RECOVERY: Part 1

Damage Assessment

ERRP Team Members will assess damage by indicating the following:

5. Type of damage (water, fire)
   • Type of material damaged (books, photographic films, magnetic tape materials, phonographic records)
   • Extent of damage, i.e., how much (volumes, #s)
   • Brief environmental conditions (dampness, heat, etc.)
   • Wet carpets, broken files
   • Condition of surrounding area

High priority areas will be assessed first, followed by other affected areas. ERRP Team Members will decide staffing needs for the assessment, response and recovery projects.

Photographs of damage should be taken at this time. See Jennifer Edwins, Assistant to the College Librarian and ERRP Team Leader for Response or Terry Kissner, ERRP Team Leader for Recovery.

Recovery Preparation

Plan a salvage operation for damaged materials:

1. Establish priorities. See Kathy Tezla and Kristi Wermager, Collection Administrators
2. Develop and assign teams for affected areas. See Terry Kissner, ERRP Team Leader for Recovery
3. Assemble supplies from storage areas. See Terry Kissner, ERRP Team Leader for Recovery
4. Develop a schedule for implementation. See Jennifer, Kathy, Kristi, Terry, and Carol, Cataloger and Registrar.
5. Define reporting mechanism and communication lines, including an established chain of command for recovery operations. This should include a method to deal with unforeseen modifications that need to be made during the recovery operation. See Terry and Carol.
6. One person takes minutes during all meetings, telephone for supplies and other necessities, organize deliveries of supplies, answer
telephones, and assist in the management of the recovery process from a Control Center, as needed. See Merry Hoekstra, Building Coordinator

RECOVERY: Part 2

Recovery Procedures for Damp Books and Minor Emergencies

Damp books are defined as books that are not dripping water. They can be wet around the edges or wet half-way through or just cool to the touch. These materials can be air-dried.

Caution:

1. All air drying must take place in a cool, dry place. Warm humid air encourages mold and mildew growth which can be more damaging than the original emergency. Try to keep the temperature below 70 Fahrenheit and the relative humidity below 50%. Use fans and dehumidifiers if needed. Keep the air in the area circulating.

2. Keep the drying area clean by removing wet debris such as wet carpeting and furniture as soon as possible because they contribute to a humid environment.

3. Never try to reshape or force damp volumes open as this will cause harmful distortion. They can be treated after drying.

4. Sponge off mud and debris using clean water but only if material does not have water soluble components such as watercolors, runny inks, tempera and dyes. Instead, air dry materials and brush off debris when completely dry.

5. Minimize handling of water damaged books. Paper and bindings are very fragile when wet.

Procedures:

If books can be dried in immediate area, see #8 and #9 below for air drying instructions.

If books must be packed up and moved to drying area:

1. Keep a written record of what volumes are in which box (by floor, range number and call number) and remember to clearly label each box.
2. Use one cubic foot cardboard boxes to pack-out and transfer damp books to the drying area. A one cubic foot box will hold about 15 volumes and weighs about 50 pounds when loaded.

3. Wrap each book in one piece of unprinted newsprint; this will prevent colors bleeding into one another. Precut sizes to save time.

4. Pack books spine side down in a single row on the bottom of the box. This arrangement is very important! Do not stack books or other materials on top. Water damaged materials will sag and distort especially under pressure, causing permanent deformities.

5. Seal box with packing tape and label contents with marker on all four sides as well as the top.


7. Keep a record of what books are drying where.

8. **Stand books upright (head to tail) in well ventilated drying area with fans or air conditioners to keep the air circulating. A book is completely dry when it is no longer cool to the touch. Use thin bookends to support books.**

9. **While air drying, in the manner described above, the pages of some books may start to pull out of their covers under the extra water weight. Turn these books over (head to tail, tail to head) every 30 minutes to evenly distribute the pull.**

10. Especially damp books can be interleaved to remove additional excess moisture. Place unprinted, clean flat paper towels every 20 or 30 pages; be sure to change toweling and alternate pages every 15 minutes to prevent distortion. Do not use folded towels as they will permanently distort paper.

11. Some books will dry distorted and misshapen. This can be greatly reduced after completely drying by placing volumes under light pressure or, in extreme cases, rebinding.

**Supplies:** pens, dehumidifiers, note paper, large strong trash bags, fans, clean water source, unprinted paper towels, bookends

*To pack up and move materials to drying area include: markers for labeling, uniform cardboard boxes, unprinted newsprint, wooden shipping pallets, large size shrink wrap*
Recovery Procedures for **Wet Books and Paper**

Wet books (as opposed to damp books) are defined as books that are dripping water. They are extremely fragile and must be handled carefully as pages can easily fall out and covers can separate from the text block.

Wet books should be **vacuum freeze dried** by a professional in the case of a major emergency. Vacuum freeze drying dries the material with the least distortion as the water goes directly from the liquid to gaseous state (vapor) without passing through the solid state, i.e., ice never forms, i.e. sublimation. Meat freezers and household freezers do allow ice to form and consequently are not adequate.

**Caution:**

1. Control the environment. Warm humid air encourages mold and mildew growth which can be more damaging than the original emergency. **Try to keep the temperature below 70 Fahrenheit and the relative humidity below 50%**. Use fans and dehumidifiers if needed. Keep the air in the area circulating.

2. Before starting any pack-out procedures, know what the damaged materials are. Specifically, **glossy paper** (like magazine paper, art books, etc.) is not salvageable after 5-6 hours in water as the inks run and the pages become irrevocably stuck together. Move on immediately to concentrate on salvageable material. Leather and vellum bindings are extremely fragile and should be rescued early or not at all.

3. Never try to reshape or force wet books open as this will cause harmful distortion or further mechanical damage. Do not remove damaged covers; books can be rebound or treated after they are dry.

4. **Sponge off** mud and debris with clean water but only if the material does not have any water soluble components such as watercolors, runny inks, tempera or dyes. Such material should be freeze dried and cleaned when dry.

5. **Do not over pack boxes** because the boxes will be too heavy to move. Also, the freezing process works well only if it is slow and uniform and over packed boxes will prevent books on the inside from drying at the same rate as those near the outside. Books must have room to swell during freezing.

6. **Minimize handling** of wet books. Paper and bindings are very fragile when wet.
Procedures:

1. **Keep a written record** of what volumes are in which box (by floor, range and call number) and remember to clearly label each box.
2. Use one cubic foot cardboard boxes to pack out and ship books to the freezer. A one cubic foot box will hold about 15 volumes and weighs about 50 pounds when loaded with water-logged books.
3. **Wrap each book** in one piece of unprinted newsprint; this will prevent colors from bleeding into one another and books from freezing together. Precut sizes to save time.
4. Pack books **spine side** down in a single row on the bottom of the box. This arrangement is very important! Do not stack books or other materials on top. Water damaged materials will sag and distort especially under pressure, causing permanent deformities.
5. Seal box with packing tape and **label contents** with a marker on all four sides as well as the top.
7. Ship books to vacuum freeze dry in refrigerated or freezer trucks to prevent mold growth. **Keep careful records** of shipment contents and dates.

**Supplies:** pens, note paper, markers for labeling, one cubic foot cardboard boxes, unprinted newsprint, wooden shipping pallets, large size shrink wrap, garden hoses, sponges, clean water source

**Recovery Procedures for Photographic Films**

Photographic films include all types of processed films such as **microfilm**, **microfiche**, photographic film, slides and movie reel film.

In most cases of fire, the extreme heat of the flames will damage microforms beyond repair, i.e., they will melt. Smoke and water damaged materials, however, can be salvaged. For major and minor emergencies, follow the instructions below. In extreme cases, the instructions below will stabilize the material until professional help is available. Microfilm and movie reel film are very difficult to handle and are best handled by a photographic film reprocessing company.
**Caution:**

1. Never let water-damaged photographic materials dry out.
2. Handle wet photographic films very carefully, touching only the edge of the film. When wet, the emulsion layer of photographic films soften and are very fragile and can be easily damaged.
3. Handle dry photographic films with **white cotton gloves**.

**Procedures:**

1. Remove microfilm and roll film from their containers and their reels. Remove format films from their sleeves. If film cannot be separated from sleeves, enclosures, or each other, soak them as instructed below before trying to separate them. If possible, try to retain labeling/cataloguing information for identification purposes later.
2. Transfer the film into large plastic (not metal as the chemicals in the film will react) garbage containers filled with cold clean water, preferably running water. If running water is not available, agitate water periodically. Change the water when it becomes warm or dirty. Wash for 30 minutes. If necessary, photographic films can stay in water for up to two days without damage.
3. Black and white films should be dipped, or rinsed in a wetting solution such as **Kodak Photoflo**. Color slides and transparencies should be rinsed for 10 to 15 seconds in **Kodak E6 stabilizer**. Color negatives should be rinsed for one minute in **Kodak C41 stabilizer**.
4. After rinsing, dry at room temperature in a dust-free area.
5. Or, **contact a professional photographic film reprocessing company** as soon as possible. Microforms must be shipped submerged in water and in sealed containers usually provided by the reprocessing company.

**Supplies:** pens, note paper, large plastic garbage containers, small buckets, garden hoses, clean water source, white cotton gloves, sponges

**Recovery Procedures for Optical Media**

Optical media include CDs, DVDs and CD-ROMs.

1. Gently brush any loose dirt from protective cases.
2. Wipe the protective case with a damp (not wet) cloth.
3. If there is no obvious damage to the disc, open the case, and carefully brush any loose dirt off the disc with a soft brush or tissue.
4. Wipe from the center of the disc straight to the outer edge. Do not wipe around the disc in a circular motion.
5. When handling the disc be careful of the label side as this is easily scratched, and can affect the ability to replay the disc.
6. Contact a conservator for advice as soon as possible.

**Supplies:** pens, white cotton gloves, wax crayon, note paper, scissors, lint-free towels, distilled water

**Recovery Procedures for Magnetic Media**

Magnetic media include audio and video cassettes, and computer floppy disks.

Most magnetic tape material is fairly heat resistant, able to withstand up to one hour in 200 degrees Fahrenheit without severe damage. Prolonged exposure to water, however, is very damaging as it causes leaching of the chemicals that adhere the tape to the film base. It is possible but very difficult to clean a dirty, damaged tape and the quality will be severely sacrificed.

Floppy disks can be salvaged but as a general rule, the more advanced the technology, the less the chance of recovery.

**Caution:** Never try to run damaged or wet tape on a regular tape drive.

**Procedures for Fire and Heat Damaged Magnetic Tapes:**

1. Clean dirt, ash, and smoke residue from containers and wraparounds before opening the container.
2. Contact a conservator to determine the extent of further salvage efforts.

**Procedures for Water-Damaged Magnetic Tapes:**

1. Move all tapes out of standing water.
2. Check labels to be sure they are legible. Replace those that are not legible, or use a wax crayon to identify them.
3. Quickly open, check and drain any water that may have entered the tape canisters.
4. Wet tapes must be hand dried and stored for 48 hours in a stable environment before running or winding on a tape drive.
5. When dry, tapes should be run against a felt pad (without the tape contacting the heads) to remove dried particles. Re-record as soon as possible.
Procedures for Water-Damaged Floppy Disks:

1. Retain, or replace labeling.
2. Remove the disk from the jacket by cutting it with non-metallic scissors.
3. Rinse disk in cold distilled water.
4. Dry with lint free towels.

**Supplies:** pens, white cotton gloves, wax crayon, note paper, non-metallic scissors, lint-free towels, distilled water

Recovery Procedures for Phono­graphic Records

Not much can be done to save fire or water damaged records and LPs. The heat from the fire will melt the plastic quickly and prolonged exposure to water will warp them beyond repair. To a large extent, these materials are considered not salvageable. However, undamaged records with surface dirt can be carefully cleaned. Cleaning is best when performed by an expert. If necessary, the following procedures may be followed.

**Caution:** Always handle phonograph records by the edges and wear white cotton gloves to avoid fingerprints.

**Procedures:**

1. Wash record in a 1% solution of non-ionic wetting agent such as **Kodak Photoflo**. Use a soft brush to dislodge particles.
2. Rinse phonograph record with distilled water.
3. Place on a vertical rack, such as a dish rack, and let dry slowly away from heat.

**Supplies:** soft brush, clean distilled water, vertical drying rack (i.e. dish rack), rubber gloves