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COMPILING A DISASTER PLAN FOR ARCHIVAL COLLECTIONS



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Introduction

A carefully crafted disaster plan can greatly assist archival staff in saving lives, salvaging collections, and recovering from disasters both large and small. From blazing fires and large-scale catastrophes to common water leaks in pipes or HVAC systems, disasters that threaten collections and personnel can strike at any time. This leaflet outlines the components of a disaster plan for archival collections, including personnel, risk assessment, initial steps and emergency response, and salvage and recovery.

By their very nature, disaster plans are highly technical documents that often scale in complexity with the size of an institution and its holdings. It is recommended that readers unfamiliar with the topic peruse the first part of this leaflet, entitled “Developing a Plan,” and then look at several basic templates to see if one or more of these might adequately serve organizational needs.

The second part of this leaflet, “Components of a Disaster Plan,” provides an in-depth look at individual plan facets and raises a plethora of questions for consideration. It expands upon the overview in part one and includes detailed explanations of personnel roles, emergency operations, equipment, and salvage and recovery techniques.

The author has included an extensive annotated bibliography in the [Resources](#) section.

Developing a Plan

Why Write a Disaster Plan?

A disaster plan outlines the steps necessary for emergency preparedness. Human safety always comes first, and knowing what to do in an emergency, including fire evacuation procedures, whom to call, and how to operate basic fire safety equipment, is essential to saving lives.

Disaster plans can also prevent or minimize the damage to archival collections in the event of an emergency. Risk assessment is central to such planning and includes surveying the building, storage, and fire and security equipment and developing procedures to identify and solve potential preservation issues before a disaster happens. Knowing how the staff should react in advance may mitigate damage to the collections.

The process of putting together the plan can be as beneficial to an institution as the final plan itself. It builds relationships between staff, focuses efforts at looking for potential problems before they occur, and may even prevent disasters from occurring altogether. The more prepared staff are in advance, the better a repository can recover from a disaster.

The Disaster Planning Committee

Most archives are part of a larger organization. The parent organization can be a corporation, government agency, college or university, non-profit organization, museum or historical society, or library. Each disaster plan should be tailored to that organization's needs. In some instances, the archive's plan may be part of the parent organization's disaster plan. When writing their own plan, archives staff may need to consider their institutional hierarchy when planning for disasters.

In a small archival institution, the disaster plan may be written by one individual, while in a larger organization, it may be compiled by a committee.

The table below lists key personnel who should be identified in the disaster plan. Most of these individuals should also serve on the [Disaster Response Team](#). One exception is the Emergency Planning Specialist or Fire Marshall, as different members of the fire and police department would most likely be called upon to handle real emergencies.

Smaller organizations may not have staff members who are experts in preservation, disaster planning and recovery, risk assessment, or IT recovery. Consultants in these areas can be brought in to serve both on the Disaster Planning Committee and on the Disaster Response Team.

Key Personnel	Disaster Planning Committee Role	Responsibilities	Disaster Response Team Role
Director	Chair	Assigns committee members Gathers reports Compiles final plan Communicates with staff about plan process	Disaster Response Team Leader
Director with Fire Marshall or Emergency Management Officer	Emergency Management Specialist	Compiles a risk assessment of all potential human-made and natural disasters Provides lists of detailed steps for each potential emergency with evacuation plans if applicable Reviews fire safety equipment for code compliancy Trains staff on evacuation procedures and how to operate fire safety equipment	None

Key Personnel	Disaster Planning Committee Role	Responsibilities	Disaster Response Team Role
Archivist <i>or</i> Consultant	Preservation Specialist	<p>Conducts the preservation risk assessment survey of the storage facilities</p> <p>Makes recommendations for preventative steps to avoid or mitigate disasters</p> <p>Generates salvage procedures and vendor and suppliers lists</p>	Disaster Recovery Coordinator
Archivists Curators Librarians	Collection Specialists	<p>Provides salvage priority lists</p> <p>Identifies types of materials in the collections</p> <p>Works with Preservation Specialist to conduct the risk assessment survey of the storage facilities and write the salvage procedures</p>	Collection Coordinators
Facilities Director	Facilities Specialist	<p>Conducts the risk assessment surveys of the building</p> <p>Makes recommendations for repairs or upgrades that are necessary to prevent potential damage to the building</p> <p>Provides information about facility equipment, such as main water shut-off valves, HVAC units, and fire and security equipment</p>	Facilities Coordinator

Key Personnel	Disaster Planning Committee Role	Responsibilities	Disaster Response Team Role
IT Staff <i>or</i> IT Consultant	IT Recovery Specialist	Compiles a restoration and salvage plan for all computer services, operations, and programs.	IT Recovery Specialist
Public Safety Director (if applicable)	Public Safety Specialist	Compiles evacuation procedures with Emergency Management Specialist	Public Safety Coordinator

Disaster Plan Templates

A template, or, sample plan, can serve as a model for the disaster plan. Select one that best serves your organization’s needs. For simple plans, see the [Amigos Library Services](#) and [North-east Document and Conservation Center](#).

Other templates are more involved, such as the Northeast Document Conservation Center www.dplan.org tool, which has a very detailed template with pre-recorded information incorporated into it. Additional examples of excellent plans and templates include those of the [Minnesota Historical Society](#), [Alabama Public Library](#), and [Ohio State Library](#).

An essential handy tool is the Council of State Archivists [Pocket Response Plan™ \(PReP™\)](#). Each staff member should carry this guide for quick reference.

For additional general and specific institutional examples of plans, see [Resources: Disaster Plan Templates and Sample Plans](#).



Emergency and Recovery Training

Training is a vital component of the disaster plan. All staff should have training on the emergency procedures outlined in the plan and learn how to operate basic fire safety equipment. Most organizations have regular fire drills.

Some organizations conduct in-house disaster training. A common approach is a tabletop exercise in which staff act out different emergency response scenarios. Other training exercises might include: presentations from local fire, police, or emergency management personnel and disaster specialists; discussions on disaster response topics; and workshops.¹

There are numerous opportunities to attend disaster planning and recovery workshops. Many of these include hands-on activities during which participants practice salvaging materials. Some regional organizations include the [Conservation Center for Art and Historic Artifacts](#) in Philadelphia, PA and the [Northeast Document Conservation Center](#) in Andover, MA. [LYRASIS](#) in Atlanta, GA also has regularly offered disaster-training opportunities.

For additional information, see [Resources: Disaster Training Opportunities](#).

Plan Distribution

Once the plan has been drafted and approved, distribute a copy to all relevant staff members. **It is critical to have multiple copies stored off-site. Each Disaster Response Team member should keep a copy at home and a compact copy on his or her self at all times. The plan is not useful if it is lost during the same disaster that damaged the collections.** Remember too that although it is useful to have the disaster plan online, the computer system may be down during an emergency. Keep at least one physical copy in the archives where it can be readily consulted in minor incidents. Invite the local Fire Marshall and other emergency management personnel and first responders to the archives for a tour (include refreshments!) and provide them with copies of the plan.

Components of the Disaster Plan

All disaster plans contain information on preparedness and prevention, response, and salvage and recovery.

The plan should begin with a brief introduction that addresses the following:

- Why is it important to have a plan?
- What goals does the plan hope to accomplish?
- What core responsibilities does the plan outline?
- What potential emergencies and disasters does the plan outline?

Preparedness and Prevention

This section discusses steps to take in order to prepare for and/or prevent disasters. Although not every disaster can be prevented, staff can mitigate the damage to the collections by conducting risk assessments of potential disasters or preservation issues that can harm the collections.

Key Personnel and Cultivating Relationships

The first step is to identify key personnel for the emergency contact lists and disaster response team. Create a consolidated, prioritized list that includes both internal and external contacts. **Every staff member should have their pocket response guide with them for this essential information. Also post this list in an accessible place for quick reference in the event of an emergency.**

- **For each contact, include: name, landline and cell phone numbers, and emails**

- **Internal Contacts.** List the facilities and security departments' emergency numbers first, as they are often the initial responders. The [Disaster Response Team](#) members living closest to the site follow closely behind and they will begin assessing the situation until others arrive. If appropriate, the **IT Recovery Specialist and Communications Coordinator** will become involved. Keep in mind that, in some disasters, staff will not be able to enter the area until safety personnel give permission. It is important to have other staff members who can serve as back-ups if for some reason the disaster team members are not available.
- **External contacts.** Start with the first responders, followed by any Disaster Response Team consultants and, if appropriate, other emergency management agencies.

Emergency Numbers

- Facility Emergency Operations
- Security Emergency
- Emergency First Responders (Fire, Police, Ambulance)

Disaster Response Team Member Numbers

- Disaster Response Team Leader
- Disaster Recovery Coordinator
- Collection Coordinator(s)
- Facilities Coordinator
- Public Safety Coordinator

- Disaster Response Team Member Back-ups and other nearby staff who are willing to be initial responders

Other Disaster Team Member Numbers

- IT Recovery Specialist
- Communications Coordinator

Other Personnel or Specialist Numbers

- Outside Disaster Consultants
- Regional FEMA Office

It is vital to establish good working relationships with facilities, security, and fire safety personnel. If the archives is prone to minor water emergencies from leaking roofs, HVAC systems, pipes, etc., nurturing relationships with the facilities department is vital. Facilities personnel assist the archives staff in solving these preservation issues.

In some cases, gentle persistence may be necessary. Get to know the top administrator of the facilities department and give him or her a tour of the archives. During the tour, discuss any ongoing facilities preservation concerns you currently have or anticipate in the future that threaten the collections. This open communication will go a long way in getting the facilities department to respond quickly in an emergency.

Another internal relationship to cultivate is the director of your institution's finance department. The director can assist in budgeting for disasters, setting up disaster relief funds or grants, and reviewing insurance policies to ensure that they will cover all potential perils to the collections.

Outside of your repository, the fire department is a valuable resource. Give the fire marshal a tour and discuss any fire safety issues the archives may have. Providing the fire department with a floor plan, layout of where the most important collections reside, and a copy of the plan is essential. Inviting the fire marshal, police, or other emergency management personnel to speak with the staff about disaster planning is yet another way to foster relationships with first responders in your community.²

Risk Assessment

Risk assessment is a central component of any disaster plan. Staff will need to conduct several surveys of the building environment, storage, and fire safety and security procedures and equipment. In addition, all potential human-made and natural disasters should be identified in this section.

If possible, seek either an outside risk consultant or a colleague from a nearby repository to work with your staff in conducting the risk surveys. A third-party perspective can be beneficial in identifying problems and solutions that might otherwise go unnoticed.

a) Surveying the Physical Environment

The **building risk assessment survey** reviews your repository's entire building, with special emphasis on the archives, for potential problems. Take the following steps while conducting the survey:

- **Examine structural problems.** Is the building old or new? When was the roof last replaced? Does water leak from cracks in the façade or the roof? Does the building have a proper drainage system? For example, at the author's archives, water leaking from roofs and cracked facades has caused extensive damage to the collections.
- **Examine the building HVAC system.** Does the building itself have an efficient HVAC system? Is this system regularly monitored by internal or external environmental control sys-

tems, preservation experts, or mechanical specialists? Does the archival staff have the ability to regulate the temperature and humidity in the repository's space(s)? Do the temperature and humidity fluctuate with the outside temperature/weather? Does the HVAC have overhead pipes that could leak onto the archival materials?

- **Analyze past or potential mold or other pest outbreaks.** Is there a regular pest management program? If there were problems in the past, how were the outbreaks resolved?
- **Analyze past water leak records.** Note where there have been water leaks in the past and any solutions that were made to resolve these issues.
- **Create regular maintenance schedules** for the building operations and maintenance.
- **Summarize the results of the building survey for the disaster planning committee,** with a list of potential problems with the building and steps that the staff plans to take to solve them. Some organizations include these summaries in their final plan.³

The **archival storage risk assessment survey** reviews current and potential preservation issues in the stacks and work areas. Take the following steps while conducting the survey:

- **Note where the archives is located in the building.** Is it in the basement or attic? Is it next to the boiler room? For example, the author's archives is situated below water tanks for the building that have been the cause of several major floods.
- **Review the storage and workrooms for any potential water issues,** such as overhead pipes or leaking windows and roofs.
- **Identify preventative steps to mitigate potential damage from disasters.** These steps might include:
 - ◇ Placing the bottom shelves at least four inches off the floor
 - ◇ Storing all boxes on shelves or pallets not directly on the floor
 - ◇ Anchoring shelving to the walls or ceiling

- ◇ Keeping the shelving at least two feet from the sprinkler system
 - ◇ Keeping the aisles clear of debris
 - ◇ Rehousing all materials into acid-free boxes.⁴
- **Summarize the findings for the disaster planning committee** and outline steps the staff should take to solve any identified problems. Some organizations include this summary in their final plan.

b) Reviewing Fire Preventative Systems and Potential Fire Hazards

The **fire safety risk assessment survey** reviews potential fire hazards and fire safety equipment. Take the following steps while conducting the survey:

- **Identify potential fire hazards.** Is there debris inside and/or outside the building? Are extension cords being overused for electrical equipment? Is smoking allowed in or near the building? How are flammable and hazardous material stored and disposed of? Are there nitrate negatives in the collection, and are they stored separately from other materials? Are valuable materials stored in fireproof cabinets, shelving units, or vaults?
- **Review the fire safety equipment with respect to human safety.** Does the building have fire exits, fire pull-down buttons, smoke detectors, sprinklers, fire extinguishers, and fire alarms? The building should have all of these fire protection systems. It is especially important to have the fire alarm system linked to the local fire department.
- **Review the fire safety equipment with respect to the archival collections.** For many years, the archives profession was concerned about potential water damage caused by fire safety equipment, especially sprinkler systems. In recent years, however, archivists have realized that water damage caused by fire hoses or damage from the fire itself is much greater than any water damage caused by activated sprinklers. Sprinklers save collections by quickly extinguishing fire and preventing it from spreading. **There are many types of fire systems, but wet pipe systems are typically recommended for cultural heritage collections.**

Employing a system in which sprinklers would only activate in the area above the fire is the best way to reduce unnecessary exposure to water. Recently, new water mist systems have appeared on the sprinkler market. These systems are more expensive, but they mitigate water damage. Staff should also select fire extinguishers appropriate for archival materials. As a rule, the fire extinguishers should fight class C (paper) and A (electrical) fires. There are also water mist or dry powder fire extinguishers available on the market. For more information on fire prevention systems, see the [Northeast Document Conservation Center](#) website and [Resources: Emergency Response Procedures: Fire](#).⁵

- **Summarize the survey results for the disaster planning committee**, listing any potential problems with their solutions. Some organizations include this summary in their final plan. In the plan appendix, be sure to include a list with the names, types, and locations of all fire equipment.

c) Security Systems and Procedures

Disaster planning can also include theft prevention measures. Review security equipment and procedures. Are there guards, electronic security gates at all entrances, and/or an after-hours burglar alarm? Are the archives storage rooms kept locked when not in use? Is there a visitor log for accessing the archives? Does the staff monitor the reading room when researchers are present? What procedures does the archives have to screen volunteers and staff? What are the procedures for reporting theft? Summarize the findings for the disaster planning committee and include them in the final plan if desired.

d) Identifying Potential Disasters

In addition to fires, identify other potential human-made and natural disasters to which your repository is vulnerable. Is the community prone to floods, hurricanes, earthquakes, snowstorms, thunderstorms, or tornados? Is the archives near a nuclear plant, chemical, or hazardous waste industry? Has there been civil unrest or bomb threats? Is the archives vulnerable to theft and vandalism? What will the staff do if someone is sick or injured on site?

List all potential threats and rate them from most to least likely. In this list, include information on any previous disasters and what the staff has done to mitigate the damage to the collections should these events reoccur. This information will be useful in compiling the evacuation procedures in the next section.

Evacuation Procedures and Training

A thorough review of the existing evacuation procedures and training programs is an essential component of the disaster plan. Does the organization have written emergency evacuation procedures? Are these procedures visibly posted? Are fire drills regularly conducted? Have designated staff been appointed as fire floor monitors? Is the staff trained on fire evacuation procedures and how to use the equipment? Such procedures will naturally vary widely by institution, but the above questions and other related directives should be fully accounted for in every plan.

Disaster Funding Sources and Insurance Policies

Insurance is a critical and often expensive element of disaster planning. Large organizations may be self-insured and have funds set aside for disaster recovery. Smaller organizations, however, will have to purchase insurance from local agents. It is important to know what type of insurance the organization has and what is and is not covered in the policy. Repositories in flood-prone areas may need special riders to cover such disasters. These policies should also include provisions for salvaging materials, not just replacing them. It is good practice to inventory and appraise the collections yearly. Since cultural heritage collections are unique, they are appraised at the fair market value.⁶

An emergency fund may be set aside for expenses not covered by insurance. Provide information in the plan on any funding and insurance policies designated for disasters and include the names of persons responsible for maintaining the funds and policies. If the disaster is part of a state-wide or regional event, FEMA may cover some of the recovery expenses.

For additional information, see [Resources: Disaster Planning Funding and Insurance](#).

Equipment and Service Providers

In the appendix of the disaster plan, include a list of facility equipment and their locations, such as the main and sprinkler water valves, gas valves, and electrical breaker panels. Also draft a contact list of utility and service providers for quick reference: power, gas, and water companies, HVAC service contractor, plumber, pest control, and locksmith, just to name a few.

Emergency Response

In this section, outline the steps that staff will take when responding to a disaster. Typically, this includes Disaster Response Team responsibilities, a list of initial response actions, and detailed information on what to do in the event of an emergency.

The Disaster Response Team

The Disaster Response Team is comprised of staff and other personnel who will respond to the emergency and assist with the salvaging of affected materials. The recommended members and their roles are outlined in the table on the next page. Designate a back-up person for each role in the event that a given team member is not available.



Key Personnel	Disaster Response Team Role	Responsibilities	Disaster Planning Committee Role
Director	Disaster Response Team Leader	<p>Oversees the disaster operations.</p> <p>Arranges for the funding of needed supplies or services</p> <p>Solicits and supervises both in-house and external personnel to salvage collection materials</p> <p>Coordinates activities with facilities, public affairs, and emergency personnel</p> <p>Plans for the restoration of archival services and operations</p>	Chair
Archivist <i>or</i> Disaster Recovery Consultant	Disaster Recovery Coordinator	<p>Coordinates with the Disaster Response Team Leader on salvage operations</p> <p>Assesses the damage</p> <p>Identifies salvage goals and strategies</p> <p>Organizes volunteers or other staff in salvage activities</p> <p>Prioritizes collections to be salvaged</p>	Preservation Specialist

Key Personnel	Disaster Response Team Role	Responsibilities	Disaster Planning Committee Role
Archivists Curators Librarians	Collection Coordinators	<p>Keeps records documenting the salvage operations</p> <p>Inventories collections</p> <p>Documents with photographs or video the disaster damage and salvage operations</p>	Collections Specialists
Facilities Director <i>with Staff</i>	Facilities Coordinator	<p>Assesses building and mechanical damage or malfunctions</p> <p>Restores facilities operations</p> <p>Supervises cleanup or repairs</p>	Facilities Specialist
IT Staff <i>or Consultant</i>	IT Recovery Specialist	<p>Restores technical services, such as computers, servers, network, website, and online resources</p> <p>Salvages electronic records (if applicable)</p>	IT Recovery Specialist
Public Safety Director <i>and/or Police and Fire Chiefs</i>	Public Safety Coordinator	<p>Ensures public safety during disaster</p> <p>Decides when it is safe to re-enter building and begin salvage operations</p>	Public Safety Specialist
Director <i>or Public Affairs Director</i>	Communications Coordinator	Communicates with the staff and public regarding the disaster and salvage operations	None

Initial Response Steps

Every disaster plan must include a detailed list of initial steps to take in the event of an emergency. Since mold can form within 48-72 hours of water exposure, time is of the essence. These steps are tailored to the specific needs of each organization and should include:

1. **In life-threatening emergency such as fires, human safety is always the first priority.** Evacuate staff and patrons first and then call emergency personnel. Wait until public safety officers allow you to re-enter the building. Never enter an area where there is standing water. In an event of a fire or major disaster, staff may not be able to re-enter immediately. In non-life threatening emergencies, go right to Step 2.
2. Call appropriate emergency personnel (i.e. local fire, police, hospital, and facility and security emergency contacts).
3. In non-life-threatening water disasters, if possible, remove items away from the water and lay plastic sheets over the shelves. Facilities staff will assess the source of water leaks and take necessary actions.
4. Contact Disaster Response Team members.
5. The facilities staff will stabilize environmental conditions, such as reducing the temperature to 65 degrees Fahrenheit and 55% relative humidity and pumping water out of the affected area. Using fans to increase air circulation is critical.
6. **Disaster Response Team Leader, Disaster Recovery Specialist, and Collection Coordinators** will assess damage and decide on salvage priorities and strategies. Taking pictures and/or videos of the damage to facilities and collections is essential.
7. During major emergencies, it may not be possible to salvage materials at your facility. Having a written agreement (i.e. memorandum of agreement) with other local cultural organizations, schools, or churches to evacuate your collections and conduct salvage operations is essential. If applicable, contact these organizations as well at this time.
8. Begin ordering or gathering disaster recovery supplies, such as paper towels, fish wire, cu-

bic boxes, tables, fans, paper, and pencils. Contact your finance department to begin authorization for funding or insurance claims. Contact vendors and/or the disaster recovery company with whom you have a contingency contract if external services are necessary.

9. Solicit volunteers and staff to assist with salvage operations.

10. Begin salvage operations as outlined in the plan.

Emergency Prevention and Evacuation Procedures

Emergency situations differ substantially, and as such, it is necessary to outline detailed response steps unique to each event. In addition to the initial steps above, include preventative steps that staff will take in advance of all potential disasters identified during the risk assessment process.

Tailor the plan specifically to your organization and building needs, beginning with general evacuation policies and procedures. The general evacuation plan should include steps for alerting emergency personnel, moving people out of the building or affected areas, and identifying a safe meeting location for conducting a head count. In some large building complexes, it may not be necessary to evacuate the entire building or even to go outside.

The plan should also include policies for notifying staff, volunteers, and visitors of emergency closings and procedures. Large organizations may have emergency notification systems or websites through which staff and visitors can obtain information. Smaller organizations may use a simple telephone tree. Include the outside organizations that have agreed to serve as collections or salvage operations centers in your notification system.

Some disaster templates include pre-written emergency procedures. These procedures can be adapted to your archives. For additional information, see [Emergency Response Procedures: General](#).

Salvage and Recovery

Salvage and recovery information comprises the bulk of the disaster plan. This includes prioritizing the archival collections, providing detailed steps on how to salvage each type of material, and listing supplies and vendor resources.

Prioritizing Collections

Identifying and prioritizing collections long before disaster strikes is essential. In the midst of a major emergency, there may be limited time and resources to apply to salvaging efforts. Knowing which collections are most important will ultimately save on both. Create a prioritized list of collections, from the most to the least important, considering historical and research value and the format of the materials. Some formats, such as photographs and audiovisual materials, require more immediate attention than paper-based formats.

Staff should make three lists:

- **Top priority materials** are unique, rare, have important historical, research, or monetary value, and/or are vital records for the organization. These may also include special format materials. Items in this list require immediate attention.
- **Medium priority materials** are unique and share many of the same characteristics as top priority items, but for whatever reason are deemed of secondary importance. These items need attention within two days of the event.
- **Low priority materials** include duplicate or replaceable items or those with minimal historic or research value.⁷

Some archives use a color-coded system on the acid free boxes or shelves to identify salvage priorities. Floor plans with the collections listed are essential for quickly identifying the top priority materials. Share this plan or coded system with the fire department and staff, so that they take care to rescuing these materials first in the event of a disaster.

Identifying Salvaging Sites

Locate sites where staff can salvage damaged materials, both internally within the archives or parent organization or externally at a local community or partner institution. In minor emergencies, there may be space in the archives where a salvage work area can be set up. For more significant disasters, consider large spaces where the staff can set up operations both internally and externally. Aforementioned memorandums of agreement with nearby cultural organizations, schools, or churches should be included here.

Salvaging Archival Collections

The disaster plan provides staff with detailed steps on how to salvage each type of material held in the archives. A handy model chart is the [Betty Walsh Salvage at a Glance Chart](#). The first step in the salvaging process is to assess damage and decide on appropriate strategies. Minor water disasters may require air drying the materials in-house and rehousing the materials in new boxes and folders. Large-scale emergencies that compromise significant quantities of material or entire holdings require more advanced strategic planning efforts. Most disasters ultimately fall somewhere in between. There will be varying degrees of damage across multiple formats and different amounts of human and financial resources necessary to successfully restore the collections.

The first sub-section that follows describes salvaging techniques for water emergencies, which are generally regarded as both the most common and perhaps the most destructive disasters that repositories often encounter. For additional information, see [Salvage and Recovery: General](#), as well as the resource sections for format specific guides to salvaging collections: [Books and Archival Records](#); [Photographs](#); [Audiovisual](#); [Electronic](#); and [Mold](#).

a) Water Damage Remediation

For most disasters, salvaging wet paper materials will be the focal point of the larger operation. There are several options available for drying wet materials. Selecting the best method

will depend on the level of water absorption, the materials' ink and paper composition, and available personnel. Regardless of which drying method is chosen, the materials will most likely sustain some amount of permanent water damage, such as distortion, staining, buckling, and/or cockling.⁸

Air-drying may be the cheapest course of action, but it is not always the most suitable. It is perhaps the best approach for minor disasters with manageable amounts of damp to slightly wet materials. Since air-drying can be labor intensive, a large number of people may be needed to salvage the materials within the 48-72-hour window. The process will often leave materials distorted, stained, or buckled regardless of efficiency.⁹ In addition, air drying is not a suitable method for salvaging coated paper because the pages will stick together.

In one air-drying scenario, materials dry on tables covered with blotter or absorbent paper. Staff interweave the items with paper towels or interweaving paper every few hours. Air is constantly circulated using fans and air conditioners to help prevent mold growth. It is critical to keep the materials together in folder and box order so as not to create a time-consuming mess during rehousing.

Another air-drying method is **dehumidification**. In this scenario, a commercial vendor uses a desiccant dehumidification system to dry out a storage room with the materials left on the shelves. This method might be useful for large book collections that are damp, but it is not as effective for archival materials. Mold can become a problem if the materials are wet and not monitored on a regular basis.¹⁰

For very wet materials, the best approach is **freeze-drying or vacuum freeze-drying**. When time is of the essence, freeze-drying stabilizes the materials until further action can be taken. In some cases, the materials are frozen and then air-dried in increments. For large-scale disasters, vacuum freeze-drying is the recommended method., especially for soluble inks and coated paper, as it helps prevent the pages from sticking together. These drying methods will still cause distortion, staining, and cockling of materials. Archival collections should not be thermal vacuum-dried.¹¹

When freeze-drying or vacuum freeze-drying materials, staff will focus on wrapping materials

in plastic bags or placing them into plastic or cardboard boxes (with plastic lining) to be shipped to a vendor. It is critical to pack the materials in their original folder and box order. Rehousing will be necessary after they are dried and returned to the archives.¹²

Photographs need immediate attention. Some elements of the processes are irreversibly destroyed when submerged for even short periods of time. The drying approach depends on the photographic processes and formats, quantity of the damaged materials, and available personnel. For damp and slightly wet materials, air-drying is again the preferred method. Freeze-drying is suitable for most photographic processes with the exception of collodion and gelatin glass plate negatives and other delicate processes. Consultation with a photo conservator prior to salvaging these materials is highly recommended.¹³

Audiovisual and film collections also require special attention, as individual formats often demand different salvage strategies. Films need to be placed in a cool or cold environment and can also be frozen. For slightly damp magnetic tapes, the preferred method is air-drying, and they should not be frozen. Never attempt to play or unwind the audiovisual materials when they are wet or damaged. Wet materials are best salvaged by vendors specializing in audiovisual and film conservation. As a preventative best practice, store master copies of tapes or films offsite. New copies can be made from the masters and the damaged copies can be discarded.¹⁴

Ultimately, the most dreaded damage in a water disaster is **mold**. Steps to prevent mold include stabilizing the environment conditions as soon as possible, removing the items from the storage area, freezing the materials, and using fans for air circulation. The longer the material is in a wet, damp environment, the more likely it is that mold will develop. When air-drying materials, constant monitoring for mold is necessary. For small amounts of mold, materials can be isolated and the mold brushed off with a soft cloth within a ventilated hood. For larger outbreaks, a commercial vendor can address the situation. Always take health and safety precautions when handling moldy materials, such as wearing protective clothing and using respirators.¹⁵

b) Fire Damage Remediation

Fire-damaged materials will also need the expert care of a conservator. Items singed by flames are often extremely brittle, while others exposed to smoke for even short periods of time may retain overpowering odors. A vacuum with a HEPA filter or natural rubber cleaning sponges can remove soot from books or bound materials. Odor and moisture absorbing desiccants, such as silicone packets, can be employed to reduce the effects of smoke. It is worth noting that fire and water damage often go hand in hand, with the latter frequently being the worse of the two in terms of remediation.¹⁶

c) Salvaging Non-Collection Materials

In some disasters, electronic or paper-based administrative files, finding aids, cataloging, or accession files are damaged. These materials are just as important to salvage as the collections themselves, as they contain critical information to identifying and restoring the original order of the collections.

Be sure to include administrative and collection files in your priority lists and salvage instructions. The plan should include an IT restoration plan for salvaging computer files, as well as a complete list of all computer hardware and software used in the archives. It is best practice to backup any electronic files, databases, finding aids, and other key documents to off-site or cloud storage servers.

d) Record Keeping

Good record keeping pays dividends in the event of a disaster. Vital information about materials can easily be lost amidst the chaos. Take care to document the original shelf location of each box, or, if boxes are on the floor, the general area. If possible, record any information from the boxes on a generic record keeping form (included in your plan) and attach it to the materials, keeping a master copy for the staff. Some archives may use a numbering system to track the information with the records. Documenting the disaster with photos and/or video

footage is essential, as before-and-after shots will likely be required for insurance claims. Additionally, capturing evidence of changes to materials during salvage operations will inform future disaster planning and recovery strategies.

e) Vendor and Supplier Lists

In the appendix of the plan, include contact lists for all potential service vendors and suppliers. Key staff should be familiar with what services potential vendors offer prior to any emergency. This service vendor list should include salvage vendors for various types of materials, conservation labs, and disaster consultants. Also record lists of in-house recovery supplies and their locations for easy access.

It is good practice to have a disaster kit on hand. Several suppliers sell disaster kits, the contents of which should include plastic sheets, nitrile gloves, paper towels or interweaving sheets, flashlights, plastic cubic boxes, fans, masks, and a first aid kit.

See [Resources: Vendor and Supplier Lists](#) for more information on these service providers and their products.

Restoration of Archives Operations

Often in a disaster, the archives must suspend operations. The plan should contain steps that staff will take to restore essential repository functions and services. Among these include:

- Notifying staff and visitors of suspension of services while salvage recoveries are underway
- Communicating with the public about the disaster. One staff member should be responsible for relaying this information
- Salvaging and/or restoring key administration files or computer operations

- Relocating staff offices and/or making personnel decisions
- Allocating funds for paying personnel, disaster salvage and recovery, and preparing insurance or FEMA claims
- Drying, cleaning, and/or making repairs to the building and/or storage facilities
- Restoring services such as reference, tours, exhibitions, etc.

Conclusion

Although disasters can strike a repository at almost any time, a carefully crafted plan can imbue staff with the ability to respond to them in a timely and safe manner. A competent Disaster Response Team can effectively mitigate damage from even the most punishing catastrophes through a combination of pre-emptive assessment, thoughtful analysis, and coordinated training exercises. This leaflet provides numerous examples of all three activities, as well as extensive resources on emergency planning from leading organizations and repositories. By implementing such plans, we can ensure that lives and historical treasures alike are preserved for future generations.

References

¹ Dorge, Valerie and Sharon Jones. *Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions*, (Los Angeles, Getty Conservation Institute, 1999), p. 91. http://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/emergency_plan.pdf

² *Working with Emergency Responders: Tips for Cultural Institutions*. Heritage Preservation: National Institute for Conservation. Accessed January 2016. http://www.heritagepreservation.org/lessons/HPR_Emergency_Poster8.5x11.pdf

³ *Emergency Management: Disaster Planning*. Northeast Document Conservation Center. Accessed January 2016. <https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.3-disaster-planning>

⁴ A good source is Judith Fortson, *Disaster Planning and Recovery: A How to Do It Manual for Librarians and Archivists*. (Neal Schuman Publishers, New York, NY, 1992). See chapters on Fire and Earthquakes.

⁵ The information on Fire Safety Equipment is from Nick Antrim, *Emergency Management: An Introduction to Fire Detection, Alarms, and Automatic Fire Systems*, Northeast Document Conservation Center, Accessed February 2016. <https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.2-an-introduction-to-fire-detection,-alarm,-and-automatic-fire-sprinklers>

⁶ Fortson, pp. 97-109.

⁷ Ibid, p. 82.

⁸ Conservation Center for Art and Historic Artifacts (CCAHA). *Disaster Recovery Salvaging Books*. Conservation Center for Art and Historic Artifacts, 2002. Accessed March 2016. http://www.ccaha.org/uploads/media_items/technical-bulletin-salvaging-books.original.pdf

⁹ Ibid. and Northeast Document Conservation Center. *Emergency Management: Emergency Salvage of Wet Books and Records*. Northeast Document Conservation Center. Accessed March 2016 <https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.6-emergency-salvage-of-wet-books-and-records>

¹⁰ CCAH and Kaplan, Hilary and Kathleen Ludwig. *Efficacy of Various Drying Methods*. National Archives and Records Administration. Accessed March 2016. <http://www.archives.gov/preservation/conservation/drying-methods-01.html>

¹¹ CCAH, NEDCC, Kaplan, and Peter, Waters. *Procedures for Salvage of Water Damaged Library Materials*. Library of Congress, 1993. Accessed March 2016 <http://cool.conservation-us.org/bytopic/disasters/primer/waters.html>

¹² Walsh, Betty. *Salvage Operations for Water Damaged Archival Collections: A Second Glance*. 1997. Accessed March 2016. <http://cool.conservation-us.org/waac/wn/wn19/wn19-2/wn19-206.html>

¹³ Albright, Gary. *Emergency Management: Emergency Salvage of Wet Photographs*, Northeast Document Conservation Center. Accessed March 2016. <https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.7-emergency-salvage-of-wet-photographs> and Conservation Center for Art and Historic Artifacts. See also *Disaster Recovery Salvaging Photographic Collections*. Conservation Center for Art and Historic Artifacts, 1998. Accessed March 2016. http://www.ccaha.org/uploads/media_items/technical-bulletin-salvaging-photographs.original.pdf

¹⁴ National Film and Sound Archive of Australia, *Film Preservation Handbook: Disaster Planning*. Accessed March 2016. <http://nfsa.gov.au/preservation/handbook/disaster-planning/>. See also Brothers, Peter. *Disaster Recovery of Tapes of Flooded Areas*. Association of Moving Images Archivists. Accessed May 2016. <http://www.amianet.org/sites/all/files/Disaster%20Recovery%20for%20Tapes%20in%20Flooded%20Areas%20by%20Peter%20Brothers.pdf>

¹⁵ Northeast Document Conservation Center. *Emergency Management: Emergency Salvage of Moldy Books and Paper*. Northeast Document Conservation Center. Accessed February 2016

<https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.8-emergency-salvage-of-moldy-books-and-paper>

¹⁶ CCAHA, Salvaging Books



Resources

General Disaster Planning

“AIC Wiki,” American Institute for Conservation for Historic and Artistic Works, Accessed January 2016 http://www.conservation-wiki.com/wiki/Emergency_Preparedness_%26_Response

This source outlines the components of a disaster plan and steps for salvaging materials. The wiki discusses risk assessment, salvage priorities, disaster teams, and detailed steps for salvaging archival and museum objects. The American Institute for Conservation also operates a 24-hour telephone line for disaster recovery consultations.

Dorge, Valerie and Sharon Jones, *Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions*, Los Angeles, CA: Getty Conservation Institute, 1999. Accessed January 2016 http://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/emergency_plan.pdf

In this excellent book on disaster planning in a museum setting, the authors advocate a team-based approach. Each chapter discusses the roles and responsibilities of each team, including those of the director, emergency preparedness committee, and the safety and security, collections, building and maintenance, and administration and records teams. Also includes chapters on communications, training and case studies.

Emergency Management, Disaster Planning, Northeast Document Conservation Center
<https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.3-disaster-planning>

Helpful overview of disaster planning in general, including risk assessment, disaster resources, and a list of essential supplies.

Fortson, Judith, *Disaster Planning and Recovery*, New York, NY: Neal-Schuman Publishers, 1992

A how-to-do manual on disaster planning in a library setting that discusses risk assessment for natural disasters and salvaging of materials. In addition, the manual includes information on fire safety equipment, insurance, and vendors and suppliers. Some of the information is out-

dated but it is still a good discussion of the topic.

Disaster Plan Templates and Sample Plans

Amigos Library Services, *Disaster Plan for Libraries and Archives*, 2008 <http://www.amigos.org/preservation/disasterplan.pdf>

A simple template for getting started with writing a disaster plan.

Council of State Archivists, *Pocket Response Guide*, Accessed February 2018 <https://www.statearchivists.org/programs/emergency-preparedness/emergency-preparedness-resources/pocket-response-plantm-prep-tm-english-template/>

Department of Preservation and Conservation, *Disaster Recovery Manual for Syracuse University Libraries*, Syracuse University, 2014 <http://surface.syr.edu/cgi/viewcontent.cgi?article=1065&context=sul>

An illustrated university disaster plan model.

“Disaster Plans,” Conservation Online (COOL) Accessed January 2016 <http://cool.conservation-us.org/bytopic/disasters/plans/>

A list of nearly twenty sample university disaster plans.

Dplan, Northeast Document Conservation Center <https://www.nedcc.org/free-resources/dplan-the-online-disaster-planning-tool>

A very detailed template with prerecorded information generated. The plan is almost too detailed and can be difficult to update and print out. However, it can be useful if you do not have the human resources to research emergency and salvaging procedures and vendors and suppliers, since this information is provided.

Emergency Management, Worksheet for Outlying a Disaster Plan, Northeast Document Conservation Center, Accessed January 2016

<https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.4-worksheet-for-outlining-a-disaster-plan>

A simple form for getting started with writing a basic disaster plan.

Haines, Jan, *Disaster Preparedness Plan for Small Public Libraries*, Ohio State Library, 2002
<http://files.eric.ed.gov/fulltext/ED481308.pdf>

An detailed sample plan for a public library setting.

Minnesota Historical Society, *Emergency Preparedness Plan for the Minnesota Historical Society*, Minneapolis, MN: 2007, Accessed February 2016
<http://www.mnhs.org/preserve/conservation/reports/emergencyplan.pdf>

A superb model disaster plan for a historical society.

Reuter, Scott, *Disaster Preparedness and Response Plan Development Guide*, Architecture Heritage Center, undated <http://www.visitahc.org/files/pdf/DPRP-Template-WebAccess.pdf>

A detailed template with pre-filled information, including emergency and salvage procedures and vendor and suppliers' lists.

Smith, Jim, *Sample Disaster and Emergency Plan for Alabama Public Libraries*, Alabama Public Library Services, March 2009
http://webmini.apls.state.al.us/apls_web/apls/apls/docs/publications/Public%20Library%20Sample%20Disaster%20Plan%20March%202009%20edition.pdf

A detailed sample plan for a public library setting

“Virginia Military Institute, Preston Library, VMI Archives, and Institute Records Disaster Plan,” Virginia Military Institute, 2010 http://www2.archivists.org/sites/all/files/VMI_DisasterPlan.pdf

A simple disaster plan model that includes detailed emergency and salvage operations.

Disaster Training Opportunities

Conservation Center for Art and Historic Artifacts, Accessed May 2016 <http://caaha.org/education/program-calendar>

Conservation Center for Art and Historic Artifacts offers hands-on workshops on disaster planning.

“Current Programs,” Northeast Document Conservation Center, Accessed May 2016 <https://www.nedcc.org/preservation-training/training-currentlist>

Northeast Document Conservation Center hosts workshops on disaster planning and recovery.

FEMA, Emergency Management Institute, <http://training.fema.gov/is/>

FEMA offers courses for emergency management personnel and the general public.

“Level of Collections Emergency Scenarios,” Library of Congress, Accessed January 2016 <http://www.loc.gov/preservation/emergprep/plan/scenarios.html>

Tabletop exercises for disaster planning.

LYSARIS, Accessed May 2016 <http://www.lyrasis.org/Pages/Events.aspx>

LYSARIS offers in-house disaster planning workshops.

“Risk Assessment, First Step in Disaster Planning,” Connecting Collection Care, Accessed January 2016 <http://www.connectingtocollections.org/archiveriskevaluation/>

This website offers webinars on risk assessment for disaster planning.

Disaster Planning Funding and Insurance

Most states in the MARAC region have disaster recovery grants for government archives. MARAC and SAA offer some assistance with their respective funds.

“MARAC Disaster Relief Fund Guidelines,” MARAC, Accessed February 2016 <http://www.marac.info/disaster-relief->

MARAC awards up to \$2000 for grants to salvage and recover materials at institutions with publicly accessed archival or special collections in the mid-Atlantic region, which includes New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, and West Virginia.

“National Disaster Recovery Fund for Archives,” Society of American Archivists, Accessed February 2016 <http://www.archivists.org/news/NDRFA.asp>

Originally set up to assist organizations effected by Hurricanes Katrina and Rita, this grant program awards up \$2,000 to any archival or special collections repository in the United States that has been affected by a major disaster.

“Preservation, Some Insurance Companies,” Library of Congress, Accessed February 2016 <http://www.loc.gov/preservation/emergprep/insurancecompanies.html>

A small list of insurance companies that specialize in preservation of cultural collections.

Risk Management and Prevention Surveys

“Disaster Prevention and Planning,” LYSARIS, Accessed January 2016 <https://www.lyrasis.org/services/Pages/Publications-and-Resources.aspx>

The “Disaster and Prevention Checklist” and the “Security Audit” links provide useful checklists for conducting the building, fire safety equipment, security, and archival storage risk assessment surveys.

“Emergency Planning,” National Park Service Museum Handbook, 2000 <http://www.nps.gov/museum/publications/MHI/CHAP10A-B.pdf>

Chapter 10 Section [A-B](#) of the National Park Service Museum Handbook provides detailed information on the vulnerabilities, types of damage, and steps to take in various human-made and natural disasters. Section [C-F](#) discuss risk assessment, salvage priorities, and disaster planning training. [The risk assessment worksheet](#) is a detailed survey form with questions to exam-

ine for various emergencies. This guide may be especially useful for federal historical sites or museums.

Emergency Preparedness for Cultural Institutions: Identifying and Reducing Hazards, Canadian Conservation Institute, Last Modified November 2015 <http://canada.pch.gc.ca/eng/1439925170947>

This site includes a helpful list of questions to ask while conducting risk assessments for various human made and natural emergencies, buildings, fire safety, and security.

“Preservation, Risk Management,” Library of Congress, Accessed February 2016 <http://www.loc.gov/preservation/emergprep/insurancemain.html>

Another useful checklist for conducting risk assessment.

Emergency Response Procedures: General

Be Prepared California: Emergency and Evacuation Planning Guide for Employees, California Department of Public Health, Accessed February 2016 <https://www.cdph.ca.gov/Programs/EPO/Pages/BePreparedCalifornia.aspx>

This guide discusses how to plan for emergency evacuations in business or domestic settings. In addition, it includes information on when to shelter in place and outlines steps for coping with stress after the disaster.

“CPP Staff Emergency Procedures Template,” California Preservation Program, May 2016. http://calpreservation.org/information_resources/emergency-prep-and-response/

A simple list of emergency procedures for various human-made and natural disasters.

“Emergency Action Plan Template,” Centers for Disease Control and Prevention, 2004. <http://www.cdc.gov/niosh/docs/2004-101/emrgact/emrgact.pdf>

A basic template for creating lists of emergency procedures for various disasters.

ICOM (International Council of Museums) *Guidelines for Disaster Preparedness in Museums*. Accessed February 2016 http://icom.museum/fileadmin/user_upload/pdf/Guidelines/guidelinesdisasters_eng.pdf

A pamphlet that discusses the importance of having an emergency plan, including conducting risk assessments, setting up central command control, and training exercises.

“Natural Disasters,” Department of Homeland Security, Accessed May 2016 <https://www.ready.gov/natural-disasters>

This website outlines steps to take in response to natural disasters. Although its target audience is the general public, the site provides information that is helpful for writing emergency procedures for institutions.

Occupation Safety and Health Administration, “How to Plan for Workplace Emergencies and Evacuations,” US Department of Labor, 2001 <https://www.osha.gov/Publications/osa3088.pdf>

This pamphlet outlines simple steps for determining what content to include in an evacuation plan. Additionally, it includes information for working with hazardous materials, such as using respirators and wearing protective clothing.

“Recovery of the Harvard Library Collections,” Harvard University Library, Accessed February 2016 <http://library.harvard.edu/preservation/recovery-of-harvard-library-collections>

A simple list of initial steps to take in an event of emergency.

Emergency Response Procedures: Fire

Atrim, Nick, “Emergency Management: Introduction to Fire Detection, Alarm, and Automatic Fire Sprinklers,” Northeast Document Center, Accessed February 2016. <https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.2-an-introduction-to-fire-detection,-alarm,-and-automatic-fire-sprinklers>

An excellent overview of fire safety equipment, including fire alarms, smoke and heat detec-

tors, and sprinkler systems. Each type of equipment is described in detailed with pros and cons for using this equipment in a cultural setting.

Fire Emergency Excavation Plan and the Fire Procedure, Fire Safety Advice Centre, Accessed February 2016. <http://www.firesafe.org.uk/fire-emergency-evacuation-plan-or-fire-procedure/>

The Fire Safety Advice Centre is an English organization that provides advice on fire safety. The fire emergency evacuation plan and fire procedure page provides a good summary on what to include in a fire evacuation plan.

Salvage and Recovery: General

“Conservation: Salvage Procedures for Wet Items,” Minnesota Historical Society, Accessed February 2016 <http://www.mnhs.org/preserve/conservation/emergency.php>

This site has fact sheets providing step-by-step salvage instructions for each type of material, including preferred methods of drying and any supplies needed. The fact sheets include museum artifacts, archival materials, and photographs.

“Library Materials and Formats: Salvage Priorities,” Harvard University Library, Weissman Preservation Center, 2007 http://library.harvard.edu/sites/default/files/HLPS_formatprioritiesforsalvage.pdf

A handy chart indicting salvage priorities by format and what materials cannot be frozen.

Walsh, Betty. Salvage at A Glance, 1997 <http://cool.conservation-us.org/waac/wn/wn19/wn19-2/wn19-207.html>

A classic chart that provides salvage priorities, handling precautions, and preferred packing and drying methods for paper, photographic, audiovisual, and electronic materials.

Walsh, Betty, *Salvage Operations for Water Damaged Archival Collections: A Second Glance*, c. 1997 <http://cool.conservation-us.org/waac/wn/wn19/wn19-2/wn19-206.html>

An article that provides a detailed narrative on salvaging processes for paper-based, photographic, audiovisual, and electronic materials. Recovery steps discussed include preferred packing and drying-methods.

Salvage and Recovery: Books and Archival Records

Disaster Recovery Salvaging Art on Paper, Conservation Center for Art and Historic Artifacts, 2000, Accessed March 2016 http://www.ccaha.org/uploads/media_items/technical-bulletin-salvaging-art-on-paper.original.pdf

A pamphlet that discusses salvage priorities, pros and cons of various air-drying, freeze-drying and vacuum-freeze-drying methods, and soot removal for paper-based artwork.

Disaster Recovery: Salvaging Books, Conservation Center for Art and Historic Artifacts, 2002, Accessed March 2016

http://www.ccaha.org/uploads/media_items/technical-bulletin-salvaging-books.original.pdf

A discussion of methods for salvaging books, including initial steps, air-drying, dehumidification, freeze-drying, and vacuum-freeze drying. The pamphlet also contains a handy glossary of drying terminology, such as 'degrees of wetness', that are useful for determining appropriate drying methods.

Emergency Management: Emergency Salvage of Wet Books and Records," Northeast Document and Conservation Center, Accessed February 2016 <https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.6-emergency-salvage-of-wet-books-and-records>

Additional technical discussion of drying methods for paper-based materials, including air-drying, dehumidification, freeze-drying, and vacuum freeze-drying.

Emergency Management: Freezing and Drying Wet Books and Records, Northeast Document Conservation Center, Accessed February 2016 <https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.12-freezing-and-drying-wet-books-and-records>

Concise, detailed steps for drying frozen books or archival materials.

Kaplan, Hilary and Kathleen Ludwig, *Efficacy of Various Drying Methods*, National Archives and Records Administration, Accessed March 2016 <http://www.archives.gov/preservation/conservation/drying-methods-01.html>

The authors discuss numerous drying techniques and report on the effectiveness of each, including air-drying, dehumidification, freeze-drying, vacuum freeze-drying, and thermal vacuum-drying using in-house and outside vendors.

“Preservation, What to Do When Collections Get Wet, Library of Congress,” Accessed February 2016 <http://www.loc.gov/preservation/emergprep/dry.html>

This site outlines steps for responding to water emergencies, including initial steps, air-drying, freeze-drying, and mold and soot removal. It also features a training video on air-drying various types of materials.

Waters, Peter, *Procedures for Salvage of Water Damaged Library Materials*, 1993 <http://cool.conservation-us.org/bytopic/disasters/primer/waters.html>

A legacy article that provides a detailed narrative on salvaging archival books and records.

Salvage and Recovery: Photographs

“Albright, Gary, *Preservation: Emergency Salvage of Wet Photographs*, Northeast Document Conservation Center, Accessed February 2016 <https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.7-emergency-salvage-of-wet-photographs>

A basic pamphlet that addresses drying methods for photographs, including air-drying and freeze-drying. It contains contact information for photo conservator assistance.

Disaster Recovery: Salvaging Photographic Collections, Conservation Center for Art and Histor-

ic Artifacts, 1998 http://www.ccaha.org/uploads/media_items/technical-bulletin-salvaging-photographs.original.pdf

A guide to salvaging photographic materials, including methods for air-drying, freezing, and vacuum freeze-drying. It features a handy chart that outlines preferred methods for each photographic format.

Salvage and Recovery: Audiovisual

Disaster Planning, National Film and Sound Archive, Australia, Accessed March 2016 <http://nfsa.gov.au/preservation/handbook/disaster-planning/>

An outline of recovery steps for moving image materials damaged in water or fire disasters. The pamphlet also identifies components to include in a disaster plan for such materials.

Salvage and Recovery: Electronic

Boss, Richard, *Disaster Planning for Computers and Networks*, Last Modified 2014 <https://alair.ala.org/bitstream/handle/11213/258/DISASTER%20PLANNING%20FOR%20COMPUTERS%20AND%20NETWORKS%20.pdf>

A basic pamphlet that addresses recovery of library computers and networks after a disaster. This equipment is highly susceptible to water damage, excessive heat, and computer viruses.

Brothers, Peter. *Disaster Recovery of Tapes of Flooded Areas*. Association of Moving Images Archivists. Accessed May 2016 <http://www.amianet.org/sites/all/files/Disaster%20Recovery%20for%20Tapes%20in%20Flooded%20Areas%20by%20Peter%20Brothers.pdf>

A simple and effective guide to salvaging magnetic tape.

Salvage and Recovery: Mold

“Dealing with Mold After a Flood,” Minnesota Department of Health, Accessed February 2016

<http://www.health.state.mn.us/divs/eh/emergency/natural/floods/mold/mold.html>

Chiefly intended for the general public, this website focuses on the health risks of mold and identifies ways to protect oneself by using respirators and protective clothing. It also provides steps for cleaning mold.

Emergency Management: Emergency Salvage of Moldy Books and Paper, Northeast Document Conservation Center, Accessed February 2016 <https://www.nedcc.org/free-resources/preservation-leaflets/3.-emergency-management/3.8-emergency-salvage-of-moldy-books-and-paper>

An excellent pamphlet on mold, including how it spreads and basic steps for prevention, as well as salvage and recovery techniques for moldy materials.

Mold and Mildew: Prevention of Microorganism Growth in Museum Collections, National Park Service, July 1993 <http://www.archives.gov/preservation/conservation/mold-prevention.html>

A discussion on preventing and treating mold outbreaks in museum settings.

Conservation Centers and Disaster Recovery

“Disaster Assistance,” Conservation Center for Art and Historic Artifacts, Accessed February 2018 <http://www.ccaha.org/services/disaster-assistance>

“Disaster Response and Recovery,” American Institute for Conservation of Historic and Artistic Works, Accessed March 2016 <http://www.conservation-us.org/emergencies/national-heritage-responders#.WbQw2LpFyM8>

The National Heritage Responders provide both remote and on-site disaster consultation and assistance.

“Emergency Services,” Williamstown Conservation Center, Accessed March 2016 <http://www.williamstownart.org/emergency/emergency.html>

This institution provides professional disaster consultation through a hotline number.

“24 Hour Collections Emergency Assistance,” Northeast Document Conservation Center <https://www.nedcc.org/free-resources/disaster-assistance/emergency-phone-assistance>

This website provides the disaster emergency phone number for the Northeast Document Center 24-hour disaster emergency line. In addition, it lists contact information for several prominent disaster recovery companies.

Vendor and Supplier Lists

“List of Disaster Supplies by Product or Service,” LAPNET, 2011 <https://lapreservation.files.wordpress.com/2012/02/disastersupplieslistone2.pdf>

Essential disaster supplies and service providers.

National Resource Guide for Disaster Preparedness, Conservation Center for Art and Historic Artifacts, January 2015

http://ccaha.org/uploads/media_items/national-resource-guide-for-disaster-preparedness-2016.original.pdf

This guide provides a list of over one hundred vendors and suppliers to use in the event of emergencies.

“Preservation, Vendors,” NARA, Accessed March 2016 <http://www.archives.gov/preservation/disaster-response/services.html>

A select list of salvage vendors.

Shelter from the Stormy Blast: A Guide to Disaster Recovery Resources for Georgia and the Southwest, Society of Georgia Archivists, 2007 <https://soga.wildapricot.org/Resources/Documents/DisasterRecoveryENTIREBOOK2007.pdf>

An excellent guide for working with disaster recovery vendors. It provides tips for identifying terms and subject categories for locating vendors and supplies, defines drying methods, lists questions to ask vendors, and contains an annotated bibliography of disaster resources.