

Office of the Public Records Administrator
and State Archives

Recovery Techniques for Damaged Records

DISASTER RECOVERY PLAN
for Connecticut State Agencies,
Towns and Municipalities

Connecticut State Library
Hartford, Connecticut
1999

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PLAN BEFORE DISASTER STRIKES

A disaster plan consists of two parts. The first part covers the actions that should be taken in advance of a disaster or emergency situation. The other part of the plan focuses on the actions that must be taken after the emergency has occurred.

The first activity is risk assessment. Risk assessment should include an inspection of the physical storage environment. A written report documents the problem areas that must be corrected. The Office of the Public Records Administrator and State Archives has published guidelines for record storage areas entitled *Required Minimum Standards for Public Records Facilities*. These guidelines include a form called *Public Records Storage Facility Inspection Report* that can be used to document the condition of the records storage facility (EXHIBITS #18, #19 of State Manual). This form can also be obtained from the Office of the Public Records Administrator. These excellent risk assessment guidelines can be used in the initial phase of disaster planning. Specific regulations, *AR 11-8-1 to 11-8-12*, exist concerning the evaluation of records storage vaults.

Risk assessment must include electronic records. An agency should analyze system tapes or individual hard drives backup schedules, system password protection, and system anti-virus protection.

In addition, a disaster plan should incorporate the following:

- ◆ It is important to identify which records are vital in order to protect the documents that are essential for continuing operations.
- ◆ All information collected should be organized and the plan should be written to reflect each possible disaster such as flood, fire, earthquakes, sabotage, computer virus, power outage, bomb threats, etc.
- ◆ It is important to know your internal environment and to assess the facility.
- ◆ Processing procedures should be documented. It is important to know how each staff member performs his/her job and how work flows through the organization.
- ◆ Contracts or blanket purchase orders should be set up with vendors in advance to prepare for disaster assistance.
- ◆ It is important to keep the plan up-to-date. The plan should be updated two times per year.
- ◆ It is essential to conduct staff training in emergency response.
- ◆ Full organizational involvement in the development of the plan is important.

Along with risk assessment, an agency or municipality must identify vital, archival, or long term records in order to establish priorities for disaster recovery. Part of the emergency planning process may include the reproduction of these records to microfilm and dispersal to a remote location. It should always include the back-up and dispersal of electronic records.

Which records are most important to save? (Any records marked “permanent” in a retention schedule i.e. master patient index, land records, vital records, minutes of town boards and commissions).

RECORD TYPE	FORMAT	LOCATION
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

Along with risk assessment you need to establish a disaster response team. Headed by a disaster recovery coordinator, develop a “calling tree” of people to contact in the event of an emergency.

Who will be the disaster recovery coordinator? _____

Who will be listed to assist in emergency response? It should include people who are responsible for various areas/units of your facility/agency or departments of your municipality. The first person on this list may or may not be the disaster recovery coordinator. This list might include the following names and phone numbers and should also include alternates:

- a. The person who will be contacted when disaster strikes
- b. The Director/Agency Head or Administrative Head of Municipality
- c. Disaster Recovery Coordinator
- d. Plant Facilities/Maintenance Supervisor
- e. Records Management Liaison Officer
- f. Local Fire Department
- g. Local Police Department
- h. Department Head list (attach here)
- i. Others:
Documentation coordinator
Public relations and security officer
Salvage and supplies coordinator

The list should be updated two times per year. Include roles and responsibilities for each title. An updated list of all staff with phone numbers should be included as well as a list of emergency contact people such as the alarm company, sprinkler company, fire alarm company, plumber, and electrician.

Disaster recovery coordinator must call Records Management Liaison Officer or sub-liaison Records Officers of respective departments or the administrative head of municipality at telephone number (____) ____-____.

Verify with the Building Engineer or Fire Department that the area is safe to re-enter and use electricity.

Reduce the temperature and humidity in the room where the records are stored.
Keep the air circulating.

Contact the Office of the Public Records Administrator Connecticut State Library at 860-566-5088.

If the Public Records Administrator is not available, call the Northeast Document Conservation Center at 978-470-1010 which provides 24-hour disaster coverage by telephone or any vendor who provides disaster assistance by phone.

Contact the Agency Insurance Manager and/or legal counsel (name and telephone number _____).

Or contact the municipal insurance manager and/or legal counsel (name and telephone number _____).

Handle the records as little as possible.

Within 48 hours of exposure to water, decide how to treat the records and stabilize either by freezing or drying.

CORRECTIVE ACTION MUST START AS SOON AS POSSIBLE

Water damage to records may be a result of fire control efforts, flooding, hurricanes or other natural and man-made emergencies. The key to salvaging records is using time wisely.

Key recovery actions include the following:

1. Follow the Checklist (p.5) in descending order to fulfill initial preparedness. The Medical Record Director/Records Management Liaison Officer (RMLO) and/or sub-liaison Records Officers of respective departments will alert the appropriate staff that live nearby of the disaster and need of their assistance.
2. Before taking recovery action, make sure that the physical environment has been stabilized. Assume that all records sustained water damage and handle as little as possible. Even if a record is soaked, most of the writing will likely remain legible. The paper will not disintegrate if the record is not over-handled and proper action is taken immediately. Mold, however, begins to grow on records within 48-72 hours after exposure to water. Once mold begins to form, the chance of information loss and the cost of recovering the records increases dramatically. To control mold growth, it is important to reduce the temperature, reduce the relative humidity, and keep air circulating in the area housing the records. Heat increases the formation of mold. The ideal temperature is between 50° F and 60° F. Relative humidity levels should be at 40%. Dehumidifiers will help achieve this level. To circulate air, fans should be placed throughout the area as soon as it is safe to use electricity.
3. There are two alternatives to consider when handling water-damaged records.
 - A. The records are unsalvageable and should be destroyed. This is an alternative only if they are near the end of their retention period and after consultation with the RMLO or with the custodian of the records. Approval to destroy the records must be obtained from the Public Records Administrator.
 - B. The records are salvageable by drying the records. Only a very small number can be dried manually. Freeze drying is the preferred method of drying a large volume of paper records.
4. If the volume of water-damaged records is manageable, first attempt to air dry in a space that is cool and dry. Open or fan out the records very gently and place blotter or unprinted newsprint, or paper towels between the pages to assist in drying. Wet paper does not slide like normal dry paper. Trying to open or close a record will likely result in tearing unless handled very gently. Covers should be patted dry with damp mats.

If air drying is not feasible, place the records in the freezer. For freezing, wrap in waxed paper or freezer paper. Place the paper every few inches between stacks of documents to facilitate thawing and drying. Small blocks are quicker to process than large blocks. Inventory these records by maintaining a list as the records are removed from shelves/carts and placed in boxes or crates. During shipping, do not place records storage boxes or crates on top of each other. Make sure that care is taken to maintain low temperatures during this transporting period.

For a large volume of water damaged records, outside freezing and drying services should be utilized after consultation with the agency's insurance agent and agency's fiscal administrator. Recovery is a two-stage process involving freezing and restoration. It is an expensive process.

Before thawing, consult an expert or conservator. If the records need to be disinfected or cleaned after exposure to mud or other elements, water damage experts should be utilized in consultation with the agency/municipality insurance agent, and the Public Records Administrator and/or designee.

5. Special Handling Needs or Considerations

- A. **Books:** If rinsing is necessary, hold book closed. If book is partially wet or damp, the book should be stood on its top or bottom edge with covers opened to 90°. Then it should be air dried. A very wet book should be laid flat on a clean surface. Interleave less than 20% of the book with absorbent material and replace interleaving when damp. If there are too many books to air dry in 48 hours, wrap in freezer or waxed paper. Pack spine down in sturdy containers and freeze. Interleaving is only required if materials are saturated or if coated stock. Coated stock needs to be interleaved between every sheet.
- B. **Flat paper:** Air dry flat as individual sheets or small piles up to ¼ inch. Interleave and replace interleaving when damp. Do not unfold or separate individual, wet sheets. If there are too many items for air drying, interleave by groups or individually with freezer or waxed paper. Papers should be packed or files supported and standing up in sturdy containers. Containers should be packed only 90% full. The paper should then be frozen.
- C. **Fire-Damaged Records:** If the records are irreparably damaged, photocopy and destroy the original after approval by the Public Records Administrator. If salvageable, consult an outside cleaning service that specializes in handling fire-damaged records. Charred records that are not wet or damp are stable and are not physically a priority.

- D. **Photographic Materials:** Photographic materials should not be frozen unless they can be professionally dried, since the formation of ice crystals may rupture the emulsion layer and leave marks on the film. Immediate air drying is the preferred recovery method for all photographic materials.

Color prints cannot be salvaged except by air drying. Small amounts of prints should be separated and either laid flat or hung to dry. This should be done immediately.

- Monochromatic Materials:** For emergency stabilization or salvage, wet muddy black-and-white negative film and prints should be kept wet by placing in polyethylene bags. For recovery, the materials should be taken out of the plastic bags and washed in cool, clear water. The materials should not remain in water longer than 48 hours because there is the risk that the emulsion could lift from the backing.

Disaster recovery suppliers and services provide emergency service for cleaning and drying black-and-white film of all varieties. Local film processors may be prepared to offer a similar service for microfilm and other film materials. Arrangements for cleaning and drying should be made as soon as possible and the materials should be shipped to the laboratory in cold water. If it will be several hours, it may be necessary to add ice (not dry ice) to the water to keep it cold. If the film or microfilm is a duplicate, recopying is more expedient and less expensive than recovery.

If professional drying cannot be arranged, photographic material may have to be frozen. In this event, freezing should be as rapid as possible to keep ice crystal size to a minimum.

- Color Slides and Color Negative and Positive Film:** Unless color materials can be transported to a professional photographic service within 48 hours after immersion in water, colored layers will separate, and the dyes will become weak or will be lost altogether. After this time, the best way to save a large collection is to freeze it until special arrangements can be made.

- D. **Magnetic Media:** Magnetic media must be professionally cleaned and dried before it can be used again. Wear gloves when handling to avoid scratching surfaces. Recovery of water-damaged magnetic media is a risky business with no guarantees. It is better to have important data backed up and stored at an off-site location if retrieval should become necessary.

- E. **Audio and Video Cassettes:** Many cassettes formats cannot be safely disassembled for cleaning. If more cleaning is required than wiping off the case, the best option is to contact a recovery vendor. The tapes should be removed from the casing, rinsed in clean distilled water, dried with lint-free towels and inserted into a new casing and copied.

<u>TOOLS/SUPPLIES</u>	<u>SUPPLY SOURCES</u>	<u>PHONE NUMBER</u>
1. Absorbent paper		
2. Camera with film		
3. Dehumidifiers		
4. Dusk masks		
5. Extension cords		
6. Fans		
7. First Aid Kits		
8. Flashlights/batteries		
9. Freezer paper/waxed paper		
10. Garbage cans, large plastic		
11. Hard hats		
12. Ladder		
13. Milk Crates/Record Storage Boxes		
14. Mobil phones		
15. Mops/pail		
16. Paper towels		
17. Plastic garbage bags		
18. Plastic sheeting		
19. Polyethylene bags		
20. Protective face masks		
21. Radio, battery operated		
22. Sponge, Gonza		
23. Tool kits		
24. Transport carts		
25. Wet/dry vacuum		
26. Work gloves		
Additional items:		

Consider what is on-site versus what will need to be purchased or rented in case of a larger incident. An in-house response kit and list of equipment and its location will be useful.

The questions are worded so that check marks in the NO column indicates the need for corrective action.

	<u>YES</u>	<u>NO</u>
1. Do you know the emergency mission of your office?	()	()
2. Are all records vital to your emergency mission stored at your relocation site or accessible to it?	()	()
3. Are <u>only</u> records essential to emergency missions at the relocation site?	()	()
4. Are records at the relocation site kept current?	()	()
5. Are they adequately arranged and listed or indexed?	()	()
6. Are obsolete materials systematically removed?	()	()
7. Are statements of emergency mission, delegations of authority and pre-drafted emergency issuances available at relocation site?	()	()
8. Are there adequate records personnel there?	()	()
9. Are voluminous records vital to eventual safeguarding of legal rights dispersed elsewhere?	()	()
10. Are records necessary to facilitate establishment of new programs at relocation site?	()	()
11. Has the need for such records been checked against local library holdings?	()	()
12. Has the availability of microfilm readers and computer hardware in the area been checked?	()	()
13. Have field office plans been coordinated with central office plans?	()	()
14. Is there provision, through reports or otherwise, for periodically checking on the adequacy of your vital records program?	()	()
15. Were the records at the relocation site effective for reconstruction during the last alert?	()	()
16. Is your program so simple and inexpensive that you anticipate no difficulties in keeping it up to date?	()	()
17. Have the staff been trained in emergency response?	()	()

Although there will be exceptions, these methods are listed in order of increasing costs.

- I. BUILT-IN DISPERSAL
 - a. Are there other copies? If so, where are they?
 - b. Is all vital information on these extra copies?
 - c. Is there enough geographic dispersal to offer sufficient protection (two or more well-separated locations)? (1) If yes, is one copy at least outside of the City or Town Hall area?

- II. DESIGNED DISPERSAL
 - a. Are there any existing available copies of this information that can be dispersed to the Vital Records Center?
 - b. Are there any copies of this information that can be dispersed within a short time after use by present recipient?
 - c. Can we make an extra copy at the time the record is created?
(1) What is the easiest and lowest cost way to do this (carbon copy, photocopy, etc.)?

- III. ON-SITE VAULTING
 - a. If records are referred to frequently, not prepared in more than one copy, and the information changes from day-to-day, is there a fire-proof vault or safe nearby?
 - b. If not, what kind of equipment would be needed? What will it cost?

- IV. EVACUATION
 - a. Should the original be protected off-site?
 - b. If so, would we need to make a copy for use in Department? How?

- V. DUPLICATION
 - a. Can we reproduce the information to send to Vital Records Center?
 - b. What would be the lowest cost method (microfilm, fiche, photocopy, computer tape, etc.)? What is the cost?
 - c. Who should do it?

This is a partial list of disaster management suppliers and services that have been provided by the Northeast Document Conservation Center (NEDCC). NEDCC is able to provide basic advice for minor emergencies and reference to service providers for large scale recovery. Staff conservators are also available for expert consultation. The address is 100 Brickstone Square, Andover, MA 01810-1494 and the telephone number is (978) 470-1010 (24-hr. hotline). The fax number is 978-475-6021 and web site address is www.nedcc.com. NEDCC stipulates that the list does not constitute their endorsement of any of the vendors listed. The local phone directory should be consulted for any additional local vendors. It is a good idea to contact local vendors in advance to determine what types of services they provide.

American Freeze-Dry, Inc. 411 White Horse Pike Audubon, NJ 08106 (609) 546-0777	Vacuum freeze drying
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Americold 555 Pleasant Street Watertown, MA 02172 (617) 269-6330 or (617) 923-2100	Freezer storage space
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Blackman-Mooring Steamatic Catastrophe, Inc. 303 Arthur Street Fort Worth, TX 76107 (800) 433-2940 (817) 332-2770 (24-hr. hotline) FAX (817) 332-6728	Disaster recovery services, odor removal, vacuum freeze drying
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Disaster Recovery Services 414 Blue Smoke Court South Ft. Worth, TX 76105 (800) 856-3333 (24-hr. hotline) (817) 535-6793 FAX (817) 536-1167	Disaster recovery and recovery planning services, vacuum freeze drying
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Document Reprocessors 5611 Water St. Middlesex (Rochester), NY 14507 (716) 554-4500 (24-hr. hotline) (888) 4-DRYING FAX (716) 554-4114	Vacuum freeze drying, disaster recovery of computer media, microfiche and microfilm, books, business records
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DISASTER RECOVERY SUPPLIERS AND SERVICES (cont.)

Dorlen Products	Surface water detectors
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6615 West Layton Ave.
Milwaukee, WI 53220
(414) 282-4840
(800) 533-6392
FAX (414) 282-5670

Eastman Kodak Co.
Disaster Recovery Lab
1600 Lexington Ave.
B326, BIS/FFF, Dock NOP, Room 3619
Rochester, NY 14652-5118
(800) EKC-TEST (24-hr. hotline)

No-charge salvage reprocessing of Kodak original silver gelatin master microfilm only

Excalibur
101 Billerica Avenue
5 Billerica Park
North Billerica, MA 01862-1256
(978) 663-1700 or (800) 726-3669
FAX: (978) 670-5901

Computer recovery service

Federal Emergency Management Agency (FEMA) Headquarters
500 C. Street, SW
Washington, DC 20472

Free publications relating to emergency preparedness

Fire Equipment
88 Hicks Ave.
Medford, MA 02155
(781) 391-8050
FAX (781) 391-8835

Fire extinguishers/detectors

John E. Allen, Inc.
116 North Avenue
Park Ridge, NJ 07656
(201) 391-3299
FAX: (201) 391-6335

Nitrate movie film duplication

DISASTER RECOVERY SUPPLIERS AND SERVICES (cont.)

Midwest Freeze-Dry, Inc.
Midwest Center for Stabilization and

Freeze-drying of historical volumes, manuscripts, microfilm, blueprints

Conservation
7326 North Central Park
Skokie, IL 60076
(847) 679-4756
FAX (847) 679-4191

Munters Corporation - Moisture
Control Services
2389 Main Street
Glastonbury, CT 06033
(860) 633-2665
(800)797-5020 (24-hr. hotline)

Disaster recovery services, building
dehumidification, drying
services, microfilm drying
services

National Fire Protection Association
11 Tracy Drive
Avon, MA 02322
(800) 344-3555
FAX: (800) 593-6372

Fire prevention information and standards

New England Micrographics
750 E. Industrial Park Dr.
Manchester, NH 03109
(603) 625-1171
FAX (603) 625-2515

Reprocessing of water-damaged microfilm
Off-site storage for microfilm & computer
media (Fuji film and Ilford color film)

ProTex
3515 Leland Street
Bethesda, MD 20815
(301) 718-1659
FAX (301) 654-5153

Disaster recovery supplies for library
collections; carry the REACT-PAK ® and
RESCUBE®; innovative emergency
supplies

The Quality Rubber Co.
P.O. Box 71
Sedalia, MO 65302-0071
(800) 597-9947
(660) 826-4641 fax (800) 676-5807

Sponges for soot removal

DISASTER RECOVERY SUPPLIERS AND SERVICES (cont.)

Raychem Corp.
TraceTek Products Group
300 Constitution Dr.

Water-sensing cable

Menlo Park, CA 94025
(650) 361-4602; (650) 371-5579

Restoration Technologies, Inc.
3695 Prairie Lake Court
Aurora, IL 60504
(800) 421-9290; (630) 851-1551
FAX (630) 851-1774

Disaster recovery of electronic equipment

Solex Environmental Systems
P.O. Box 460242
Houston, TX 77056
(713)963-8600
(800) 848-0484 (24 hot-line)
FAX: (713) 461-5877

Disaster Recovery, dehumidification,
building drying services

Sound Studios, Inc.
1296 East 48th Street
Brooklyn, NY 11234-2102
(718) 338-8284 or (212) 870-1694

Consulting and treatment of audio
tape collections

SPECS Brothers
P.O. Box 5
Ridgefield Park, NJ 07660
(201) 440-6589 or (800) 852-7732
FAX: (201) 440-6588

Recovery of videotapes. Cleans and
copies archival video and audio tapes

VidiPax
450 West 31st Street, 4th floor
New York, NY 10001
(212) 982-5676

Recovery of video and audio tape formats

World Wide Drying
Silver City Restoration
24 Weir Avenue
P.O. Box 750
Taunton, MA 02780
(508) 823-0189; 442-1911 (24-hr. hotline)
FAX: (508) 823-9374

Dehumidification and restoration services

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Eulenberg, Julia Niebuhr. "Disaster: Planning for Recovery," in Katherine Aschner, ed., *Taking Control of your Office Records: A Manager's Guide* (Boston: G.K. Hall and Company, 1983).

Mortham, Sandra B. "Bureau Begins Records Scheduling and Disposition Reengineering Process," (Technical Bulletin XI, No. 2: The Florida Bureau of Archives and Records Management, April-June 1997).

National Archives and Records Administration, Office of Records Administration. "Vital Records and Records Disaster Mitigation and Recovery," (College Park, MD, 1996)

National Institute for the Conservation of Cultural Property, Inc., *Emergency Response and Salvage Wheel*, 1997.

Waters, Peter. *Procedures for Salvage of Water-Damaged Library Materials*, (Washington, DC: Library of Congress, 1988).