize standing water in basements or other areas posing a potential electrocution hazard.
- Existing or repaired systems should not be equipped with GFI protection.
- Use of extension cords in wet areas should be avoided. In addition, any frayed or damaged electrical cords should be discarded.

## Standing and moving water

- Care should be exercised when entering moving or standing water. Moving water can be dangerous for even good swimmers. Standing water can hide unexpected hazards, such as holes or tripping hazards.
- Floodwaters may contain human or animal waste products as well as industrial or agricultural chemicals and petroleum products. Care should be taken to protect against skin, face and eye exposure.

## Manual material handling

- Removal of debris should be done cautiously. Watch for movement or damage to building structural members that may present a worker safety hazard.
- Use proper lifting techniques – use legs, not backs to lift, keep the load close to the body and limit lifts to about 35 – 50 pounds.
- Use buddy lifts with two or more people for larger or awkward lifts.
- Walking and working surfaces may be wet or covered with sludge or other debris.
- Care should be taken to avoid slips and falls. Use of proper, non-skid footwear is important.

## Disease prevention/first aid

- There is a significant potential for disease from the debris, waste and standing and contaminated water.
- Assure that all workers have proper immunizations – see the Center for Disease Control (CDC) Website links for suggested immunizations.
- Provide first aid kits and properly trained personnel. All injuries, no matter how minor should be reviewed by a trained first aid professional and treated accordingly.
- Extra care should be taken in protecting broken skin, such as cuts or scrapes to prevent disease transmission.
- Ensure a supply of clean water or disinfecting solutions in order to allow workers to practice good personal hygiene.
- Insects can be a vector for disease, so all workers should use insect repellent that contains DEET.
- Post-flooding circumstances may also create a risk of snake and other reptile bites from animals trapped in structures during flooding. Flood-displaced rats may bring disease exposure and use of rat bait stations is recommended.
- Humid, moist areas are prime breeding ground for mold and fungus growth. The sooner that debris can be removed and the space dried, the less chance of excessive mold growth. Workers should be cautioned to exercise care when working with wet debris. All debris should be disposed in an approved manner.

## Confined spaces

- A typical confined space is an area large enough for human entry with limited means of egress not intended for routine occupancy and has unusual hazards such as lack of oxygen, potential chemical exposure or mechanical hazards (such as mixer blades).
- Standing water with organic waste materials or chemicals may generate an unusual atmospheric hazard where you might not normally expect one to exist.
- Standing or moving water may have weakened structural members or moved materials creating a potential collapse or engulfment hazard.
- All potential confined spaces should be reviewed by a qualified person. Air testing should be performed to assure a safe atmosphere. Energy sources should be locked or blocked out. All of this must be done prior to entry into the space.

## Heat/physical stress

- Much of the cleanup will be heavy work with the potential for high temperatures.
- Workers should be encouraged to drink cool, clean water several times per hour to maintain electrolyte balance.
- Work should be scheduled so that workers have a reasonable work/rest regimen of at least 15 minutes of rest per hour of work, more often in extreme hot temperatures because concentration and judgment can be adversely affected. Work scheduling should consider this and allow adequate rest times and facilities for workers.

## Useful resources:

American Red Cross Hurricane Center: <http://www.redcross.org/news/ds/0305hurricane/>

CDC Hurricane information: <http://www.bt.cdc.gov/disasters/hurricanes/index.asp>

CDC Immunization info: <http://www.bt.cdc.gov/disasters/hurricanes/immunizations.asp>

OSHA Hurricane recovery: <http://www.osha.gov/OshDoc/hurricaneRecovery.html>

Zurich Hurricane Center:

<http://www.zurichna.com/zus/zurichus.nsf/webcontent?readform&id=ID> BREK-5ZRFHG

Zurich Risk Engineering Risk Topic on Recovery Operations: [http://www.risk-engineering.com/web/rep/d/us/attachments/attachments\\_risktopics/rt\\_us\\_20011001\\_en\\_2-7006\\_recovery\\_operations.pdf](http://www.risk-engineering.com/web/rep/d/us/attachments/attachments_risktopics/rt_us_20011001_en_2-7006_recovery_operations.pdf)

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