

Disaster preparedness and recovery in state agency and local government offices

South Carolina Department
of Archives and History
**Archives and Records
Management Division**

Introduction

No matter where your office, you can be sure that some day you will fall prey to disaster. By acting now to develop a disaster preparedness plan, however, you can minimize the damage. Although most of you have little time, little money, and few staff, you can use the advice given here and invest some staff time each year to develop a modest plan that will save countless tax dollars and protect valuable public records when disaster strikes.

When a disaster strikes in a state agency or local government office, free technical help is available. You need only contact the State Archives' Records Services to get help—Monday to Friday you can call direct (803) 896-6213.

Appendix A on page 10 and Appendix B on page 13 supply checklists of the basic procedures for disaster preparedness and recovery. They were designed for a variety of institutions by the Palmetto Archives, Libraries and Museums Council on Preservation (PALMCOP). You can use them as they are, modify them to suit your needs, or choose from the more elaborate instruments that are available in library, museum, and records management literature. Appendix C on page 15 lists commercial recovery services, Appendix D on page 16 lists supplies that are recommended for recovery, and Appendix E on page 18 provides a chart on various aspects of salvage.

Preparing for a disaster *Survey the facility*

Since structural breakdowns of buildings that house records cause most disasters, you must inspect your building thoroughly inside and out, ideally in the company of the director of building maintenance. The director can shed light on past problems and repairs, help spot potential structural problems, locate outside drains and the shutoffs for water and electricity, explain maintenance routines, and authorize modifications. You should also find out if your building is on a flood plain. Although time-consuming, the inspection will yield valuable information.

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Begin with the roof, work down to the basement, then carefully check the exterior.

Look closely at storage areas, show your maintenance director where the records are, and flag those that are vital and historically valuable. If you do this, your maintenance staff, who will be among the first on the scene of a disaster, will be able to prevent irreparable damage by checking on records in order of their importance.

Mitigate risks The building survey should give you a good idea of where you are likely to have problems. If you cannot solve structural problems, you can still clean out drains; reseal flashing; weatherstrip outside doors; clean neglected storage areas; and establish a routine to check suspect areas, to maintain the building and equipment, and, most important, to maintain stable temperatures and humidities in storage areas. There are several other things you might be able to do as well:

- If you are storing your records under plumbing or in areas that leak frequently, move them; cover them with protective polyethylene sheeting or keep a roll of polyethylene sheeting nearby and cover them at night and on weekends.
- Store the records off the floor on sturdy shelving or at least on pallets.
- If high humidity is causing mold because you can't afford an adequate air conditioning system, install and maintain fans and commercial-grade dehumidifiers—small dehumidifiers must be maintained daily and will not work in large spaces. Isolate moldy records and contact the State Archives for help—many of the older treatments for mold are health hazards.
- If binders or folders stored near windows are fading, cover the window or put the records in boxes—boxes of archival quality if they are records of permanent value.
- If your storage boxes are collapsing under their weight because they are stacked more than two boxes high, install sturdy shelving and replace damaged cartons with well-made records storage cartons that hold no more than one cubic foot—or half a file drawer—each. Reinforce the bottom seams of the cartons with tape.
- If your vital or historical records are stored on magnetic media or in computers, you should establish and maintain a schedule—usually daily or weekly—to back-up your data and store back-ups off site in a building that is secure from fire and theft, located above the flood plain, is structurally sound, and has stable environmental conditions. There is no substitute for frequent back-ups of your electronic records.
- If insects or vermin are damaging records that cannot be moved, consult a preservation specialist before you get a pest control officer to correct the problem with chemicals.

Check insurance coverage

No insurance: Most government offices are “self-insured”—they have to raise the money for recovery when a disaster occurs. Often, this results in costly delays and unnecessary loss because most commercial vendors want their payments up front. You and your fiscal officer, therefore, should at least establish a system that will give you swift access to emergency funds—reserve one or two purchase orders to authorize the immediate recovery of supplies and services, for example, or establish a disaster recovery fund in your permanent budget. You may decide to keep ahead of the game by purchasing supplies to keep on hand. If you do, secure them properly and inventory them regularly. And to protect the information in your historical or permanent records, you should film them before a disaster strikes and secure the information by storing the security negatives at the State Archives (Section 30-1-130, *Code of Laws of South Carolina*, 1976, as amended).

Replacement or recovery insurance: Ideally, you should purchase insurance that will help you either replace or recover your original records. Most insurance underwriters know how to write policies for the replacement but not for the recovery of lost materials. If you have security microfilm of your records stored off-site, for example, you could buy replacement insurance to cover the cost of duplicating the security rolls without difficulty. If, on the other hand, you have paper documents but have not microfilmed those records, your task will be more difficult—you should purchase insurance that would cover the cost of restoring the information either by recovering the original document or by reformatting it as microfilm or a photocopy. Most insurance writers know how to price the costs.

Liability insurance: You may want to use volunteers or prison inmates to help with recovery. We don’t recommend it—you will have to train and constantly monitor this sort of help—but if you do, you must know what your liability will be in the event of an injury.

Label vital and historical records

Because the damage you sustain in a disaster may prevent you from saving everything, you should identify and label—perhaps with bright color codes—both the records that you will need to restart business and those of permanent or historical value. Place the labels wherever they are needed—on filing cabinets, shelving, and records storage boxes—with acid-neutral, waterproof polyvinyl acetate (PVA) adhesive and remember to remove and relocate them if you shift the records to another location.

Safeguard the records during construction

Renovation and repair both place records at risk. Stay alert to the potential for damage, include clean-up in each contract, and, if possible, write insurance coverage into each as well. If you will be hiring a government maintenance department to do the work, monitor its progress and help it seal or remove materials in the work area before construction starts. Do not allow cigarettes or unattended hot tools in the work area; do not allow roofers to leave an incomplete job overnight unless they have laid and secured a waterproof tarp; and protect the records in the area from all types of water damage.

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Establish priorities for recovery

Contact the conservation staff at the State Archives for advice and consider the following when you establish priorities:

- You will need certain records to resume business
- You must protect your historical records
- Some media are more vulnerable than other media—leather-bound volumes, magnetic records, and photographs, for example.
- You can store most water-damaged paper records in a freezer indefinitely
- You can store silver halide microfilm in clean, cool water indefinitely

Maintain a shelf list

To pinpoint records, you should develop a simple inventory as a “shelf list,” either electronically or on paper, and you should maintain the list off-site. If you did not place color-coded labels on vital, fragile, and historical materials before the disaster, this shelf list will be essential to the cost-effective recovery of your records, for you can use it to speed the process of labelling items before you send them to the freezer for storage.

Designate a recovery director

You should establish the lines of authority and responsibility in an emergency by appointing an official as a recovery director and giving that director the authority to make decisions about emergency expenditures. The director should be knowledgeable about recovery techniques, able to make rational decisions under pressure, and able to deal with people in stress. The director should not have to deal with the press during recovery operations.

Recovery operations

Most accidents will inflict little damage on your records if you have exercised foresight and taken the time to mitigate risks. A fire or hurricane, however, can cause massive damage and force you into a recovery operation. You will cut costs and improve your chance of saving most of your records if you follow the procedures outlined below. Appendix B on page 13 supplies a checklist to help guide you through a recovery operation.

Organize the recovery effort

The recovery director should give the fire and police officials on the scene identification and, using a large battery-operated lantern rather than a flashlight if the power is out, assess the condition of the records as soon as the building is declared safe. Since safety will be paramount, you should allow only authorized staff and volunteers into the damaged area and use check-in sheets to monitor traffic.

To inhibit the growth of mold, bring the temperature down in the disaster area and place fans in the area to circulate air. We recommend heavy-duty fans that move air indirectly across the ceiling or floor rather than directly at documents. Use heavy-duty, all-weather extension cords in good repair. Remember that the longer the cord, the less the power it sends to the appliance.

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Minimize damage to items that are on the floor either by keeping traffic off them or, if traffic is unavoidable, by placing boards on top of them to distribute the weight.

Assess the nature and extent of the damage; establish a recovery site. The site should be out of the path of fire personnel and others who may be working in the building, and it should have access to clean running water and enough work space for packing, stacking, and moving carts in and out. Organize recovery teams according to tasks. You will need enough people on hand to work in two-hour shifts, and you should have work tables that are sturdy and tall enough to allow people to work comfortably. To save time once the recovery teams are organized, the director should remain in one location and have a reliable means of communication. Staff can then contact the director or report to that location when they have a question.

If you flagged your records with color coded labels when you prepared your disaster plan, you will be able to use those to recover items quickly in order of priority.

Clear the passageways, remove disposable items from the area, and then begin work, recovering the most vulnerable media first.

Begin recovery

You can dispose of materials not worth the expense of recovery. If you have a large volume of valuable materials, however, your best option is to “place them on ice” to “buy time” so you can let the conservation and micrographics specialists at the State Archives help you choose your most cost-effective options for recovery.

You can put microfilm and motion picture film into thick plastic garbage bags, place those inside large, clean trash cans, and fill the trash bags with clean water—keeping them light enough to move. With some training, you can wrap, pack, label, and freeze modern photographic materials and paper records. Find a freezer service that can maintain a temperature of at least 20° Fahrenheit but not colder than -40°. Because many commercial freezers will not accept burned materials and because they are often full during the tourist and holiday seasons, establish a service you can use before an accident and check in with it at least twice a year. You may find you have to ship items to a freezer off-site or even out of state. To ship the materials, pack them in ventilated packing boxes—milk crates are ideal, but sturdy records cartons are an adequate substitute—and freeze them as rapidly as possible to prevent damage from the expansion of ice crystals.

If only a small volume of valuable material is damaged, you can vacuum- or freeze-dry it and then either copy or restore it, depending on its value and use. Freeze-drying is more expensive than vacuum-drying but is the better option for fragile or very valuable material.

Stabilizing and recovering various materials

The following materials are listed in order of their vulnerability to damage. If your paper records hold the most important information in your office, however, you should work with them first.

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Electronic records: Several commercial recovery services can do this work faster and probably better than you can. Keep their telephone numbers handy. You may, however, be able to recover data (a) on diskettes by disassembling them, washing them in distilled water, drying them—*never* in a microwave—and then copying the data onto new diskettes; (b) on hard drives by washing them quickly, drying them in temperatures no higher than 100°—and, again, *never* in a microwave—for not more than an hour; and then copying the data onto new hard drives (c) on compact disks by washing but not drying them and then putting the data onto new disks. You will have to plan for the cost of new diskettes, new hard drives, and new compact disks.

Cassette and reel-to-reel tapes: You will need to remove your tapes from their containers, clean off debris by rinsing them in clear water, dry them for an hour in an environment that is warm but not over 100° Fahrenheit, place them into new cases or reels by winding them across felt pads—not recording heads—then copy them onto new tapes. Do not record on both sides of the new tapes unless the records are of short-term value. You can buy empty cassette cases from major distributors of audio visual equipment and supplies.

Video tapes: You will probably need a vendor to help you recover your video tapes. You should, therefore, leave them wound, rinse off any dirt and debris with clean water, drain them, allow them to dry, then send them to a recovery service for cleaning and duplication as soon as possible.

Photographs and negatives: Photographs and negatives should be separated, spread out, and air dried as soon as possible. If they are stuck together, you will have to soak them, separate them, then dry them by hanging each individually from clothes lines by the borders with clean, rust-free clips.

If quick action is impossible, you should wash prints and negatives in clean water, interleave them, place no more than four or five into small plastic bags, freeze them, and call a conservation specialist. Do not put too many bags in one stack.

If you have both negatives and prints, you may want to recover only the negatives; you can make new prints later when resources are available. If you have only prints, you can restore those and have negatives made and stored separately when time and money allow.

Microfilm and motion picture film: If you have no undamaged negatives from which to make duplicates, you can store damaged film for a few days in clean, cold water (see above under “Begin recovery”)—black and white for a up to three days, and color for up to forty-eight hours. Once your microfilm is stabilized, call Micrographic Services at the State Archives; it can reprocess your damaged microfilm, arrange to recover any master negatives, or help you locate a vendor. If you hold master negatives, find out who made the film—Kodak and Fuji will provide recovery service only if master negatives are on their film.

Bound volumes: Books can be damaged more easily than loose pages. Wet bindings warp, tear apart, and encourage the rapid growth of mold; adhesives in the bindings, when they are exposed to open flame, change shape,

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become brittle, and render books unusable. Books, therefore, should be frozen or dried as quickly as possible.

Air drying: If you have space, time, and training, you can air dry books inexpensively. Open books, spread boards and pages, and stand the books on end with the text upside down; insert blotting paper between some of the pages to speed the process—but not so much you damage the spine—and replace it when it gets damp. Experts from the State Archives can help you train your staff and plan work stations.

Freezing: If books are soaked, you should either freeze them yourself or send them to a commercial freeze-drying service. If the bindings are muddy, you can wash them with clean water and moderate water pressure. Hold the book tightly closed while you wash the bindings, however, to prevent water from seeping into the pages. If the pages are muddy, call a conservation specialist for help. Similarly, if you cannot close a wet book, call the specialist. Don't try to force it.

Packing books for the freezer is simple. Wrap them individually with one layer of unprinted newsprint or wax paper around the cover and spine and place the wrapped books spine down inside sturdy cartons. You can buy butcher's paper in pre-cut sheets or obtain unprinted newsprint from your local newspaper.

Freeze-drying: If the books are brittle, extremely valuable, or leather-bound, vacuum freeze drying is faster, will reduce further warping, and is a more appropriate technique. The cost for freeze-drying and transportation is about \$125 a cubic foot—half a file drawer.

Loose papers: With proper handling, freezing or air drying can recover most paper records that water has damaged extensively—damage from mold or fire, however, is irreversible and felt-tipped inks will smear. Freezing will prevent insoluble inks from smearing, and it will prevent the growth of mold as well. So to avoid smearing, use only insoluble ink or pencil for office transactions.

If the papers are not too wet, place newsprint or silicone release paper between them; wrap them in packages no more than two inches thick; place them flat in cubic foot boxes or milk crates, and pack the boxes loosely because the water will expand when it turns to ice.

If the papers are saturated and begin to disintegrate when you try to separate the sheets, wrap and freeze them without interleaving; then call the State Archives for help.

If the papers are only slightly damp, you can spread them out and air dry them in rapidly-circulating air at low temperatures. When the pages dry, you may find they are rippled. If you do not have to retain the originals, you may want to photocopy or microfilm and then dispose of them.

Fight mold Mold is a danger to your records. Before you return your records to storage, you should remove wet carpeting, clean all walls, floors, shelves, and storage cabinets with fungicides, dry them thoroughly, and air them out completely. Once the records have been returned to storage, you should

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check for mold routinely or at least when the humidity is high in the storage areas.

Evaluate the incident and your response to it

To prevent the loss of money, time, and information in the future, review your situation after your records are recovered or replaced by asking:

- Could I limit or avoid the damage if a similar disaster struck again?
- Do I need better insurance coverage?
- Do I need to revise my records management program to minimize future losses?
- Do I have the information and supplies I need to deal with future emergencies?
- What additional training does my staff need?

About vendors and drying

Restoration on-site or away: If the job is big enough, vendors of vacuum drying and vacuum freeze drying services can transport their equipment to the site of a disaster. After Hurricane Hugo, vendors moved their equipment to the Charleston area and served a large number of clients, giving top priority to those with insurance coverage.

If your problem is small and localized, vendors will ask you to ship the materials to them. You may need to rent a refrigerated truck, or, if you have only a small amount of material, you may want to simply pack it in dry ice and ship it UPS for overnight delivery.

Training: When you use vendors, remember they are trained to recover buildings, furniture, and equipment—not to recover records of permanent or historical value. One large historical society, for example, hired a vendor who freeze-dried a group of large valuable maps and then damaged them badly by packing them improperly for return shipment. Someone with a basic knowledge of preservation should monitor the vendor's on-site activity carefully and supervise the transfer of materials to and from a freeze-drying facility.

Authorizations and cost: Before they begin work, commercial vendors require either an authorization from your insurance adjuster or a purchase order number. As the volume of your material increases, your costs per cubic foot—half a file drawer—will decrease, but you should plan on spending about seventy-five dollars a cubic foot for the transportation to and recovery of records at a commercial freeze-drying facility and their recovery once they are there. Vacuum drying will be substantially cheaper than vacuum freeze drying, but it is not recommended for brittle or fragile materials or for rare books because it involves fairly high temperatures. A list of commercial recovery services is given in Appendix C on page 15.

Working with specialists to rehabilitate the records or retrieve information

The State Archives has a disaster recovery team that is on emergency call twenty-four hours a day, and it has staffers who can help you sort through options and recommend commercial drying methods during working hours. If you have research copies and not master negatives of your microfilm, the State Archives Micrographics Services staff at (803) 896-6208 can help you review costs and vendors. Similarly, the Conservation Laboratory staff (803) 896-6211 can advise you on treatments for various materials and recommend commercial drying methods. When you call the State Archives for help, you should be able to estimate roughly, in cubic feet, volumes, or pages, if possible, the amount of material damaged and give the name of your contact person. You should also be prepared to answer some questions about the disaster:

- Was it a fire?
- Were water or chemical extinguishers used?
- Did the building sustain structural damage?
- Is the damaged building an historic site?

For more information

This leaflet is one of a series of leaflets issued by the Archives and Records Management Division of the South Carolina Department of Archives and History. Please direct your questions about our programs to: South Carolina Department of Archives and History, Archives and Records Management Division, 8301 Parklane Road, Columbia, South Carolina 29223-4905/ Telephone: (803) 896-6100. ■

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Appendix A: Checklist for disaster preparedness

I: Upkeep

A. Daily procedures

- _____ Locks on doors and windows secure and all keys accounted for
- _____ No pipes, faucets, toilets, or air conditioning units leaking
- _____ Electrical equipment unplugged and no evidence of frayed wiring
- _____ No signs of structural damage
- _____ No burning materials in ashtrays or wastebaskets
- _____ Trash removed daily, preferably at night
- _____ Staff room cleaned daily

B. Periodic Procedures

- _____ *Outdoor hazards:* railings, benches, planters, light/flag poles well-anchored, over-hanging trees, branches trimmed
- _____ *Roof:* covering sound (no leaks, cracks); flashings present and intact
- _____ *Drainage from roof:* eaves, gutters, drains, and down spouts cleaned regularly; drainage systems connected directly to sewer system
- _____ *Ground-level drainage:* drainage around doors checked
- _____ *Windows and skylights:* caulking and sealants sound; trees trimmed away
- _____ *Fire safety:* extinguishers operable; smoke alarms operable; sprinkler system operable; water detectors operable; Halon system operable; staff trained to: sound alarms, notify fire department and others, use extinguishers, turn off power, water, HVAC, sprinklers, and close fire doors
- _____ *Electrical wiring:* no overloading, wiring in good condition, appliance cords in good condition and unplugged nightly (if appropriate)
- _____ *Heating, ventilation, air conditioning (HVAC) system:* effective temperature and humidity controls; furnace inspected annually; air conditioning inspected annually; exhaust working on ventilation: exhaust working, air filters effective and changed regularly
- _____ *Water protection:* pipes and plumbing—including toilets, icemakers, freezers, and other water sources—not located above collections; pipes well supported; no leaks; pipe joints and valves in good condition; water detector present, inspected and functioning; sump pumps and back-ups available; appropriate dehumidifiers available; no leakage or seepage through walls; protective enclosures for special materials—rare maps and archives, for example—and for fragile media: cassettes, diskettes, and so forth
- _____ *Collection areas:* shelves well-braced; no valuable collections under water sources; shelving 4"–6" off floor; stairways and pipe shafts enclosed; no valuable materials in basement; exits unobstructed; important collections away from windows
- _____ *Housekeeping:* safe storage of cleaning supplies and other flammables; smoking in designated areas only; food and drink prohibition enforced; pest management strategies in place
- _____ *Security:* book drops outside building or in fire-resistant room; exterior of building well-lit; locks or alarms on windows and doors; intrusion alarms or detectors; closing procedures effective

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- _____ *Insurance*: policy up to date; "Acts of God" covered; replacement costs specified for special materials; new equipment added to policy duplicate shelflist, accessions register or collections register in off site location
- _____ *Emergency numbers* are accurate and posted near every telephone
- _____ *Operable flashlights* placed in every department and Civil Defense shelter
- _____ *Transistor radio* operable
- _____ Date of last fire drill: _____

II. Emergency telephone list

A. Name of institution: _____

B. Date of completion or update of this form: _____

C. Staff contact in case of emergency: _____

<i>Position</i>	<i>Name</i>	<i>Office phone</i>	<i>Home phone</i>
Chief administrator	_____	_____	_____
Person in charge of building maintenance	_____	_____	_____

D. Other services possibly needed in an emergency:

<i>Service</i>	<i>Company and/or name of contact</i>	<i>Phone number</i>
In-house security	_____	_____
Fire Department	_____	_____
Police or Sheriff	_____	_____
Ambulance	_____	_____
Hospital	_____	_____
Civil Defense	_____	_____
SC State Library	_____	(803) 734-8666
State Archives	Sarah Murray	(803) 896-6112
Insurance Company	_____	_____
Legal advisor	_____	_____
Electrician	_____	_____

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Plumber	_____	_____
Carpenter	_____	_____
Exterminator	_____	_____
Cold storage facility	_____	_____
Freeze-dry facility	_____	_____
Locksmith	_____	_____
Utility Companies (electric, gas, water)	_____	_____
Architect or builder	_____	_____
Janitorial service	_____	_____
Glass repair	_____	_____
Photographer (for insurance)	_____	_____
Poison control	_____	_____

III. Priority listing of materials

Compile a list of materials for each department and office, showing the order for salvage by assigning priorities as follows:

1. Salvage at all costs
2. Salvage if time permits
3. Salvage as part of general clean-up

Keep the following in mind when setting priorities:

- A. Can the item be replaced? At what cost? Besides the purchase price, cost should include ordering, cataloging, and so forth
- B. Would the cost of replacement be less or more than the cost of restoring the object?
- C. How important is the object to the collection?
- D. Is the object available elsewhere?

IV. Designate a recovery director

Appendix B: Checklist for recovery

- _____ Recovery director gives identification to personnel from Emergency Services
- _____ Recovery director obtains clearance to enter disaster area
- _____ Recovery director inspects and assesses damage to collection
 - ___ Check for any potential hazards
 - ___ Take photographs or videos of the damage
 - ___ Contact insurance companies if their assessors are not already on the scene
- _____ Plan recovery operations
 - ___ Select adequate space for recovery operations
 - ___ Set up communications
 - ___ Assemble supplies and equipment
 - ___ Assemble work crews and give them instructions
 - ___ Arrange for relief shifts and breaks
- _____ Begin recovery operations according to priorities
 - ___ Clear the passageways if necessary and sort the items on-site

Electronic records

Are they backed up off site? If yes, do nothing

Are they the only copies?

- ___ Remove from cases and rinse in clear water
- ___ Dry gently
- ___ Place in new cases and copy onto new hardware

Audio and video tapes

Are they backed up off site? If yes, do nothing

Are they the only copies?

Small number:

- ___ Rinse exterior dirt from cases in clean water
- ___ Dry tape with heat of not more than 100°
- ___ Replace audio cassette cases if possible
- ___ Copy to new tape on new machinery

Large number:

- ___ Gently rinse off dirt or mud
- ___ Use a vendor to clean and copy them

Photographs and negatives

Small numbers

- ___ Keep immersed in water; do not allow to dry stuck together
- ___ Set up clothes lines
- ___ Air dry by using plastic clothes pins to clip photos separately by borders to line
- ___ If no line is available, dry flat on a clean surface, emulsion side up
- ___ Prevent curling by placing them in archival folders and weighting them down gently
- ___ Refer severely curled or fragile photos to a conservator

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Large numbers

- Do not allow to dry stuck together
- Interleave with neutral sheets and place no more than four or five in a plastic baggie
- Place flat in boxes and freeze; do not stack too many in a pile
- Begin air drying process a few at a time or refer materials to a conservator

Microfilm and motion picture film

If duplicates are unavailable or cannot be made:

- Obtain large trash cans and clean, large trash bags
- Line the cans with the bags
- Fill trash bags with clean, cold water
- Submerge damaged film in the water
- Have the film reprocessed within 48 hours
- If the film is a master negative, contact the film manufacturer for reprocessing
- Contact Micrographic Services at the State Archives if they are not master negatives
803/896-6210

Bound volumes

Very wet books

- Wrap books in a layer of plain paper
- Pack in box, spine down
- Pack oversize books flat, placing the largest books on the bottom and the smallest books on top
- Send to freezer
- Refer large numbers to a drying service
 1. Vacuum-freeze fragile, leather-bound and rare books
 2. Cloth or paper bound books can be heat dried
- Small numbers may be air dried in small groups

Slightly damp books

- Set up air drying tables in low traffic areas
- Interleave some—not too many—paper towels or plain newsprint
- Set books on end—with text upside down—and fan out covers and pages
- Circulate the air rapidly and indirectly, using fans in good condition
- Check books regularly, and replace interleaved blotting sheets as they become damp
- Air-dry until gutters are completely dry
- Rebind books with severely warped covers
- Monitor books for the growth of mold for a year after they have been reshelved

Muddy books

- Using moderate water pressure and sponge, rinse off books, holding outer edges tightly closed
- Wrap and freeze or air dry
- Brush off any remaining dirt when dry

Moldy books

- _____ Isolate these items
- _____ Wrap and freeze
- _____ Contact the Conservation Lab at the State Archives, 803/896-6211

Loose paper documents

- _____ Support the documents when you move them
- _____ Separate and interleave slightly damp documents
- _____ Do not try to separate very wet pages, wrap and freeze in thin batches
- _____ Valuable originals should be freeze-dried
- _____ Air dry other originals
- _____ Photocopy or microfilm originals as appropriate
- _____ Return originals to folders when dry and monitor for the growth of mold for a year

Appendix C: Commercial recovery services

Blackmon Mooring Steamatic *Freeze drying, fire recovery*
Atlanta office
450 Cemetery St., Suite 201
Norcross, GA 30071 1-800-433-2940/ (770) 409-9669

Document Reprocessors *Freeze drying, fire recovery*
5611 Water St.
Middlesex, NY 14507
(716) 554-4500/24-hour number: 1-888-437-9464

American Freeze-Dry Inc. *Freeze drying*
411 White Horse Pike
Audubon, NJ. 08106
24-hour voice mail: (609) 54600777/ Fax (609) 547-4158

Munters Moisture Control Services *Drying, flood/water recovery*
Atlanta Office
6900 Peachtree Industrial Blvd. Suite I
Norcross GA 30071
24-hour number, Charlotte NC: 1-800-976-9375
24-hour number, Atlanta, Ga: 1-800-775-0935

Solex Environmental Systems *Moisture control/freeze drying*
PO Box 460242
Houston, TX 77056
1-800-848-0484
24-hour number: (713) 461-5878

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Fuji Microfilm
Atlanta, GA 1

Film recovery

Steris Isomedix Services
taminants
Regional Office
2072 Southport Rd.
Spartanburg, SC 29306 (864) 582-3041

Sterilization of records damaged by mold, con-

Enviro-Air Control Corp.
1523 N. Post Oak Rd.
Houston, TX 77055-5409
(713) 681-3449/1-800-275-3449
e-mail: dhinfo@enviro-control.com

Dehumidifier sales and rentals

Eastman Kodak *Microfilm recovery*
1-800-242-2424 or 1-800-352-8378, Disaster Recovery Lab

*Commercial recover services numbers should be revised annually.

Appendix D: Supplies recommended for emergency recovery

Batteries
Battery-operated lanterns
Battery tester
Boots or shoes—sturdy and waterproof
Extension cords—heavy, water resistant, various lengths
Fans
Work gloves—heavy
Labels—adhesive
Milk crates or records center cartons
Newsprint, unprinted—end rolls available from local newspaper*
Paper towels*
Plastic sheeting—rolls in varying widths
Protective masks
Squeegees
Tape—duct
Tape—packing
Utility knives, scissors
Waxed paper*
Blotter paper*

*Use these items as interleaves to keep wet materials from sticking together and to prevent the dye from transferring or running.

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Appendix E: Salvage at a glance for modern records

(by Betty Walsh, British Columbia Archives).

Material	Priority	Handling Precautions	Packing Method	Drying Method
Paper Documents and manuscripts Stable media (photocopies, pencil)	Freeze or dry within 48 hours.	Don't separate single sheets.	Interleave between folders and pack in milk crates or cartons.	Air, vacuum, or freeze dry.
Soluble inks (felt pen, colored pens, ball point)	Immediately freeze or dry.	Do not blot.	Interleave between folders and pack in milk crates or cartons.	Air or freeze dry.
Maps and plans Stable media (printed maps)	Freeze or dry within 48 hours.	Use extra caution if folded or rolled.	Pack in map drawers, bread trays, flat boxes, on heavy cardboard or poly covered plywood.	Air or freeze dry.
Soluble media Maps and plans by photoreproductive processes such as, diazos. Hand colored maps	Immediately freeze or dry.	Do not blot.	Interleave between folders and pack as above.	Air or freeze dry.
Drafting linens	Immediately	Avoid pressure—inks can smear away.	Pack like maps in containers lined with plastic containers.	Air or freeze freeze or dry. Air dry by separating sheets and interleaving.
Maps on coated papers	Immediately freeze or dry.		Pack like maps in containers lined with plastic.	Freeze drying preferred.

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Material	Priority	Handling Precautions	Packing Method	Drying Method
Books Books and pamphlets	Freeze or dry within 48 hours.	Do not open or close, do not separate covers.	Separate with freezer paper, pack spine down in milk crate or cardboard box 1 layer deep.	Air, vacuum, or freeze dry.
Volumes with leather bindings	Immediately dry; or freeze if many books.	Do not open or close, do not separate covers.	Separate with freezer paper, pack spine down in milk crate or cardboard box 1 layer deep.	Air dry.
Books and periodicals with coated papers	Immediately freeze or dry.	Do not open or close, do not separate covers.	Keep wet; pack spine down in containers lined with garbage bags and interleaving.	Freeze drying preferred. Air dry by fanning pages
Computer media Tapes	Immediately rinse off tapes soaked by dirty water. Dry within 48 hours if paper boxes and labels; otherwise, tapes can stay wet for several days. Do not freeze.	Do not touch magnetic media with bare hands. Handle open reel tapes by hubs or reel.	Keep tapes wet in plastic bags. Pack vertically in plastic crate or tub.	Air dry, or test vacuum drying without heat.
Floppy disks	Immediately pack. Do not freeze.	Do not touch disk surface with bare hands.	Keep wet. Pack vertically in plastic bags or tubs of cold water.	Air dry.
Compact discs and CD ROMs	Immediately dry discs. Dry paper enclosures within 48 hours.	Do not scratch the surface.	Pack vertically in crates or cardboard cartons.	Air dry.

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Material	Priority	Handling Precautions	Packing Method	Drying Method
<p>Sound and video recordings Sound and videotapes</p>	<p>Immediately rinse off tapes soaked by dirty water. Dry within 48 hours if paper boxes and labels; otherwise, tapes can stay wet for several days.</p> <p>Do not freeze.</p>	<p>Do not touch magnetic media with bare hands.</p>	<p>Keep tapes wet in plastic bags. Pack vertically in plastic crate or tub.</p>	<p>Air dry, or test vacuum drying without heat.</p>
<p>Shellac and acetate discs</p>	<p>Immediately dry. Dry enclosures within 48 hours.</p>	<p>Discs are very fragile. Hold discs by their edges. Avoid shocks.</p>	<p>Pack vertically in ethafoam-padded crates.</p>	<p>Air dry, preferably with a record cleaning machine.</p>
<p>Vinyl discs</p>	<p>Dry within 48 hours. Freezing is untested; if it is necessary, freeze at above -18°C (0° F). Freeze or dry enclosures within 48 hours.</p>	<p>Hold discs by their edges. Avoid shocks.</p>	<p>Pack vertically in ethafoam-padded crates.</p>	<p>Air dry, preferably with a record cleaning machine.</p>
<p>Photographs—Most 20th-century black and white prints Silver gelatin printing out and developing out papers</p>	<p>Freeze or dry within 48 hours.</p>	<p>Do not touch emulsion with bare hands.</p>	<p>Keep wet. Pack in plastic bags inside boxes.</p>	<p>Order of preference: 1. Air dry, 2. thaw and air dry, 3. freeze dry. Do not vacuum dry.</p>
<p>Black and white negatives Polyester based film, nitrates and acetates in good condition</p>	<p>Freeze or dry within 48 hours.</p>	<p>Do not touch emulsion with bare hands.</p>	<p>Keep wet. Pack in small plastic bags inside boxes.</p>	<p>Order of preference: 1. Air dry, 2. thaw and air dry, 3. freeze dry. Do not vacuum dry.</p>

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Material	Priority	Handling Precautions	Packing Method	Drying Method
Deteriorated nitrates with soluble binders (negatives from before 1951, if they are sticking to enclosures)	Immediately freeze or dry. Recovery rate may be low.	Do not blot.	Horizontally.	Air dry; thaw and air dry; test freeze drying.
Deteriorated acetates (negatives with a vinegar smell, and shrinkage)	Immediately freeze or dry. Recovery rate is low.	Handle carefully—swelling of emulsion.	Horizontally.	Air dry; thaw and air dry; test freeze drying.
Gelatin dry plate glass negatives	Freeze or dry within 48 hours.	Handle with care—glass.	Keep wet. Pack in plastic bags, vertically in a padded container.	Air drying preferred; or thaw and air dry; freeze dry.
Black and white transparencies Glass lantern slides, silver gelatin	Dry or freeze within 48 hours.	Handle with care—loose binding tapes and glass.	Vertically in a padded container.	Air drying preferred; thaw, and air dry.
Color prints and negatives Prints and negatives such as Kodacolor, Ektacolor, and Fujicolor	Freeze or dry within 48 hours.	Do not touch binder with bare hands.	Keep wet. Pack in plastic bags inside boxes.	Order of preference: 1. Air dry, 2. thaw and air dry, 3. freeze dry. Do not vacuum dry.
Color transparencies Color slides and sheet films such as Kodakchrome, Ektachrome, Ansicolor and Fujichrome	Freeze or dry within 48 hours.	Handle by mounts or edges.	Keep wet. Pack in plastic bags inside box.	Order of preference: 1. Air dry in mounts if possible, 2. thaw and air dry, 3. freeze dry. Do not vacuum dry.
Motion pictures	Rewash and dry within 48 hours.		Keep wet. Pack in plastic pails or cardboard cartons lined with garbage bags.	Arrange with a film processor to rewash and dry.

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Material	Priority	Handling Precautions	Packing Method	Drying Method
Microforms Microfilm rolls	Rewash and dry within 48 hours.	Do not remove from boxes; hold carton together with rubber bands.	Keep wet. Pack (in blocks of 5) in a cardboard box lined with garbage bags.	Arrange for a microfilm processor to rewash and dry.
Aperture cards	Freeze or dry within 48 hours.		Keep wet. Pack in plastic bags inside boxes.	Air dry, or thaw and air dry.
Jacketed microfilm	Freeze or dry within 48 hours.		Keep wet. Pack in plastic bags inside pail or box.	Air dry, or freeze, thaw and air dry.
Diazo and vesicular microfiche	Freeze or dry within 48 hours.		Interleave between envelopes and pack in milk crates or cartons.	Air dry, or freeze, thaw and air dry.

This is a shorter version of the “Salvage at a Glance” chart which was published in: “Salvage Operations for Water Damaged Archival Collections: A Second Glance,” by Betty Walsh, *WAAC Newsletter*, Vol. 19, No. 2, (May 1997), 12–23, plus insert. Copyright Province of British Columbia, 1997. Revised by Betty Walsh June 1998. Reprinted with permission of the author. The complete version can be found at: <http://palimpsest.stanford.edu/waac/wn/wn19/wn19-2/wn19-207.html>

This table summarizes salvage for the most common records. If you have older or more diverse records, see the above reference for more information.

Public records information leaflet no. 16

Public information leaflets from the Archives*

- no. 1 *Legal requirements for microfilming public records* (1992)
- no. 2 *On choosing records for microfilming* (1998 revised)
- no. 3 *Service bureau or in-house microfilming* (1992)
- no. 4 *Targeting and certification of microfilm* (1996 revised)
- no. 5 *Choosing a microfilm camera* (1992)
- no. 6 *Quality testing of microfilm* (1998 revised)
- no. 7 *Microfilm and microforms* (1992)
- no. 8 *Choosing a micrographics service bureau* (1998)
- no. 9 *Choosing microfilm readers and reader/printers* (1992)
- no. 10 *Computer assisted retrieval systems* (1992)
- no. 11 *Microfilm storage* (1992)
- no. 12 *Preservation microfilming* (1992)
- no. 13 *Public Records Stored as Digital Images* (2001)
- no. 14 *Storing records in the State Records Center* (1993)
- no. 15 *The deposit of security microfilm* (1993)
- no. 16 *Disaster preparedness and recovery in state and local government records offices* (1999 revised)
- no. 17 *How to conduct a records inventory* (1993)
- no. 18 *How to establish records retention schedules* (1993)
- no. 19 *Photographic media* (to be announced)
- no. 20 *Editing and splicing roll microfilm of long-term or archival value* (1994)
- no. 21 *Managing e-mail* (1998)
- no. 22 *Standards for microfilm service bureau certification* (1998)
- no. 23 *Sample e-mail policies* (1998)
- no. 24 *Storage and handling guidelines for maintenance of electronic records of long-term or enduring value* (1999)
- no. 25 *Preserving evidence: recommended practices for creating and maintaining legally-admissible records on automated systems* (1999)
- no. 26 *Managing Public Records on Web Sites*

* Many of these leaflets are available electronically through our WEB page at www.state.sc.us/scdah/techlflt.htm