Prepared for a disaster
Survey the facility

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.

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.
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.
Public records information leaflet no. 16

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 reformattting 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.
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 labeling 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.
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.

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.
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°F—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°F 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,
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
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.
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?

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.

Revised September 2002
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: 

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Office phone</th>
<th>Home phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief administrator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person in charge of building maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D. Other services possibly needed in an emergency:

<table>
<thead>
<tr>
<th>Service</th>
<th>Company and/or name of contact</th>
<th>Phone number</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Police or Sheriff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civil Defense</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC State Library</td>
<td></td>
<td>(803) 734-8666</td>
</tr>
<tr>
<td>State Archives</td>
<td>Sarah Murray</td>
<td>(803) 896-6112</td>
</tr>
<tr>
<td>Insurance Company</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal advisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrician</td>
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<td></td>
</tr>
</tbody>
</table>
### 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°F
    - 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
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
Fuji Microfilm  
Atlanta, GA 1

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

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

Eastman Kodak  
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
Squeegeies
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.
### Appendix E: Salvage at a glance for modern records
(by Betty Walsh, British Columbia Archives)

<table>
<thead>
<tr>
<th>Material</th>
<th>Priority</th>
<th>Handling Precautions</th>
<th>Packing Method</th>
<th>Drying Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paper</strong></td>
<td><strong>Freeze or dry within 48 hours.</strong></td>
<td><strong>Don’t separate single sheets.</strong></td>
<td><strong>Interleave between folders and pack in milk crates or cartons.</strong></td>
<td><strong>Air, vacuum, or freeze dry.</strong></td>
</tr>
<tr>
<td><strong>Documents and manuscripts</strong></td>
<td></td>
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</tr>
<tr>
<td>Stable media</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(photocopies, pencil)</td>
<td></td>
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</tr>
<tr>
<td>Soluble inks</td>
<td><strong>Immediately freeze or dry.</strong></td>
<td><strong>Do not blot.</strong></td>
<td><strong>Interleave between folders and pack in milk crates or cartons.</strong></td>
<td><strong>Air or freeze dry.</strong></td>
</tr>
<tr>
<td>(felt pen, colored pens, ball point)</td>
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</tr>
<tr>
<td><strong>Maps and plans</strong></td>
<td><strong>Freeze or dry within 48 hours.</strong></td>
<td><strong>Use extra caution if folded or rolled.</strong></td>
<td><strong>Pack in map drawers, bread trays, flat boxes, on heavy cardboard or poly covered plywood.</strong></td>
<td><strong>Air or freeze dry.</strong></td>
</tr>
<tr>
<td>Stable media</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(printed maps)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soluble media</td>
<td><strong>Immediately freeze or dry.</strong></td>
<td><strong>Do not blot.</strong></td>
<td><strong>Interleave between folders and pack as above.</strong></td>
<td><strong>Air or freeze dry.</strong></td>
</tr>
<tr>
<td>Maps and plans by photoreproductive processes such as, diazos. Hand colored maps</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drafting linens</td>
<td><strong>Immediately</strong></td>
<td><strong>Avoid pressure—inks can smear away.</strong></td>
<td><strong>Pack like maps in containers lined with plastic containers.</strong></td>
<td><strong>Air or freeze freeze or dry. Air dry by separating sheets and interleaving.</strong></td>
</tr>
<tr>
<td>Maps on coated papers</td>
<td><strong>Immediately freeze or dry.</strong></td>
<td></td>
<td><strong>Pack like maps in containers lined with plastic.</strong></td>
<td><strong>Freeze drying preferred.</strong></td>
</tr>
<tr>
<td>Material</td>
<td>Priority</td>
<td>Handling Precautions</td>
<td>Packing Method</td>
<td>Drying Method</td>
</tr>
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<tr>
<td><strong>Books</strong>&lt;br&gt;Books and pamphlets</td>
<td>Freeze or dry within 48 hours.</td>
<td>Do not open or close, do not separate covers.</td>
<td>Separate with freezer paper, pack spine down in milk crate or cardboard box 1 layer deep.</td>
<td>Air, vacuum, or freeze dry.</td>
</tr>
<tr>
<td>Volumes with leather bindings</td>
<td>Immediately dry; or freeze if many books.</td>
<td>Do not open or close, do not separate covers.</td>
<td>Separate with freezer paper, pack spine down in milk crate or cardboard box 1 layer deep.</td>
<td>Air dry.</td>
</tr>
<tr>
<td>Books and periodicals with coated papers</td>
<td>Immediately freeze or dry.</td>
<td>Do not open or close, do not separate covers.</td>
<td>Keep wet; pack spine down in containers lined with garbage bags and interleaving.</td>
<td>Freeze drying preferred. Air dry by fanning pages</td>
</tr>
<tr>
<td><strong>Computer media</strong>&lt;br&gt;Tapes</td>
<td>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.</td>
<td>Do not touch magnetic media with bare hands. Handle open reel tapes by hubs or reel.</td>
<td>Keep tapes wet in plastic bags. Pack vertically in plastic crate or tub.</td>
<td>Air dry, or test vacuum drying without heat.</td>
</tr>
<tr>
<td>Floppy disks</td>
<td>Immediately pack. Do not freeze.</td>
<td>Do not touch disk surface with bare hands.</td>
<td>Keep wet. Pack vertically in plastic bags or tubs of cold water.</td>
<td>Air dry.</td>
</tr>
<tr>
<td>Compact discs and CD ROMs</td>
<td>Immediately dry discs. Dry paper enclosures within 48 hours.</td>
<td>Do not scratch the surface.</td>
<td>Pack vertically in crates or cardboard cartons.</td>
<td>Air dry.</td>
</tr>
<tr>
<td>Material</td>
<td>Priority</td>
<td>Handling Precautions</td>
<td>Packing Method</td>
<td>Drying Method</td>
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<tr>
<td><strong>Sound and video recordings</strong></td>
<td>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.</td>
<td>Do not touch magnetic media with bare hands.</td>
<td>Keep tapes wet in plastic bags. Pack vertically in plastic crate or tub.</td>
<td>Air dry, or test vacuum drying without heat.</td>
</tr>
<tr>
<td>Sound and videotapes</td>
<td>Do not freeze.</td>
<td></td>
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</tr>
<tr>
<td><strong>Shellac and acetate discs</strong></td>
<td>Immediately dry. Dry enclosures within 48 hours.</td>
<td>Discs are very fragile. Hold discs by their edges. Avoid shocks.</td>
<td>Pack vertically in ethafoam-padded crates.</td>
<td>Air dry, preferably with a record cleaning machine.</td>
</tr>
<tr>
<td><strong>Vinyl discs</strong></td>
<td>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.</td>
<td>Hold discs by their edges. Avoid shocks.</td>
<td>Pack vertically in ethafoam-padded crates.</td>
<td>Air dry, preferably with a record cleaning machine.</td>
</tr>
<tr>
<td>Silver gelatin printing out and developing out papers</td>
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</tr>
<tr>
<td><strong>Black and white negatives</strong></td>
<td>Freeze or dry within 48 hours.</td>
<td>Do not touch emulsion with bare hands.</td>
<td>Keep wet. Pack in small plastic bags inside boxes.</td>
<td>Order of preference: 1. Air dry, 2. thaw and air dry, 3. freeze dry. Do not vacuum dry.</td>
</tr>
<tr>
<td>Polyester based film, nitrates and acetates in good condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Priority</td>
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<td>-------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Deteriorated nitrates with soluble binders (negatives from before 1951, if they are sticking to enclosures)</td>
<td>Immediately freeze or dry. Recovery rate may be low.</td>
<td>Do not blot.</td>
<td>Horizontally.</td>
<td>Air dry; thaw and air dry; test freeze drying.</td>
</tr>
<tr>
<td>Deteriorated acetates (negatives with a vinegar smell, and shrinkage)</td>
<td>Immediately freeze or dry. Recovery rate is low.</td>
<td>Handle carefully—swelling of emulsion.</td>
<td>Horizontally.</td>
<td>Air dry; thaw and air dry; test freeze drying.</td>
</tr>
<tr>
<td>Gelatin dry plate glass negatives</td>
<td>Freeze or dry within 48 hours.</td>
<td>Handle with care—glass.</td>
<td>Keep wet. Pack in plastic bags, vertically in a padded container.</td>
<td>Air drying preferred; or thaw and air dry; freeze dry.</td>
</tr>
<tr>
<td><strong>Black and white transparencies</strong></td>
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</tr>
<tr>
<td>Glass lantern slides, silver gelatin</td>
<td>Dry or freeze within 48 hours.</td>
<td>Handle with care—loose binding tapes and glass.</td>
<td>Vertically in a padded container.</td>
<td>Air drying preferred; thaw, and air dry.</td>
</tr>
<tr>
<td><strong>Color prints and negatives</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prints and negatives such as Kodacolor, Ektacolor, and Fujicolor</td>
<td>Freeze or dry within 48 hours.</td>
<td>Do not touch binder with bare hands.</td>
<td>Keep wet. Pack in plastic bags inside boxes.</td>
<td>Order of preference: 1. Air dry, 2. thaw and air dry, 3. freeze dry. Do not vacuum dry.</td>
</tr>
<tr>
<td><strong>Color transparencies</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Color slides and sheet films such as Kodakchrome, Ektachrome, Ansccolor and Fujichrome</td>
<td>Freeze or dry within 48 hours.</td>
<td>Handle by mounts or edges.</td>
<td>Keep wet. Pack in plastic bags inside box.</td>
<td>Order of preference: 1. Air dry in mounts if possible, 2. thaw and air dry, 3. freeze dry. Do not vacuum dry.</td>
</tr>
<tr>
<td>Motion pictures</td>
<td>Rewash and dry within 48 hours.</td>
<td></td>
<td>Keep wet. Pack in plastic bags or cardboard cartons lined with garbage bags.</td>
<td>Arrange with a film processor to rewash and dry.</td>
</tr>
<tr>
<td>Material</td>
<td>Priority</td>
<td>Handling Precautions</td>
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<tr>
<td><strong>Microforms</strong></td>
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<tr>
<td>Microfilm rolls</td>
<td>Rewash and dry within 48 hours.</td>
<td>Do not remove from boxes; hold carton together with rubber bands.</td>
<td>Keep wet. Pack (in blocks of 5) in a cardboard box lined with garbage bags.</td>
<td>Arrange for a microfilm processor to rewash and dry.</td>
</tr>
<tr>
<td>Aperture cards</td>
<td>Freeze or dry within 48 hours.</td>
<td></td>
<td>Keep wet. Pack in plastic bags inside boxes.</td>
<td>Air dry, or thaw and air dry.</td>
</tr>
<tr>
<td>Jacketed microfilm</td>
<td>Freeze or dry within 48 hours.</td>
<td></td>
<td>Keep wet. Pack in plastic bags inside pail or box.</td>
<td>Air dry, or freeze, thaw and air dry.</td>
</tr>
<tr>
<td>Diazo and vesicular microfiche</td>
<td>Freeze or dry within 48 hours.</td>
<td></td>
<td>Interleave between envelopes and pack in milk crates or cartons.</td>
<td>Air dry, or freeze, thaw and air dry.</td>
</tr>
</tbody>
</table>


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