

DISASTER PREPAREDNESS PLAN

MILNER LIBRARY ILLINOIS STATE UNIVERSITY

Revised January 2002

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1.0 EMERGENCY TELEPHONE NUMBERS

1.1 ON CAMPUS

FOR FIRE OR LIFE-THREATENING EMERGENCY **911**

Facilities Management 8-2036

(8:00am to 5:00 pm, Monday -Friday)

Jerry Carlson, contact 8-3972

Message Service Operator (All other times) 823-0411

Cheryl Elzy, Dean 8-3481

OR

Beth Schobernd, Associate Dean 8-3481

After emergency personnel are contacted, call Disaster Team Leader and at least one additional member of the Disaster Team. Team members will complete the calling chain.

Disaster Team

Barbara Feldman (Disaster Team Leader)	8-7463
DISASTER TEAM	
Beth Schobernd	8-3481
Dick Christensen	8-2860
Van Schwartz	8-3486
Teresa Thomason	8-2734
Rita Ganser	8-3440
Corine Kinsolving	8-7542
Dan McGurk	8-3953
Jason Paul	8-3754
Sheila Hufeld	8-7460
Kathleen Lonbom	8-7443

Division Contact - For affected area or floor

ACM - Cecile Jagodzinski	8-3450
Archives - Jo Ann Rayfield	8-5525
Circulation - Joan Winters	8-3457
CRM - Priscilla Matthews	8-5973
Coll. Dev. - Cecile Jagodzinski	8-3449
Documents - Angie Bonnell	8-2354
Duplicating/Copiers - Larry Mays	8-3469
Fl. 1 - Sharon Naylor	8-7188
Fl. 4 - George Palmer	8-3485
Fl. 5 - Chad Buckley	8-7445
Fl. 6 - Steve Meckstroth	8-5468
GRD - Kathe Conley	8-8267
Instruction - Lisa Hinchliffe	8-7045
Media Resource Center - Chris Kubiak	8-7452
Preservation - Barbara Feldman	8-3481
Special Collections - Steve Meckstroth	8-5468

Systems - Dick Christensen 8-2860

1.2 Other numbers which may be needed by Disaster Recovery Team

On Campus

Archives	8-5525
Building Service Worker 24-hour Pager	8-0243
Central Receiving Supervisor, Larry Starkey	8-8011
Environmental Health & Safety , Steve Eddington	8-8325
Facilities Management (for electricity*, water, heat, air conditioning, plumbers, electrician, carpenter, exterminator, janitorial services)	8-2036
Health Services	8-8655
Heating Plant, Chuck Fleming	8-3416
Parking Services	8-8391
Photographic Services	8-8361
Police, Campus (non-emergency)	8-8631
University Galleries, Barry Blinderman	8-5487
Bill Conger	8-8191
Angela Barker	8-5487

*There is no natural gas in Milner Library.

Off Campus

Blackmon-Mooring-Steamatic Catastrophe	800-433-2940
(BMS CAT - will consult with Bloomington Normal Steamatic or other cleaning service. Don Haggard, Scott Bevier, contacts	
Steamatic of Bloomington-Normal	309-827-6900
(Bill Owens, Benjamin Owens)	
Midwest Freeze Dry	847-679-4756
ProQuest, Ann Arbor (microfilm consulting)	800-521-0600
Bob Mottice (rmottice@umi.com)	Ext. 2619
Eastman Technical Information (for photographic materials information)	800-242-2424

(Kodak Environmental Services direct line: 585-477-3194)

Kodak Microfilm Disaster Recovery Lab (Howard Schwartz) 800-352-8378

Bill Henderson, U of I Preservation Librarian Emeritus 217-333-6191

Disaster Team Alternates

Candy Arthur (for Dan McGurk) 8-3527

Marie Bobrosky (for Rita Ganser) 8-5469

Barb Brandt (for Sheila Hufeld) 8-5937

Sheryl Siebert(for Dick Christensen) 8-5464

Betsy Cole (for Corine Kinsolving) 8-7462

Jim Cunningham (for Jason Paul) 8-3898

Marilyn Edwards (for Barbara Feldman) 8-5941

Chris Kubiak (for Teresa Thomason) 8-7452

George Palmer (for Van Schwartz) 8-3485

Chad Buckley (for Kathleen Lonbom) 8-7445

2.0 DISASTER PREVENTION

Natural disasters such as floods, storms and earthquakes cannot be prevented; however, the severity of their effects can be lessened by preparing for recovery from them. Man-made disasters often can be prevented. Routine inspections of a facility should be conducted to see that conditions which invite disaster do not exist.

Leaky pipes, frayed electrical wires, untended machinery, open windows and structural damage can result in unnecessary destruction of materials and possible loss of life. Machinery should be unplugged when not in use. Aisles and work areas should be kept free of unprocessed materials and trash. Cleaning and spraying for insects and rodents should be performed on a regular basis.

Temperature and humidity should be maintained at a constant 68 degrees and 50% humidity. Materials should be properly stored and protected from dirt, dust and light. Ultra-violet filters should be placed over fluorescent lights and on windows. Rules regarding food, beverages, smoking and unauthorized access should be established and enforced. Security checks should

be made at closing time to ensure all exits and windows are locked, all equipment has been turned off or unplugged, all lights and water faucets are off, no cigarettes are smoldering in ashtrays or wastebaskets, and no unauthorized personnel are in the building.

Staff members should be familiar with the layout of the building and of possible danger areas. They should know the location of all fire extinguishers and alarms and how to operate them. Fire exits and alternate escape routes should be clearly marked. Evacuation procedures should be established and practiced regularly.

3.0 THE DISASTER PLAN

Disasters can happen to any library. Knowing what to do and what not to do before, during and after a disaster will prevent panic, lessen the severity of damage, and enable the library to implement an organized recovery operation after the dust settles, the smoke dissipates, or the water subsides.

The Milner Library Disaster Preparedness Plan is designed to provide the organization of salvage operations in the event of an emergency. Techniques and procedures for the recovery of various types of library materials are detailed in the following sections, along with the names and telephone numbers of individuals crucial to the recovery effort. Supplies and equipment necessary for library disaster recovery are listed, as well as their locations on or off campus. Two copies of the disaster plan are provided to each member of the recovery team. One copy is also provided to each division in the library, to library administration and to ISU Offices of Physical Plant, Police, and Health and Safety. The disaster plan is reviewed annually, with updates to telephone and supply lists made as needed throughout the year.

All staff members should read and have access to the disaster plan. The Emergency Telephone Numbers page should be posted near a phone in each division. Training in recovery techniques is available to all staff members and mandatory for those individuals serving on the recovery team.

All sources of supplies and services should be contacted in advance to explain the library's needs and purpose. Sources should then be contacted annually to determine whether those supplies and services are still available, to remind the suppliers of their commitment, and to confirm the name of contact persons. Keep in mind that in a wide-spread disaster, the sources contacted may not be available because they have their own damage or are assisting someone else. Outside help may not be available so it is recommended that recovery materials be kept on site whenever possible.

4.0 MILNER LIBRARY DISASTER RECOVERY TEAM

The members of the Preservation Committee comprise the in-house disaster recovery team. Each member of the Committee should choose an alternate to assist with recovery in his/her absence. Each member of the recovery team should have two copies of the disaster plan -- one at work and one at home -- and be sure that replacement pages are inserted in both copies as they become available.

4.1 DISASTER RECOVERY TEAM LEADER

The Preservation Librarian serves as the disaster recovery team leader. In the absence of the Preservation Librarian, the next most-experienced member of the recovery team serves as leader.

The disaster recovery team leader is responsible for: overall management of the salvage operation; coordination with the administrative office for wages, supplies, transportation and services; appointment and training of crew captains; assessment of damage and design of recovery plan.

Disaster recovery operations should not begin until the team leader is present and has designated the plan of operation.

4.2 CREW CAPTAINS

Crew captains are appointed from the remaining available members of the recovery team at the time of the disaster. They are trained in their respective duties by the team leader, and in turn, train those crews assembled to work with them. The responsibilities of the crew captains and their crews are as follows.

Work crew captain: assemble and coordinate work crews, control work and materials flow.

Work crews: provide personnel to carry out recovery plan designated by team leader. This may include removal of damaged materials from the disaster site; arrangement for air drying; interleaving; wrapping, record keeping and crating for freezing; cleaning dried materials; and other duties.

Bibliographic control crew captain: inventory and record destroyed and damaged materials; arrange for photographing of damage and recovery.

Bibliographic control crew: record all items lost or damaged in a disaster. Separate lists should be created for destroyed materials, materials to be repaired in-house, materials sent off-site for freezing, and those to be sent to the commercial bindery.

Supplies crew captain: assemble and distribute necessary supplies and equipment; arrange for replenishment of supplies as needed; arrange for food for work crews.

Supplies crew: distribute needed supplies and equipment to various work sites; monitor supply quantities at work sites and replenish when needed.

4.3 ADMINISTRATIVE OFFICE

The administrative office will secure budget allocations for wages, supplies, transportation and services and will serve as liaison with Facilities Management during the recovery. One administrator should be designated to work with the disaster team to guarantee clear and consistent communication. All contact with the media concerning the disaster will be handled by the administrative office. In the event of library closure or change in work schedules, the administrative office should notify library personnel through local media.

4.3.1 MEDIA CONTACTS

Newspaper

The Pantagraph 829-9411

Radio

WBNQ.....829-1221

WGLT.....438-2255

WIHN.....888-4496

WJBC.....829-1221

WBWN.....829-1221

Television

WEEK (25).....663-2525

WHOI (19).....663-1919

WMBD (31).....827-3791

WYZZ (43).....661-4343

TV 10 News.....438-5481

5.0 LOCATIONS OF EMERGENCY EQUIPMENT AND SUPPLIES

5.1 ON CAMPUS

Batteries (flashlight)

Conservation Lab refrigerator

Book ends (plastic)

Disaster cabinet

Boxes (flat)

Conservation Lab cabinet near north stairs

Bricks

Conservation Lab

Brooms

Facilities Management

Buckets

CRM under north stairs, Facilities Management

Camera

Disaster cabinet, Floor 3 Office

Charcoal	Disaster cabinet
Chemical sponges	Disaster cabinet
Clothes pins	Disaster cabinet
Crates	157 A (Barbara's office)
Dehumidifiers	Archives, Special Collections, Facilities Management
Disaster cabinet	Conservation Lab
Disaster supply kit	Disaster cabinet
Drying racks	CRM under north stairs
Drying space	Facilities Management, Milner Library Rm. 184
Duct tape	Disaster cabinet
Extension cords	Disaster cabinet, Facilities Management
Fans	Available throughout Library, Start in CRM
First aid kits	Circulation Desk, Health Services
Flashlights	Disaster cabinet
Fork lift	Facilities Management

Freezer paper	Disaster cabinet
Fungicides	Safety, then Facilities Management
Garbage bags	Conservation Lab shelves (north wall), Facilities Management
Generators, portable	Facilities Management
Hair dryer	Disaster cabinet
HEPA vac	Environmental Health & Safety
Hygrothermograph	Special Collections; Archives
Ladders	Floors 1,4,5; Special Collections; Floor 3 janitor closet
Library trucks	CRM; Circulation
Masks	Disaster cabinet; Facilities Management
Mops	Facilities Management; Floor 3 janitor closet
Name tags	Disaster cabinet
Newsprint	157A (Barbara's office)
Nylon filament (fishing line)	Disaster cabinet

Pallets	Central Stores
Paper towels	Disaster cabinet
Plastic sheeting	Conservation Lab; Facilities Management
Press boards	Conservation Lab
Refrigerator trucks	Facilities Management
Respirators	Disaster cabinet; Special Collections
Rubber gloves	Disaster cabinet; Facilities Management
Scales	Receiving, Rm. 163
Sling psychrometer	157 A (Barbara's office)
Sponges	Conservation Lab; Facilities Management
Sump pump	Facilities Management
Thymol chamber	Special Collections
Thymol crystals	Disaster cabinet
Vacuum cleaner, floor	Fl. 3 Janitor's Closet

Vacuum cleaner, small Conservation Lab

Water hoses Facilities Management

Wet-dry vacuum Room 163; Facilities Management

5.2 OFF-CAMPUS SOURCES OF EQUIPMENT AND SUPPLIES

Boxes Alamo II (Cam McGown) (452-7400)

U-Haul (Brian Woody) (829-3337)

Target (Kathy Powell) (454-5648)

Chemical Sponges Hydra Sponge Co., Inc. (800-325-9922) Fax (314-349-5660)

(John Von Ahn or Ted Tripolitis)

Clothes pins, plastic Target (454-5648)

Walmart (451-1100)

Dehumidifiers Weaver's Rental (Laird Getty) (452-7368)

Fans Weaver's Rental (Laird Getty) (452-7368)

Freezer facilities Jewel-Osco (901 S. Cottage) (Michael Somerlet) (454-6089)

Freezer paper (24 hr. delay) Koldaire (Ed Rogers) (829-7522)

Newsprint	Pantagraph (Jack Bolender)(829-9411)
Nylon monofilament (fishing line, 12 lb.)	Walmart (451-1100)
Pallets	Waugh Foods (800-373-8533) (Norm Ralph)
Paper towels	Koldaire (Ed Rogers) (829-7522)
Plastic sheeting	Menard's (Bob Jorguson)(452-6299)
Temperature/humidity gauges	Daigger Laboratory Equipment & Supplies (Sam Byerly) (800-621-7193 ext. 235) Fax (800-320-7200)

6.0 DISASTER RECOVERY

6.1 GENERAL INSTRUCTIONS

If a disaster strikes when the building is occupied, the first concern should be for the safety of the individuals inside. Escape routes, alternate routes, and procedures for evacuating the building should be clear to all personnel and visitors. Practice drills should be conducted on a regular basis to eliminate panic during "the real thing." Drills should be timed. Individuals should be assigned the task of determining whether the building has been completely evacuated.

Most disasters tend to occur when the building is unoccupied, during the early morning hours, on weekends, or during holiday closings. In the event of a major disaster, do not enter the building until it has been declared safe to do so by the Fire Marshal or by Civil Defense personnel.

Ninety-five percent of all disasters will result in water-damaged materials. Keep in mind that in a warm humid environment, mold will develop within forty-eight to seventy-two hours. You must work quickly to salvage damaged materials and to prevent additional damage from occurring.

The following steps are recommended for an effective recovery operation:

6.2 ASSESS THE DAMAGE

The Disaster Team Leader/Preservation Librarian will consult with appropriate personnel to answer the following questions:

How much damage has occurred? What kind of damage is it (fire, smoke, soot, chemical, clean water, dirty water, heat, humidity, rubble, debris)? Is it confined to one area or is the entire building damaged? How much of the collection has been affected (estimate the number of volumes)? What types of materials have been damaged (books, documents, microforms, photographs, computer disks)? Are the damaged items easily replaced or are they irreplaceable? Can they be salvaged by the in-house recovery team, or will outside help be required?

The Team Leader will walk through the entire area and take extensive notes (use a pencil, as ink will run!), and arrange for photographs to be taken to document the damages. She/he will make contacts at this time with the sources of supplies and services, or designate someone else to do so.

6.3 STABILIZE THE ENVIRONMENT

The environment must be stabilized to prevent the growth of mold. Ideal conditions for a recovery operation are 65 degrees and 50% humidity. The following equipment should be readily accessible to help stabilize the environment:

1. Portable generators, in case a power failure occurs. (Facilities Management)
2. Pumps, to remove large quantities of standing water. (Facilities Management)
3. Fans, to circulate the air. (CRM)
4. Thermometers, hygrometers, hygrothermographs and/or sling psychrometers, to measure the temperature and humidity. (Conservation Lab, 157A)
5. Dehumidifiers (Special Collections, Facilities Management) can help to lower the humidity, although they usually are only effective in small, enclosed areas and tend to increase the temperature in a room. They can also freeze up in the lower temperatures required for salvage and recovery operations. Raising the temperature will not lower the humidity--it will only accelerate mold growth. Temperature and humidity should be monitored constantly. If the temperature is too high, the Team Leader will contact Heating Plant for assistance.

The air should be circulated in the damaged area. This may be accomplished by running fans constantly. If possible, they should expel the humid air from the area. Any standing water should be pumped from the area. Extreme caution must be taken, as standing water can conceal hazards.

6.4 ACTIVATE THE IN-HOUSE DISASTER RECOVERY TEAM

Appoint crew captains and organize work crews. Be sure their responsibilities are clearly defined. Disaster recovery team members and other library staff should wear name tags during recovery work. Disaster and recovery area should be inaccessible to the public. No salvage

activity should begin until a plan of action has been determined by the team leader.

Frequent rest breaks should be provided for workers. Food and/or beverages should be available. Arrangements for these will be made by supplies crew captain.

6.5 RESTORE THE AREA

After the damaged items have been removed and the environment has been stabilized, the area must be thoroughly cleaned. Walls, floors, ceilings, and all furniture and equipment must be scrubbed with soap and water and a fungicide. Carpeting, and especially the padding under it, should be carefully examined, as mold will develop rapidly. Removal of smoke odor and fogging with fungicides or insecticides should be performed only by professionals. Cleaning is arranged with Facilities Management. If a commercial cleaning service is needed, arrangements will be made with Facilities Management.

7.0 SALVAGE PRIORITIES

Salvage priorities for each division are filed and kept electronically in the Preservation Librarian's office. Division Heads are asked to review priorities every two years, or at times of changes in the collection such as shelving shifts.

Priorities should be based on criteria such as the following:

Can the item be replaced? At what cost? Would the cost of the item be more or less than restoration? How important is the item to the collection? Is the item available at another library?

Highest priorities would be bibliographic controls, such as card catalogs, shelf lists, and computers and special collections.

8.0 SALVAGE PROCEDURES

8.1 GENERAL INSTRUCTIONS

DO NOT UNDER ANY CIRCUMSTANCES

.....enter an area until it has been declared safe.

.....attempt to open a wet book (one tear costs at least one dollar to mend).

.....attempt to close an open book that is swollen.

.....use mechanical presses on wet materials.

.....attempt to separate books that are stuck together.

.....use bleaches, detergents, water-soluble fungicides, adhesive tapes (or adhesives of any kind), paper clips, or staples on wet materials.

.....use colored paper of any kind during salvage and recovery operations.

.....pack newly-dried materials in boxes or leave them unattended for more than two days - mold may still develop.

.....place saturated materials next to lightly damaged materials.

.....remove covers from books or scores.

Preliminary Control Procedures

1. Follow procedures on the Emergency Telephone Numbers list.
2. Get people out of the area.
3. Take steps to shut off water if possible - contact Facilities Management.
4. Protect endangered areas with plastic sheeting or other appropriate means.
5. Catch dripping water in buckets, waste baskets, etc.
6. Monitor area for water dripping from new areas. Also check floors above and below and adjoining areas if accessible.
7. Take necessary steps to stabilize the environment. Air should be circulating; ideal temperature and humidity are 65 degrees F and 50% RH.

8.2 WATER DAMAGED BOOKS

Ninety-five percent of all disaster damage will be the result of water. In most instances of water damage, the first decision to be made will be whether to air dry or freeze materials. The following section gives criteria for decision-making as well as the instructions for carrying out the drying and freezing of books.

8.2.1 GENERAL INSTRUCTIONS

1. Clear the floors and aisles first.
2. Begin with the wettest materials, probably those on the lowest shelves, unless water came through the ceiling.
3. Keep accurate records for materials detailing which materials have been removed from the disaster site and where they have been taken.

8.2.2 SLIGHTLY DAMP VOLUMES

These materials have only wet edges. They do not require interleaving to soak up excess water and can be air dried.

1. Cover the drying surface with plain newsprint. Newsprint should be replaced as it becomes damp, and the wet paper removed from the drying area.
2. Stand the volume on its head (top) and slightly fan it open. Paperbacks and other books which will not stand on their own may be braced with plastic book ends, wooden press boards or Styrofoam pieces. Position the volumes in the path of circulating air, but do not blow the fan directly on wet paper, since this will cause pages to wrinkle.
3. When almost dry, lay the volumes flat and place weights (not other drying books) on them to minimize distortion. Press boards and bricks from the Conservation Lab can be used for this. Do not stack wet volumes. Do not use mechanical presses.
4. Lightweight volumes may be hung on drying racks or other lines to dry. This works best with single-signature, pamphlet size material. For drying lines, use monofilament nylon, not more than 1/32" diameter and not more than 5-6 feet long, spaced at least 1/2" apart.

8.2.3 DAMP VOLUMES

These materials are wet beyond the edges, but not soaked through. They may require some interleaving and can be air dried.

Interleaving is used to soak up excess moisture in books to speed the air drying process. Use only white paper towels, plain newsprint or polyester web when interleaving.

1. Begin in front and work toward the center, placing interleaving sheets every 50 pages (25 leaves) in such a way that the book can stand upright on its head when done. Do not open the book at more than a 30 degree angle. Repeat working from back to center.
2. Change interleaving as the sheets become damp, placing new sheets at different places from the last, and in such a way that the book can be turned to stand on the opposite end with each change.
3. Do not reuse sheets unless they have been impregnated with fungicide. Ortho-Phenyl Phenol (O-PP) has been found to be less toxic than thymol for this purpose and is recommended. **Health and Safety should be consulted before using O-PP.** Mix one pound of O-PP to one gallon of acetone or ethanol. Do not use methanol, as it will cause inks to bleed. Safety equipment -- mask, eye goggles and rubber gloves -- should be worn when preparing and using this solution.
4. When the interleaving sheets no longer come out wet, continue air drying using the techniques for slightly damp volumes.

8.2.4 WET VOLUMES

These materials are wet to some degree throughout, but not saturated and dripping. They can

be air dried immediately or frozen for later air drying and will require interleaving.

1. If the quantity of damaged materials to be handled is too great to allow immediate individual treatment for each wet volume, they should be frozen until time allows such treatment. See directions for freezing.
2. When materials can be air dried, interleave as for damp volumes. Care should be taken when interleaving to avoid tearing wet pages. The procedure will be much the same for interleaving and air drying damp volumes -- it will just take longer. Be on the alert for mold. If mold is detected, see section [8.4.3](#).

8.2.5 SATURATED VOLUMES

These are materials which have been soaked through. They may have been submerged in water or standing beneath running water. They will require intense individual attention to air dry. If time does not allow this attention, freeze for later treatment. If large quantities are saturated, freeze drying may be the best option.

1. Cover the drying surface with plastic sheeting and then absorbent paper. The paper should be changed as it becomes wet and removed from the drying area to prevent an increase in humidity.
2. Do not open saturated volumes -- wet paper tears easily!
3. Stand the volumes on their heads (upside down) on absorbent paper, and let water drain from books. This position counteracts the pages' natural tendency to "droop" between the covers. When changing the paper beneath the books, reverse the standing position each time.
4. Covers may be opened slightly to support the volume.
5. Aluminum foil may be placed between the cover and end sheet to prevent staining from binding dyes.
6. When most of the water has drained off, proceed using instructions for wet volumes.

8.3 FREEZING

Freezing wet materials will stabilize them and provide time to determine the course of action. Mold will not grow and further deterioration from water will not occur. Books have been left in a freezer for ten years, then successfully thawed and air-dried. Freezing will also help to eliminate smoke odor from materials.

Rapid freezing is recommended to minimize damage from ice crystals (the faster the materials are frozen, the smaller the ice crystals will be). Temperatures below 15 degrees F will freeze and dry out wet materials. If freezer space is not immediately available, and the outside temperature is below 15 degrees F, place the materials in a secure area outside. Cover them with plastic if rain or snow is expected.

Freezing is an intermediate stage. After materials have been removed from the freezer, they must be placed in a vacuum freeze dryer or air-dried.

8.3.1 PRIORITIES FOR FREEZING

1. Materials which have already developed mold.
2. Leather and vellum-bound volumes.
3. Manuscripts and art on paper stock.
4. Materials on coated stock.
5. Photographic prints.
6. Journal and monograph volumes.

8.3.2 INSTRUCTIONS FOR FREEZING

Call Jewel-Osco (454-6089) or Waugh Foods (800-373-8533) personnel as soon as you know you will need to freeze materials. They will need to know approximately how many containers there will be and when you will be bringing them.

8.3.2.1 GENERAL INSTRUCTIONS

1. Dirt (see Muddy Volumes) should be removed before freezing. If time does not permit this, muddy books may be frozen -- mud will easily brush off when it is dry. Silt should be washed out immediately under clear, cold, running water, as it is almost impossible to remove when it is dry.
2. Wrap and pack materials on-site if possible. If not possible, remove by human chain.

8.3.2.2 WRAPPING, PACKING, AND RECORD KEEPING

1. Remove volumes from shelves in order, if possible.
2. On a sheet of paper (one for each box), record the box number, call numbers of each volume or inclusive range, and the total number of books in each container. If they are not in call number order, note the location where found.
3. Wrap freezer paper around each volume (waxed side next to volume to prevent sticking), write call number on the outside and place in plastic crate or box spine down. If packing in shelf order, inclusive range label on crate can be substituted for writing call number on each volume.
3. Wrap and pack items in the condition in which they are found. Do not attempt to close open volumes or open closed volumes that are wet. If books are stuck together, do not attempt to separate them, but pack them as one volume.

4. Wrap open books as found and place on top of a packed container. Do not place more than one open volume in a container. Be sure there is a freezer paper barrier between the packed volumes and the open volume to prevent staining from binding dyes.
5. Pack crates one layer only, snugly enough that volumes will not slide or lean.
- 6 Attach library ownership tag to each box with bright colored book tape. Assign each box a number.
7. If the containers are sent to more than one freezer, note which container numbers are sent where.
8. Keep records of discarded items.

8.3.2.3 TRANSPORTING

1. Materials should be placed in a freezer facility as quickly as possible to prevent the growth of mold. Care should be taken that containers do not fall over during transport, as further damage may result.
2. Materials should be placed in refrigerated trucks if they cannot be frozen within forty-eight hours.

8.3.3 VACUUM FREEZE DRYING

Vacuum freeze drying is the safest and most successful method for books, although it is also the most expensive. Materials must be frozen when they are placed in a sublimation chamber. This type of chamber operates under high vacuum and high heat, and turns the ice crystals in and on the frozen materials to water vapor. The vapor is then collected on a cold panel that has been chilled to at least -200 degrees F, so it cannot go back on the materials. If they are not frozen when they are put in the chamber, the materials will freeze on the outside and the water molecules on the inside will be forced through the frozen barrier as the vacuum is pulled. This action can cause the book or document to "explode".

Vacuum freeze drying is a last resort drying method for very large numbers of photographs and can not be applied to all processes. Sticking of emulsions has sometimes been observed with freeze drying.

When materials are removed from the vacuum freeze chamber, they will be very dry and should acclimate for at least one month before they are opened to avoid cracking the spine and/or binding (this is especially true for leather bindings). They may be placed in a high humidity room to accelerate the acclimation process, but must be monitored closely for signs of mold.

Materials so treated will not look like new, but will show signs of swelling and distortion. Stanford University Library staff members reported they needed an additional twelve percent of shelf space for materials that had been treated in Lockheed's chamber. Photographs will not be damaged by this treatment, but rubber cement may dissolve and stain the pages to which it has been applied.

The closest vacuum freeze dry facilities are at Midwest Freeze Dry, Ltd., Midwest Center for Stabilization and Conservation, 7326 N. Central Park, Skokie, Illinois. (847-679-4756). Other facilities are Blackmon-Mooring-Steamatic Catastrophe, Inc. (BMS CAT), 303 Arthur Street, Fort Worth TX (800-433-2940), American Freeze Dry, Inc. in Audubon, NJ (609-546-0777) or Document Reprocessing in San Francisco. (consultants) (415-362-1290)

8.3.4 VACUUM DRYING (not recommended)

Vacuum drying involves the placement of wet materials in a chamber that pulls the moisture out by means of a vacuum. This method is not recommended as the heat involved is damaging to paper (especially bound paper) and photographic materials. Microwave ovens should not be used for the same reason.

Vacuum thermal drying is not recommended for any type of photographic material as it will cause photographs to stick together in a solid block.

8.4 SPECIAL CONSIDERATIONS FOR WATER DAMAGED BOOKS

8.4.1 VOLUMES WITH COATED STOCK PAPER

Wet coated stock paper (slick) should be handled with care. Print will slide off the wet page if it is rubbed. Do not allow wet books with coated stock paper to dry in a closed state as the pages will permanently bond together. Keep volumes submerged until pages can be separated. The only chance of saving such materials is to interleave every page and air dry. Almost all attempts to separate dried pages by re-wetting them have failed; vacuum freeze drying of coated stock volumes is rarely successful. If the value of the item warrants, separation of wet sheets as described for Documents/Unbound Materials (page 30) may be attempted.

8.4.2 MUDDY VOLUMES

Remove muddy volumes from recovery area, preferably outside. Keep book closed tightly and hold it under cold, clean running water, letting the running water clean off the dirt. Remove as much mud as possible from the binding by dabbing gently with a sponge. Do not rub or use brushes, and do not sponge the pages or their edges, as these actions can force mud into the binding or paper and cause further damage. Gently squeeze the book between hands with even pressure to remove excess water and to reshape binding. Freeze or air dry according to degree of wetness. Do not wash: open or swollen volumes; vellum or parchment bindings or paper; full or partial leather volumes; fragile or brittle books; books with water soluble components (inks, tempera, water colors, dyes, charcoal, etc.); works of art on paper; manuscripts.

8.4.3 MOLDY VOLUMES

Mold and mildew can develop within 48 to 72 hours in an environment where the temperature is over 75 degrees and the humidity is over 60%. Mold and mildew can never be killed and can remain dormant for many years. Spores are always present and will grow if the environment is warm and humid. The best treatment for mold is prevention through environmental control.

Mold and mildew can vary in appearance from small brown or black spots to bright pastel splotches. Materials which have begun to mold should be separated from other materials to prevent spreading. Thymol treatment for mold should be undertaken only under the supervision of Health and Safety. If mold treatment cannot begin immediately, the moldy volumes can be frozen to inhibit further growth. If weather permits, moldy volumes may also be set in the sun to dry, but will still need to be treated. See Thymol Treatment for complete instructions.

The methods for treating a mold outbreak will vary according to factors such as the size and severity of the outbreak and the type(s) of mold involved. The Preservation Librarian maintains a resource file on additional clean-up methods for various types of mold as well as procedural information for cleaning different binding types.

8.4.3.1 LEATHER BLOOM

Mold should not be confused with leather bloom, a condition in which fatty acids from leather conditioning agents crystallize on the surface of the binding. To distinguish between mold and bloom on leather bindings, place a sample of the substance on a clean glass surface and place one drop of acetone on the sample. If the sample is mold, the substance will be unaffected once the acetone dries. If the substance is leather bloom, the acetone will dissolve it. Leather bloom can easily be removed by buffing the binding with clean cheesecloth.

8.4.3.2 THYMOL TREATMENT

Materials which have developed mold can be treated in the thymol chamber to deter its growth. Materials should be dried before treatment. The mold should be cleaned off with cheesecloth away from other library materials, preferably outside. Nothing can be done for mold stains.

Use of the thymol chamber necessitates access to outside for venting. For this reason, rooms 185 and 186 are the best to use. The room will need to be reserved for three full days. While the concentration of thymol used in this process does not present an immediate health hazard, Health and Safety recommends the room be off-limits for general use during treatment. Material Safety Data sheets on thymol are available in the Conservation Lab.

1. Place books on racks in chamber upright and fanned open, as for air drying. Books can be close, but should not touch.
2. Put 1 tbl. thymol in cup over heat source. Do not let thymol touch skin. Wear rubber gloves if necessary.
3. Plug in heat source.
4. Double check everything inside chamber before putting on lid.
5. Put on and secure lid. Screws should be tight, but be careful not to break lid.
6. Secure vent covers.
7. Plug main power cord into socket and turn on power switch. Heat will evaporate thymol and continue to warm air. Leave heat on 8-12 hours. Check frequently.

8. Turn heat off. Leave chamber closed for an additional 48 hours.
9. Roll chamber outside away from air intake.
10. Plug in power cord, using extension cord if necessary. Open both vents and turn on fan. Exhaust chamber for 15-20 minutes.
11. Return chamber to room. Remove books and allow to air on isolated shelf 1-2 months. Books may then be rebound or repaired, if needed, and returned to the appropriate floor.

8.5 DOCUMENTS/UNBOUND PAPER MATERIALS

Loose papers can be dried by spreading them on clean absorbent flat surfaces in areas where there is good air circulation. They can be covered with non-woven polyester web or plastic mosquito screening to keep them from blowing away, if needed. Do not attempt to flatten anything at this stage, simply try to get things dry as quickly as possible. Flattening can be done later if necessary. Damaged documents which have value only for their information need only be dried enough to be handled and photocopied.

If the number of documents affected is too great to be handled within 24 hours, or of value which will require individual attention, the items should be frozen. Loose papers should be frozen as found. Do not remove from file cabinet drawers, document cases or folders; do not turn containers upside down to empty or drain.

In some cases, wet sheets can be separated. The method described is not highly successful and is extremely time-consuming. This method may also be attempted for coated stock paper.

8.5.1 SEPARATION OF WET SHEETS

(This process is not highly successful and is extremely time consuming.)

1. Place a sheet of polyester film (available in Conservation Lab) on top of a stack of wet unbound papers, or the first page of a bound volume.
2. Rub gently with a bone folder (available in Conservation Lab). Surface friction will cause the wet paper to adhere to the film.
3. Peel back the top sheet and place it on top of a piece of polyester web.
4. Remove the polyester film.
5. Place another piece of polyester web on top of the wet sheet.
6. Repeat the entire process, separating the wet sheets one at a time and interleaving them with polyester web. Materials may be frozen at this stage.
7. Air dry the sheets (supported by the polyester web) by placing them on absorbent paper on

tables or on top of closely spaced monofilament lines. Air in the room should be kept circulating, but fans should not blow directly on the materials.

8. The papers may be flattened when they are almost dry by placing them between two sheets of blotting paper (available in Conservation Lab) to remove excess moisture and applying even pressure with weights.

8.6 FIRE DAMAGED MATERIALS

In case of fire, all burned or charred materials will have to be removed from the area before ventilation of smoke and air cleaning can be effective. Those items obviously beyond salvage can be placed on book trucks or in boxes or garbage bags and taken to another location (preferably outside) for bibliographic control procedures. Those which can be salvaged can be removed by book truck to the recovery area.

8.6.1 BINDING FIRE DAMAGED BOOKS

Charred items which are to be rebound will need special handling before being sent to the commercial bindery.

1. Fire damaged materials should be boxed separately from other binding shipments and marked accordingly.
2. Periodicals should be kept separate from monographs and brought to the attention of Milner Binding staff.
3. All charred or burned covers should be removed before shipment.
4. Be sure the call number is written on the verso of the title page.
5. Any book requiring special treatment (do not trim, specific buckram color, etc.) should be brought to the attention of the Milner Binding staff.

8.6.2 SMOKE AND SOOT REMOVAL

If the only damage to books and papers is soot on the outside, it may be possible to remove most of it by cleaning with a chemical sponge (available in Conservation Lab). The chemical sponge does not contain chemicals which assist in the removal of dirt and odors; the name refers to the process of manufacturing a sponge that is much more dense than usual. The sponges can be cut down to fit the cleaner's hand, and can be washed and reused several times.

To clean a book, hold the book tightly closed. Use a gentle stroking motion in one direction away from the spine toward the fore edge on the head and/or tail, and the same kind of technique on the fore edge, spine and covers. Continue wiping until no more soot or debris can be removed without damaging the surface area.

8.6.3 DEODORIZING

Charcoal and/or baking soda can be used to deodorize fire-damaged materials. Place charcoal briquettes and/or bowls of baking soda in the area to absorb the odor. If a small number of books are affected, a clean metal barbecue grill or similar container can be used. Spread briquettes in the bottom and place books on a rack over them. Close the lid and wait two or three days or until the smell can no longer be detected. The thymol chamber may also be used for this purpose.

8.6.4 OZONE

Ozone can remove odors but must be used with care and should not be used with books or papers that are wet or damp. Ozone can combine with water molecules to form hydrogen peroxide (a bleach) and can cause discoloration and weakening of some materials. Ozone will break down cellulose (e.g. paper) molecules and cause them to age more quickly. Ozone should not be used in occupied areas because high concentrations can result in respiratory irritation.

9.0 NON-BOOK MATERIALS

9.1 PHOTOGRAPHIC MATERIALS (prints, negatives, slides, film)

Air drying is the preferred recovery method for all photographic materials. Unless otherwise noted, the word "photographs" is used for "photographic materials."

All wet photographs should be removed from their protective envelopes or sleeves before drying.

Photographs which have been immersed in dirty water should be rinsed in cold, clean water, then be tilted to allow excess water to run off before drying or freezing. Photographs with stable images (those that do not have cracked, bubbled, or damaged emulsion layers) should be blotted with clean blotters or soft paper towels before air drying. Non-woven polyester fabric should be placed between the blotter and photograph to prevent sticking. Place wet photographs on a rigid support, such as cardboard or a wooden board, when moving them. Photographs with signs of emulsion deterioration such as bubbling, separation or image loss should not be rinsed, blotted or allowed to touch other photographs, but can be air dried.

Wet photographs should not be allowed to dry out in stacks or in their protective envelopes. They will stick to the envelopes and to each other. Any attempt to separate them after they are stuck together may result in damage to the emulsion or the image. If photographs are to be sent to a professional laboratory for treatment, they should be sealed in plastic bags and transported in plastic garbage cans filled with cold water.

Water tight housing should be considered as a method of routine storage for photographic materials, particularly color products, reel film and microfiche.

9.1.1 IMMEDIATE AIR-DRYING

Air drying results in the least water damage and mold growth as well as less dimensional distortion. However, separation and air drying must be done quickly in order to prevent mold growth and sticking of emulsions.

1. Photographs should be separated before air drying. If photographs do not separate easily, freeze and consult a photograph conservator.
2. If photographs cannot be handled immediately, place in water tight polyethylene zip bags and immerse in cold water. Ice can be added to the water, but not dry ice.
3. Air drying should be done in a clean, dry room.
4. Photographs should be removed from frames, mats or enclosures and be placed emulsion side up on blotters or lint-free cloth. If a photograph is stuck to the glass or overmat, do not force them apart -- consult a photograph conservator.
5. Do not allow wet emulsion to come in contact with other materials until it is completely dry. Do not touch wet emulsion.
6. Film-based images can be clipped by the non-image edges to monofilament line with plastic spring-type clothes pins.
7. Unmounted paper-based photographs can be weighed down evenly at their edges with any small clean weights available to prevent curling. Small glass weights for this purpose are available in the Conservation Lab.
8. If large numbers of photographs prevent this treatment, let the photographs curl as they dry. They can be flattened later by a conservator if necessary. Do not try to flatten tightly curled dry photographs.

9.1.2 COLOR MATERIALS (prints, negatives, slides, transparencies)

Color materials are very difficult to save, as the colored layers will separate and the dyes will fade quickly. If the decision is made to attempt saving color materials, they should be treated as a first priority. The following hints may be helpful.

1. Air drying is the best method. (Can be frozen and later air dried.)
2. Do not blot or handle on image side.
3. Should not be immersed for more than 48 hours.
4. Remove cardboard mounts from slides and transparencies. Save mounts, keeping them with the slides and transparencies, until bibliographic information can be transferred.

9.1.3 FILMS ON REELS

Microfilm and motion picture film must not be allowed to start drying rolled up because the emulsion will stick. It is possible to dry microfilm in-house by simply draping over clothes lines, but scratching and water spotting are likely. Better results will be obtained if the films are

washed and dried by a film processor. Motion picture film must be handled by a motion picture film processor.

9.1.3.1 MOTION PICTURE FILM

1. Fill film canister with clean cold water and reseal.
2. Send to motion picture film processor within 72 hours for washing and drying.

9.1.3.2 MICROFILM

In the case of microfilm service copies, it may be cheaper to replace them than to salvage.

However, master negatives might well be irreplaceable and salvage might be the only alternative. Wet rolls of microfilm can be sent to a film processor to be rewashed and dried. Eastman Kodak and University Microfilms will each handle their own films. See list of additional phone numbers for contact persons.

1. Put rolls of microfilm into water-tight containers and fill containers with clean, cold water.
2. Send to microfilm processor within 72 hours for washing and drying.

9.1.4 MICROFICHE

Microfiche can be removed from paper envelopes, separated and air dried with some success. Microfiche are prone to water spotting and scratching, so the results are usually less than good. No company is known which will wash and dry microfiche. It is probably best to replace the fiche.

9.1.5 FREEZING PHOTOGRAPHIC MATERIALS

1. If possible, consult a conservator about problems unique to the collection before freezing and thawing photographic materials.
2. Photographs should be kept wet until they are frozen.
3. It is not necessary to interleave (place waxed paper in between) photographs before freezing, although interleaving will make it easier to separate and support the photographs upon thawing. Negatives should be separated before freezing since they will stick together when thawed.
4. Place photographs in stacks small enough that all can be air dried upon thawing.

Stacks of photographs should be sealed in plastic bags before freezing.

5. To prevent formation of ice crystals, photographs should be quick frozen at 15 degrees F or colder.
6. Air dry as described in 9.1.1.

9.2 SOUND RECORDINGS

9.2.1 LPs

Clean water probably will not damage sound recordings. However, water which has leaked through the roof or ceilings and flood water can carry particles which will scratch a disk.

1. Wash disks in distilled water; follow the circular grooves of the record.
2. Dry thoroughly with cheesecloth, again following the grooves of the record.
3. Remove plastic album covers from jackets.
4. Hang or stand jackets in circulating air to dry.
5. Do not reuse plastic album covers; they are good traps for mold and nearly impossible to clean thoroughly.
6. Use new plastic covers and place old jackets (or photo copies) in cover pockets and the records in attached interior pockets.

9.2.2 COMPACT DISKS (CDs, DVDs)

1. Hold the disk by the outer edges.
2. Working out from the center in a straight line, wipe off water or dirt with cheesecloth.
3. Do not use water or any other cleaners on a CD.
4. Do not use a hair dryer to remove moisture or to blow off dirt.

9.3 MAGNETIC MEDIA

Success rates for salvage of magnetic media are extremely low and the process is labor-intensive. Salvage should only be attempted for unique or irreplaceable items. The best salvage procedure for all magnetic materials is to make backup copies of all important information and store them in water-tight containers, off-site if possible. Water is especially damaging to magnetic media. The longer they have been wet, the greater the damage will be. If media are dried and saved, they can still cause damage to play-back equipment. Do not attempt to salvage commercially available tapes and disks. Replacement may ultimately be cheaper. For unique magnet media, the following may be attempted.

9.3.1 TAPES (audio, video, computer)

1. Break open cassettes.

2. Wash tape in clean or distilled water.
3. Air dry or dry with cheesecloth. Do not dry with heated air as this will promote humidity, resulting in adhesion of the media.
4. Wind on reels and re-record.

9.3.2 FLOPPY DISKS

Salvage of floppy disks is not recommended. Success rates are extremely low and the dried disks can damage hardware. Back-up copies stored off-site are the best insurance against loss.

10.0 BIBLIOGRAPHIC CONTROL FOR EMERGENCIES

During an emergency, it is essential that records be kept for any item removed from the shelves for any reason. It is from these records that losses can be counted, replacement materials ordered and salvaged materials retrieved until they can be returned to their correct locations. Under recovery conditions, it may be easier to make paper records initially; however these should be transferred to the online catalog as soon as feasible. The Bibliographic Control Crew will be in charge of this task.

10.1 DESTROYED MATERIALS

Materials burned, soaked or otherwise damaged beyond recovery should be removed from the recovery area. Title pages, call numbers or other available identifying matter can be removed from the items and collected in a central location for creating DRA printouts. The titles can then be searched for availability, replacement or withdrawal.

10.2 FROZEN OR FREEZE-DRIED MATERIALS

Materials which are to be sent off-site for freezing or freeze-drying should be recorded separately from other materials. When preparing items for freezing, the crate number and the call number of each item in the crate (or range of call numbers) should be recorded on the crate as well as on a separate list. From this list, a DRA printout can be made and the materials charged to an appropriate Preservation account. Those materials which will be out of service for four weeks or less are to be charged to Repair (000170020); those to be unavailable longer than four weeks are to be charged to Damaged (000170015).

10.3 SALVAGED MATERIALS

Materials which have been involved in a disaster, but which are repairable in-house should be charged to Repair (000170020). Materials to be re-bound commercially should be charged to Bindery (000170040). Those items which have been dried and need no further attention can be returned to the shelves as soon as shelves have been cleaned.

11.0 COMMERCIAL RECOVERY SERVICES AND OTHER OUTSIDE AGENCIES

The use of commercial recovery services is a cooperative decision among the Disaster Recovery Team Leader, the Milner Administration , and Facilities Management. The Team Leader serves as the contact for recovery services dealing with library materials, while the FM representative serves as the contact for services dealing with the facility. Only the Dean of Libraries is authorized to sign contracts on behalf of the library.

Milner Library has a verbal agreement with Blackmon-Mooring Steamatic Catastrophe (BMS-CAT) that we may contact them for assistance when recovery procedures are needed that are beyond the capacity of the Disaster Recovery Team. Steamatic of Bloomington-Normal is a sister company of BMS-CAT and is the local reclamation company of choice for ISU Facilities Management. BMS-CAT will work with Steamatic of Bloomington-Normal to ensure the use of reclamation procedures which are appropriate for library materials and electronic devices. The Team Leader will coordinate communication between the two services.