
Disaster Preparedness & Response for the Alaska State Archives

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Preface

The *Disaster Preparedness & Response for the Alaska State Archives* was written to cover the types of disasters that Alaskans are most likely to experience. Portions of this manual have been adapted from the *Disaster Preparedness Workbook for US Navy Libraries & Archives*, with special permission from Robert Edey Schnare, Jr., Director of the US Naval War College Library; and, *Disaster: Readiness, Response & Recovery Manual* (1992) compiled for the state of Rhode Island.

The purpose of *Disaster Preparedness & Response* is to enable state archives' staff to adequately and professionally protect and recover valuable state records in its care. This *Plan* may be used in conjunction with other plans, such as those produced by the Division of Emergency Services, Enterprises Technology Services, the Federal Emergency Management Administration, or the Department of Homeland Security. The State Archivist will annually review this plan.

Disaster Preparedness & Response focuses on protection and recovery of the state archives' holdings. However, the protection of human life and safety is the first priority at all times. Staff should never risk their personal safety to protect archival holdings.

Further, staff need to be aware of specific health risks related to recovery. All individuals involved with the recovery should have an up-to-date tetanus shot; other immunizations may also be needed, based upon the nature of the emergency.

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Introduction to Disaster Preparedness

When we hear the word "disaster," we tend to think of those devastating floods, hurricanes, earthquakes, and other calamities that make news headlines. But the Alaska State Archives most often will cope with garden variety assaults: a leaky roof; leaking pipes; moldy, dusty, sooty or smoky documents; a cracked wall; or, a window broken by vandals.

“Disaster preparedness” used in this publication is the comprehensive term that describes strategies employed to protect the state archives’ collection from any unexpected or accidental loss from external causes. Disaster preparedness includes three facets: **protection**, **recovery**, and **planning**. The state archives’ collection is irreplaceable at any price. If permanent archival holdings are lost in a disaster, they are gone forever.

Protection involves activities taken to prevent or minimize damage to the collection. It requires, first, that the state archives assess its vulnerability to acts of terror, earthquakes, windstorms and other natural disasters; and to incidents such as roof leaks, plumbing malfunctions, fire, and mold outbreaks. Second, it includes actions to prevent or reduce the impact of disasters. Preventive work takes a variety of forms: bracing shelves to resist earthquake damage, regularly maintaining plumbing and drainage systems, and storing collections in areas unlikely to sustain water damage from natural or manmade disasters. The "Prevention/Protection Plan" section of this workbook and several of the appendices provide guidance on this element of preparedness.

Recovery begins after a disaster has occurred and involves three stages: response, salvage, and

rehabilitation. In the *response* stage, the staff organize the recovery project by notifying necessary personnel, procuring supplies and services for recovery, stabilizing the building's environment, and assessing the damage. The *salvage* stage involves packing and removing materials from the affected site, stabilizing them (most often through freezing), and drying them by any of a variety of processes (including air-drying, dehumidification, and vacuum thermal- or freeze-drying). The *rehabilitation* or *restoration* stage includes such steps as cleaning, fumigation, repair, rebinding, affixing new labels, reshelving archival materials, and deodorization and removal of smoke or soot. Rehabilitation of non-paper materials such as photographic and magnetic media often involves reprocessing and/or copying the salvaged item onto a new, stable medium. This manual provides guidance for recovery operations.

Planning is the third element of disaster preparedness, and the most critical. It overarches protection and recovery. In this activity, discrete lists of facts, resources, procedures, priorities, and options are brought together to form a coherent working document that guides policy and action not just in a disaster situation, but on a day-to-day basis. The disaster plan includes lists of suppliers and other resources, personnel directories, and various checklists. Perhaps more important, it serves as a guide for staff in recovering from disasters of various magnitudes, and it includes instructions and procedures that will be relevant in various scenarios. That is, it reflects in some detail the archive’s plans for coping with incidents ranging from small water leaks to mold outbreaks to devastating fire or natural disaster.

Emergency Instructions

Fire

1. If you see fire or smell smoke, activate local fire alarm by pulling nearest manual alarm.
2. Determine the location and source of the fire, if that can be done quickly and safely.
3. Dial **911** to ensure that the Juneau Fire Department knows about the fire.
4. If fire has less than a 3-foot base and is not chemical, you may attempt to put it out using an ABC fire extinguisher located in various locations throughout the building.
5. If fire has more than a 3-foot base, immediately evacuate the building and await arrival fire department.
6. **Note: Do not jeopardize safety to save archival materials.**
7. Follow detailed instructions located in the disaster plan, page 41; a copy is kept at the front desk.

Water

In routine emergencies, clean water may leak into stack areas. If there is any risk that the water is contaminated by sewage or other substances, responders should wear protective clothing (waterproof boots, clothing, and gloves). If there is any risk of electrocution, **do not enter the area.**

1. If easily done, attempt to determine the cause or source of the water.
2. Attempt to shut off water, if feasible. Contact **Building Maintenance** to shut-off the water.
4. If archives' materials are threatened by water, immediately notify state archivist.
5. Protect the collections while awaiting assistance. Choose (a), (b), or (c), depending on the situation:
 - a. If only a few items are in jeopardy and the water flow is minor, move any wet or vulnerable materials to a dry, secure location nearby.

- b. If water is coming from above, place visqueen over the affected areas, stack ranges, shelves, etc.
- c. If water is coming in on the floor, procure hand trucks and remove materials from affected area, beginning with those in lower drawers/shelves, and move them to a safe location not subject to flood threat.

Bomb Threat

1. Keep the caller on the telephone if possible and gather information noted on the Bomb Threat Report Form located in *Appendix D* of the disaster plan.
2. Call **911**.
3. Evacuate building. See instructions under *Evacuation (Appendix C)*.

Civil Disturbance or Riot

1. Immediately call **911**.
2. If state archivist determines that fire, vandalism, water damage, or other damage to the archives is likely, the response plan will be initiated.

Emergency Telephone Numbers

NAME	PHONE
Ambulance	800/222-1222
Building Maintenance	465-8414; 321-4461
Juneau Fire Department	911
Hazardous Materials 24-Hour Hotline	800/478-9300
Bartlett Regional Hospital	796-8427
Juneau Police Department	911
Risk Management Officer	465-5723
Telephone: Alaska Communications Systems	800/478-7121
Alaska Electric Light & Power	780-2222
Water/Sewer: City & Borough Of Juneau	780-6888; 789-9919
State Museum Conservator-Scott Carrlee	465-4800

Prevention/Protection Plan

Staff awareness is one of the single most important measures to prevent and mitigate disasters. Constant staff vigilance can often prevent a disaster or keep a minor disaster from becoming a major one.

Every staff member should take the initiative to be a troubleshooter and note problems that may be occurring in the building. Problems such as leaky pipes, cracked windows, toilet problems, or unusual odors (particularly those that could indicate a fire) should be brought to the attention of the state archivist. Correcting a problem before it develops into a full-blown disaster can save hundreds of staff hours and thousands of dollars that might otherwise be spent on salvage efforts.

Preparedness Guidelines

1. The division administrative manager will provide each new staff member a copy of the disaster plan. The state archivist will require that new employees read the plan and become familiar with its content and focus.
2. The state archivist will give a tour to acquaint new staff members with the building and point out building vulnerabilities and relevant details in the floor plans. The state archivist also will review the emergency evacuation procedures and evacuation routes with their staff members annually.
3. The *Recovery Coordinator* will inventory the disaster supply kit annually, noting the supplies on hand, those stored in locations outside the building, and those that would have to be purchased in case of emergency.
4. The list of vendors and consultants in *Appendix B2, Suppliers & Service Providers*, will be updated annually by the *Recovery Coordinator*
5. The state archivist will review the full disaster plan annually, updating sections as necessary.
6. The state archivist will arrange for inspections using the *Inspection Checklist (Appendix I)* and authorize appropriate staff to ensure that problems are remedied.

Liaison with Other Units

Regular communication will:

- help emergency response staff minimize damage to collection
- increase responders' salvage effectiveness

As necessary, the state archivist will arrange for training/education sessions for personnel on the disaster team. Objectives of these sessions will be to help them understand how they can minimize damage to archives and what special issues are involved in disaster recovery for archival materials.

Maintenance Inspections

Building Maintenance will annually identify and inspect all areas and equipment that may cause or be subject to a disaster. These will include areas noted in the *Inspection Checklist (Appendix J)* that relate to:

- a. building structure
- b. grounds
- c. HVAC system
- d. electrical appliances and wiring
- e. plumbing and drainage

Fire Safety

The state archivist will manage the fire safety program. This includes annual inspection and maintenance of fire protection systems and devices. Activities and inspections will include areas listed in the *Inspection Checklist (Appendix J)* that relate to:

- a. fire extinguishers
- b. fire alarm system
- c. smoke and heat detectors
- d. fire suppression system (sprinklers, Halon)
- e. liaison with the Fire Department
- f. staff training

Further details about the fire safety program are outlined in *Appendix F, Fire Safety*.

Security

The state archivist will manage the security program. This includes ensuring that annual inspection and maintenance of security systems and devices occurs. Activities and inspections will include areas listed within the *Inspection Checklist (Appendix J)* that relate to:

- a. key control
- b. maintenance and monitoring of security devices on doors, windows, and within the building

Storage Areas

The state archivist will ensure annual inspection of archives' storage areas according to criteria listed in the *Inspection Checklist (Appendix I)*. Inspections will give particular attention to:

- a. signs of leaks, water damage, etc.
- b. signs of mold, insect, or rodent infestation
- c. fire hazards

Computer Backups

An important element of disaster mitigation is routine backup and offsite storage of computer records. If backup tapes are stored offsite, the archives' vulnerability to disaster is reduced.

Information about computer backups and offsite storage of computer records is provided in *Automation Backup & Recovery Plans (Appendix G)*.

Response Procedures Water Damage (Routine)

The following procedures are for routine water damage from roof leaks, plumbing system malfunctions, minor flooding, etc. For area flooding and other major water disasters, follow the instructions in *Response Procedures: Medium-to-Large Scale Disasters*.

Judgment and experience may lead you to apply these instructions in a different order than listed here. For example, if a minor leak threatens only a single file cabinet, the prudent course may be to move the cabinet out of harm's way before initiating steps 2-6.

1. Attempt to determine the cause or source of the water. If you cannot determine the source, proceed to step 2.
2. Attempt to turn off water if feasible. Refer to *Appendix L*.
3. Call Building Maintenance.
4. If collection materials are threatened by water, immediately notify the state archivist.
5. Turn off all electrical circuits in the affected area. **No one should walk through water** until the Building Maintenance has declared the area safe.
6. If there is any danger of biological contaminants in the water, staff working in the area will wear disposable gloves and boots located in the disaster supply kit.
7. If necessary, utilize the in-house disaster supply kit.
8. Protect archives while awaiting assistance. Choose (a), (b), or (c), depending on the situation:
 - a. If only a few items are in jeopardy and the water flow is minor, move any wet or vulnerable materials to a dry, secure location nearby.
 - b. If water is coming from above, cover affected areas, stack ranges, cabinets, shelves with visqueen.
 - c. If water is coming in on the floor, use hand trucks to remove materials from affected area, beginning with those on lower shelves, and move them to a safe location.
9. Remove any standing water with a wet/dry vacuum.
10. Take steps to reduce the temperature and humidity and to increase air circulation:
 - a. Measure the temperature and relative humidity using monitoring devices in the supply kit.
 - b. Turn on air-conditioning or lower the temperature setting.
 - c. Increase air circulation in the affected area by running fans continuously.
11. Initiate salvage procedures detailed in the *Salvage Procedures* section of the plan.

Response Procedures: Mold

Spores of mold and mildew are found almost everywhere. Spores require the proper conditions--moisture, temperature, nutrients, and often darkness or dim light--to proliferate. Media such as paper, cloth, leather, and adhesives may be consumed or stained by many types of mold. The combination of temperature and humidity is the most critical factor. General cleanliness and the removal of dust and dirt reduce the risk of infestation, and good air circulation is helpful in avoiding a mold outbreak.

When the temperature reaches 70° Fahrenheit and relative humidity is near 70%, conditions are optimal for growth and reproduction of most types of mold. Any rise in these levels creates an environment conducive to mold and mildew growth, and they may "blossom" within 48 to 72 hours. The absence of visible growth at low temperatures does not indicate the death of spores, but merely that they have gone dormant.

A mold outbreak may occur during routine times if temperature and humidity controls are not adequate, but the risk is greater after a flood or other water damage.

In the event of a mold outbreak, take the following actions:

1. If mold is on a few isolated items:
 - a. Place items in freezer bags located in the supply room.
 - b. Contact the state archivist.
 - c. Place the items enclosed in plastic freezer bags in a freezer.
2. If mold is discovered in whole stack ranges, contact the state archivist and building maintenance to determine if the temperature and humidity must be adjusted.
3. Obtain appropriate supplies from the disaster supply kit located in the supply room. Wear appropriate protective gear such as gloves and respirators.
4. Seal materials in garbage bags located in the supply room.

5. When dealing with a moderate or large-scale mold problem, keep air movement to a minimum, since air currents spread mold spores to other, unaffected collections.
 - Do not use fans in the area.
 - Minimize the opening and closing of doors.
 - If feasible, block off return air vents so spores are not spread into the air-handling system and to other storage areas.
6. Transfer all infected materials to an isolation room in such a manner that other areas will not be affected because of the transportation of materials. Extra space may be requested from the state library.
7. Immediately and thoroughly sterilize the affected storage area(s), including the climate control system where possible.
8. Determine whether the affected items must be retained. If not, consider discarding, photocopying, or microfilming.
9. If the items must be salvaged, consult a conservator or preservation specialist (*see Suppliers & Service Providers, Appendix B2*) when dealing with severely affected materials. If the number of affected items is small, they may be treated in-house. Refer to instructions in Lois Price's *Mold: Managing a Mold Invasion* for detailed instructions.
10. Check materials periodically (at least monthly) for evidence of new or recurrent growth. Carry out these inspections for one year following the infestation.

Response Procedures: Earthquake

An earthquake may knock over shelves, storage units, and equipment. Archives' shelves, ceiling tiles, and overhead light fixtures may crash to the floor. In addition, structural supports may be twisted or broken. The most serious problems will be water damage from broken pipes. Also, asbestos might get dislodged or exposed, and this could significantly delay implementation of recovery operations.

The following instructions have been numbered for ease of reference. In reality, many of them should occur simultaneously. The more people are available, the more quickly the response can proceed.

In this as in all disasters, the first priority is to protect human life and safety.

1. If you are in the archives' stack or near file cabinets, move away from them.
2. Take shelter in a doorway, under a sturdy desk or table, or in another well-protected area.

After the main shock has occurred, take the following actions:

3. Be prepared for after-shocks.
4. Check for broken water pipes, shorting electrical circuits, or leaking fuel.
5. Turn off water at main valve if you see water flowing. Turn off all appliances.
6. Assist those who have been trapped or injured by falling debris, glass, etc. Do not move seriously injured persons unless they are in obvious, immediate danger from fire or building collapse.
7. Listen to a battery-powered radio for instructions.
8. Notify the fire department of any fires.
9. Open doors carefully and watch for falling objects.
10. Do not use elevator.
11. Do not use the telephone, except in an emergency. The lines should be kept free for rescue operations.

12. Evacuate the building when safe to do so. Do not re-enter until the building has been declared structurally sound by Building Maintenance.

Response Procedures: Medium-to-Large Scale Disaster

Disaster response procedures are the steps taken from the time an emergency situation is detected through the time when holdings are actually removed to begin packing, drying, or other salvage operations. This section outlines the basic steps that may be taken. The order may be altered depending on the nature of the emergency, extent and type of damage, and available resources.

1. Assess the situation

The person who discovers the emergency will determine the nature of the damage, the number and type of records affected, and the extent of action and assistance needed.

a. Notify responsible staff

During working hours, contact the state archivist, who will make the determination by phone or through onsite inspection.

b. Assist the injured

Assist those who have been trapped or injured by falling debris or glass. Do not move seriously injured people unless they are in obvious, immediate danger from fire or structural collapse.

c. Determine damage

The division director will determine whether or not to declare a disaster.

(1) The situation will be deemed an *emergency* if the nature and extent of damage is of limited severity and can be dealt with by available staff. Refer to *Salvage Priorities Appendix K* (detailed salvage procedures) for instructions.

(2) A *disaster* will be declared if the nature and extent of damage warrants doing so.

2. Notification

a. Determine personnel needed

If the Division director declares a disaster, staff will be informed exactly when and where to report.

b. Means of notification

If phones are working, refer to the phone numbers as per the *Staff List (Appendix A2)*.

c. Establish personnel management system

The state archivist will establish mechanisms for the following:

- Work hours for all staff, volunteers, ancillary personnel, and contractors and ensure appropriate compensation.
- Maintain hourly work records.
- Train staff and volunteers.
- Provide space, supplies, and other materials needed for refreshments, meals, and rest areas.

3. Establish a command post

In a routine emergency where the building is intact, operations will be controlled and coordinated through the state archivist's office. In larger disasters it may be necessary to establish an operations and control center offsite.

4. Procure/assemble the necessary supplies and services

The administrative manager will consult with the state archivist to determine what supplies and services are required for the recovery operations.

Refer to the in-house supply/equipment stockpile inventory in *Appendix B1, Disaster Supply Stockpile*.

External suppliers and service providers are listed in *Appendix B2, Suppliers & Service Providers*.

If cash, purchase orders, or requisitions are needed contact the administrative manager.

5. Establish security measures

- a. Building Maintenance will secure the site commensurate with the level of damage.
- b. Only authorized persons with identification will be allowed to enter the site.
- c. Special security personnel may be required if the security system has been damaged, if doors or windows are damaged, or if the facility is not substantially intact. In such cases, the state archivist will work with Building Maintenance to arrange for adequate security.
- d. Unauthorized persons in the disaster area should be reported immediately to the state archivist.

6. Get clearance to enter the site

After a fire or other major disaster, Building Maintenance will be in charge of the building and will have the power to declare when it is safe for re-entry by staff.

If there are asbestos, PCBs, or other hazardous materials, it may be several days before clean-up is complete and the staff are allowed to enter the building. Clearance may also be delayed if the disaster is a result of arson or vandalism, for the area will be declared a crime scene and staff may not be allowed to enter until the forensic work is finished.

7. Make a detailed damage assessment

The division director and state archivist will make a detailed assessment of damage.

8. Stabilize the building

Building Maintenance will supervise the stabilization of the building. First priority will be given to actions that ensure the safety of people. Second priority will be for the restoration of power. Other actions will receive attention as soon as possible. Actions that may be needed include the following:

- Work with Departments of Health & Social Services and Environmental Conservation regarding cleanup of sewage, biological agents, chemicals, and other contaminants.
- Shut off and repair/restore water and electricity.
- Stabilize leaning or collapsed shelving.
- Remove mud, water, ceiling tile debris, broken glass, etc.

9. Stabilize the environment

Building Maintenance will supervise the restoration of environmental controls with the goal of providing a cool, dry climate in the affected area(s).

- a. If the heating/chilling system is operable, settings will be adjusted to provide maximum cooling and dehumidification, optimally with the temperature below 70°F and the relative humidity below 50%.
- b. Building Maintenance will monitor the temperature and humidity every 8 hours to measure progress.

10. Develop a detailed plan of action

The director, state archivist and Maintenance engineer will meet to review the extent of damage, status of building systems, and available personnel. They will develop a plan of action that addresses major issues in the recovery plan. In the event of a large-scale disaster, a key decision will be which recovery operations to handle with existing staff and which to contract to specialized disaster recovery companies.

Staff will be briefed on the action plan and their responsibilities. If appropriate, training in specific techniques such as packing, cleaning, or air-drying will be offered by the museum curator. The director may issue a press release to the media.

SALVAGE PROCEDURES

Packout

Materials must be removed from affected areas, either for immediate drying in a stable location within the archives, for transport to a cleaning/salvage area, for transport to a freezer facility or commercial drying facility. If the option of on-site dehumidification is to be used, only **soaked** items need to be removed.

Execute packout operation in the order determined by the archivist, based on the degree of damage. If a full range of recovery services is available, begin working on the wettest materials, then deal with those that are merely damp. However, if the archives is limited to air-drying using staff, it may be better to begin with those that are least damaged and therefore most easily salvaged.

Packout procedures depend on whether materials are being transported to a nearby area for immediate drying or to an off-site freezer or drying facility. The latter requires more careful packing and more thorough documentation.

Depending on the nature of damage and possible logistical constraints, each work crew in **the packout operation will generally consist of the following:**

- a. crew leader: ensures smooth work flow and alleviates bottlenecks
- b. box assembler: sets up boxes or other containers
- a. retriever: removes materials from impacted areas
- b. wrapper: cuts freezer/waxed paper
- e. packer: takes items from retriever and wrapper, and boxes items
- f. sealer: seals and (working in concert with recorder) labels containers; prepares packing list
- g. transporter: moves containers from packing area to pallet, elevator, stairs, etc.

Take the following precautions if materials are to be transported in **cardboard** boxes:

- Boxes should be no larger than 1.5 cubic feet.
- Line the boxes with heavy-duty trash bags before placing wet materials inside. This will prevent the boxes from becoming soggy and collapsing.
- Do not stack boxes more than 4 high. The boxes can be stacked on pallets and the pallets can be shrink-wrapped to prevent slippage during transportation. A fork lift can then be used to move the pallets onto trucks or to the drying area.

If possible, loosely sort materials according to the degree of wetness (soaked, damp, or dry). Pack like materials together--e.g., damp records or volumes in one box, soaked ones in another, and so on.

Bound volumes: Load into boxes for transport. Place normal-size volumes in a "spine-down" position. Pack large volumes flat in boxes. If time allows, loosely place sheets of freezer paper or waxed paper around every volume (or every other volume). Boxes should be packed only about 75% full to allow for swelling.

Files: Place folders in boxes. Place the folders vertically in boxes (standing as they would in a file drawer). Fill boxes only about 75% full to allow for swelling.

Photographic materials: Most can be left in cool, clean water for a few hours until ready to dry or send for reprocessing. See further details in *Appendix K, Emergency Salvage of Photographs*.

Microforms: Place in cool, clean water until ready to transport for reprocessing. See further details in *Appendix K, Salvage Procedures: Microforms*.

Oversized prints and drawings: Pack in map drawers, bread trays, shallow flat boxes, or on heavy cardboard or plastic-covered plywood.

Audio and videotapes: Keep wet. Pack vertically in plastic bags or containers with cold water.

Computer diskettes: Keep wet. Pack vertically in plastic bags or containers with cold water. See further details in *Appendix K, Salvage Procedures: Computer Media*.

Computer tapes: Pack vertically in a plastic container and fill with clean water. See further details in *Appendix K, Salvage Procedures: Computer Media*.

Documentation

For inventory control as well as insurance purposes, it is necessary to know the condition and disposition of materials. Which were destroyed and must be removed or replaced? Which were damaged but are salvageable?

As materials are removed, one person will label each container with a brief designation of its contents (location number, record group or series). If time allows, describe the damage (e.g., "wet," "dry," "smoke," "mud," etc.), and indicate the salvage priority. If materials are going to different areas (e.g., some to the rinsing stations, others to the air-drying area, and some to a freezer), also note the destination of each container. Use a written

inventory/packing list to record detailed information regarding contents, damage, and priority. A sample packout list is included in *Appendix I, Inspection Checklist*.

Throughout the salvage operation, it is also useful to document various decisions made (particularly the decision to discard) and who made/authorized them.

Rinsing

Materials may be rinsed before drying or freezing if they have been subjected to mud or other dirty deposits and if adequate personnel and time are available. The objective of the cleaning is to remove gross deposits. Never use these rinsing techniques on materials with soluble inks (watercolors and many manuscripts), animal skins (leather, vellum, or parchment). Rinsing operations will be conducted on the loading dock.

Personnel working in the rinsing area will be provided with rubber boots and gloves and waterproof clothing. If the water has been contaminated by sewage or other contaminants, workers will have additional protective gear as recommended public health officials.

Rinsing Stations

For light deposits, stations may consist of one garden hose with a spray nozzle. Rinse individual folders or volumes one at a time, holding the folder/volume tightly closed to avoid transferring dirt between the pages.

If deposits are heavy: Set up several 30-50 gallon plastic garbage cans and run a garden hose into each can, with the nozzle resting at the bottom, and turn water on to provide a slow but continuous flow into each one.

Staff will immerse each item each item in succession through the line garbage cans. (Keep a supply of sponges at the last can, so that mud can be lightly dabbed off there). The last station will have a hose with spray nozzle so that workers can rinse materials under a fine spray. Gently squeeze excess water from volumes or folders.

Do not attempt to remove mud or stubborn stains during the rinsing process, for that would significantly slow down the operation. In addition, it might damage the materials, and it usually drives mud and stains even deeper into paper fibers, making restoration even more difficult.

The same procedure may be used for photographic materials and computer media, except that shallow dish pans or photo processing trays may be placed on tables and used instead of garbage cans.

Once materials have been rinsed, they may be transferred to the air-drying area or packed for transport to a freezer or drying facility as outlined above in the packing instructions.

Freezing

Freezing may be used as a stabilization technique for wet materials, especially paper-based ones. It should be used whenever materials cannot be dried within 48-72 hours, because wet materials are at great risk for developing mold if the temperature is above 70°F, especially in high-humidity conditions. In addition, bound volumes cease swelling and inks cease "bleeding" or diffusing once frozen. In a medium-to-large scale disaster, freezing "buys time" for the organization: once the materials are stabilized by freezing, funds can be obtained, drying options and vendors can be evaluated, and the staff can take a break after the taxing work of packout. There is no limit on the amount of time that materials may be left frozen. In fact, paper tends to dry slightly while in a freezer.

Bound volumes and paper records are suitable for freezing. In a large-scale disaster, microfilm and most other photographic materials can also be frozen, though that is not ideal. Historic photographs (such as daguerreotypes, tintypes, ambrotypes) should **never** be frozen. Best results are attained by using a commercial blast freezer that freezes materials at -10°F or lower.

In the event a local freezer facility is unavailable, the archives may use a refrigerated truck for transporting materials to a remote facility or for temporary cool storage on-site. While a truck will not freeze the materials, it may keep them cool enough to prevent mold growth. Sources of refrigerated trucks are listed in *Appendix B2, Suppliers & Service Providers*.

Fire Damage

Materials involved in a fire are likely also to suffer water damage, and recovery techniques outlined here may be used. They also may be charred (either completely or just around the edges), may have smoke/soot deposits, and are likely to have an odor. The following techniques are appropriate for bound volumes and paper records.

Charred Materials

Damage caused by extremely high temperatures is irreversible. However, the information on charred materials sometimes can be recovered through special photographic methods. These methods are usually carried out only in forensic science laboratories and are only available in exceptional circumstances. In the absence of professional help, do not attempt to open charred bundles, for such handling will result in further damage.

Even if materials are not charred beyond recognition, exposure to high temperatures will cause the paper to become extremely brittle. Such records should be evaluated. Some may be discarded, and others may be microfilmed or photocopied to preserve the information.

If edges of bound volumes are charred or badly smoke-damaged, they can be sent to a library binder, who will remove the binding, trim the edges of the paper, and rebind the volumes.

Smoke/Soot Deposits

If smoke/soot is deposited on the edges of materials, they can be treated in the following ways:

- Send the materials to a binder who can guillotine off the smoke-damaged edges
- Treat the materials in-house, using natural latex sponges to remove the smoke from the edges of bound volumes.
- Rare archival materials may be evaluated by a conservator before employing any general-purpose smoke removal techniques.

Smoke Odor Removal

Professional companies can deodorize fire-damaged paper materials.

- Some companies essentially "perfume" damaged materials to mask the odor.
- Materials may be treated in an ozone chamber. Ozone effectively neutralizes the odor. However, ozone is a powerful oxidizing agent that irreversibly accelerates the aging of paper, so it generally should not be used on many archival materials.

Fumigation

Water-related disasters, including water left from firefighting operations, create an environment ideal for mold growth. Give high priority to the fumigation and sterilization of mold-infested materials, and keep such materials segregated from those not yet infested.

There are many divergent opinions about fumigating archival materials. If the decision is made to fumigate, every precaution must be taken to safeguard the collection materials and the health of personnel.

- a. Area Fogging by Licensed Fumigator. If the mold infestation is widespread, fogging the area with a fungicide may be advised. Fogging kills only the mold that is growing on exposed surfaces, and the procedure may have to be followed up by more intensive fumigation.
- b. Cleaning & Sterilization. The affected area must be cleaned and sterilized before it is used to store archival materials. The cleaning crew should wear protective clothing and eye-wear. The following procedures are recommended:
 1. Thoroughly clean carpets with a germicidal cleanser. Remove as much moisture as possible from the carpets.
 2. Provide good air circulation in the room along with air-conditioning and dehumidification.
 3. Thoroughly wash floors, ceilings, walls, shelves, fixtures, and furniture using a germicidal cleaner. Disposable wipes should be used to avoid the spread of contamination.

Archives Collection Restoration

After materials have been salvaged, some further restoration work will probably be required before they can be reshelved or returned to other storage locations.

1. Storage. Materials that have been water-damaged or mold-infested will be kept apart from other holdings for at least 3 months in a well-ventilated area (65° F and 35-45% relative humidity).
2. Assessment. The state archivist will evaluate the materials and decide on the next steps:
 - discard/withdraw
 - reprocess and/or duplicate
 - replace by microfilming, photocopying, or purchasing another copy or edition
 - repair, rebind, clean, or provide conservation treatment
 - rehouse in new folders, boxes, etc.
 - relabel boxes and oversize volumes, if necessary.

Appendix A1: Archives Disaster Team

The size, membership, and structure of the archives disaster team depends on the scope of the disaster. Minor emergencies will be handled by a small group and will purchase supplies, set up fans and dehumidifiers, dry materials, document damage, and track costs. In a significant disaster, the team will be expanded so that archives' staff can focus on the recovery and functions such as procurement will be handled by the division administrative manager.

This appendix will facilitate planning for functions that may need to be managed and the jobs that may need to be done in the event of a disaster. In a disaster of moderate scope, the organization can be fairly simple, as illustrated in *Figure 1*. The Recovery Coordinator will oversee the details of the recovery in consultation with the state archivist and division director. Additional support will come from the administrative office for purchase of goods and services; and, preservation specialists, conservators, or other contract services to meet specialized needs as may be necessary.

Disaster Team Responsibilities

This section provides a description of the various responsibilities that may need to be discharged. Other staff in the Division of Libraries, Archives & Museums; and, in the Department of Education & Early Development will assist in necessary functions of the recovery operation.

The Recovery Coordinator, under supervision of the Operations Manager, will:

1. Gather information and develop initial strategy based on the nature of the emergency.
2. Establish a base of operations and announce its location.
3. Communicate staffing needs to division director.
4. Manage work crews.
5. Assign personnel as necessary to ensure efficient work flow.
6. Coordinate equipment and supply needs with administrative office.
7. Continually re-evaluate emergency priorities.
8. Regularly report to Operations Manager on progress and problems.

A. Administration

Division of Libraries, Archives & Museums Director: Responsible for protection of life, facilities, and collections. In a large-scale disaster, these duties may fall to Division of Emergency Services Director or designee. Also oversees all external communications during the emergency.

The Division Director Will:

1. Keep top executive staff and/or federal government authorities informed of status and needs.
2. Coordinate assistance from other agencies.
3. Authorize emergency expenditures.
4. Establish priorities for life, safety, physical security, and archives' needs.
5. Issue press releases about the disaster or delegate this function to the Operations Manager.

Operations & Collections Manager (State Archivist): **Operations**--manages and directs the entire recovery operation, ensuring effective workflow and coordination among organizational units involved in the recovery operations, all with the goal of protecting life, facilities, and archives. **Collections**--provides guidance on salvage priorities, disposition decisions, and replacement options for collection materials. Appraises the value/importance of materials and availability of replacements for those within their purview. Provides findings to Recovery Coordinator.

Reports to the division director and is delegated major non-financial decision-making authority.

The Operations & Collections Manager Will:

1. Assess emergency and declare disaster plan in effect.
2. Take immediate action to reduce or eliminate the risk.
3. Appoint staff to carry out the recovery operations as per plan.
4. Authorize purchase of materials and services.
5. Assess need for off-site operations center or storage areas.
6. Cooperate with Building Maintenance regarding the recovery operations center.
7. Ensure protection of personnel and assets.
8. Develop "business resumption plan" (mechanism for providing access as soon as possible)
9. Ensure long-term clean-up and restoration/rehabilitation operations are initiated.
10. Establish salvage priorities.
11. Refine established salvage priorities based on type and extent of damage.
12. Select salvage techniques and restoration strategies in consultation with Salvage Coordinator.
13. Recommend discard of archive materials.
14. Declare that the emergency is over.

B. Archives Collections Unit

Appendix A1: Archives Disaster Team

Recovery Coordinator (Archivist II): Directs all recovery operations involving archives materials. Responsible for general supervision of packing and transportation of collections, drying and other salvage activities, storage arrangements, documentation of movement and treatment, and long-term restoration of collection materials. Reports to state archivist in a small-to-medium scale emergency, to Division Director in a major disaster.

The Recovery Coordinator Will:

1. Regularly review disaster preparedness plan for protection and recovery of archives' collections.
2. Retrieve disaster materials/supply kit from storage.
3. Identify and ensure the protection or salvage of high-priority archives.
4. Take immediate action to reduce or eliminate risk of damage to collection.
5. Estimate extent and type of damage to the archives.
6. Prepare initial damage assessment and establish priorities for salvage.
7. Notify Operations Manager of support needs.
8. Refine salvage priorities based on type and extent of damage.
9. Oversee Salvage Coordinator functions.
10. Contact the Alaska State Museum Conservator, Scott Carrlee, for professional assistance.
11. Establish work areas for all parts of the recovery operation, with assistance from division administration and Building Maintenance.
12. Establish safe storage locations on-site and off-site.
13. Authorize discard of archives.
14. Initiate plans for long-term clean-up and restoration of collections.
15. Issue daily situation report to Operations & Collections Manager.

Salvage Coordinator (Archivist I): Coordinates all salvage activities to minimize damage to the collections. Reports to Recovery Coordinator.

The Salvage Coordinator Will:

1. Report initial damage assessment to the Recovery Coordinator.
2. Take immediate action to reduce or eliminate risk of damage to collection.
3. Obtain emergency supplies as necessary and advise Recovery Coordinator of additional needs.
4. Advise Recovery Coordinator on the sequence and methods of salvage of collections.
5. Activate, supervise, and train salvage work crews.
6. Give specific direction to staff assigned to the salvage effort on handling of archive materials.
7. Recommend on-site and off-site storage areas to Recovery Coordinator.
8. Arrange with Recovery Coordinator for specific conservation documentation.

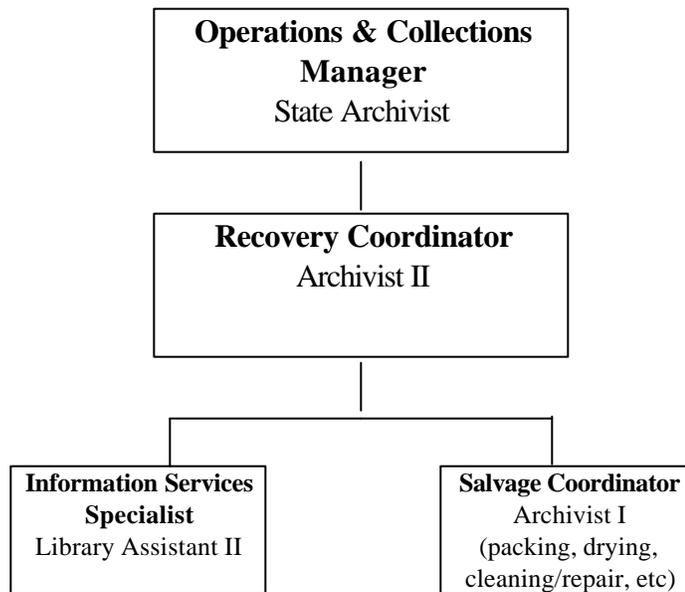
C. Information Services Specialist

Information Services Specialist (Library Assistant II): Responsible for the protection and recovery of the archives' server files, applications, and personal computers. Reports to the Operations Manager. Division Administration computer staff may facilitate business resumption of essential operations.

The Information Services Specialist Will:

1. Oversee routine weekly/daily system backups, provide for off-site storage of backup copies.
2. Supervise or contract for salvage/restoration of automation equipment, software, and files.
3. Plan and manage the relocation of automation equipment, files, etc. to off-site facilities.

STAFFING CHART



Appendix A1: Archives Disaster Team

Figure 1. Organization Chart for a Small Scale Disaster Recovery Operation at the State Archives.

Appendix A2: Staff List

(home numbers available with state archivist and library assistant)

- George V. Smith, PhD.
- Acting Division Director
- 465-2910

- Ken Nail, Operations & Collections Manager
- State Archivist
- 465-2275

- Larry Hibpshman, Recovery Coordinator
- Archivist II
- 465-2241

- Tatyana Stepanova, Archives' Salvage Coordinator
- Archivist I
- 465-2270

- Jessica Meek, Information Services Specialist
- Library Assistant II
- 465-2230

- D. Dawson, CRM
- Records Analyst I
- 465-2276

- Justine Bishop
- Library Assistant I
- 465-2270

- Steve McCarthy
- Electronic Records Archivist
- 465-2245

Appendix B1: Disaster Supply Stockpile

Scope & Purpose of the Supplies

Quick response can make the difference between a minor annoyance and a costly event. Having a disaster stockpile on hand can be a great help, so that staff can immediately respond rather than spending valuable time gathering supplies from the Department of Education & Early Development or in local stores. Refer also to the *Disaster Supply Stockpile (Appendix B1)*.

Since the disaster stockpile is essential in preparing for small-scale emergencies, the archives administers a stockpile that will provide two to four weeks worth of recovery supplies.

Storing the Stockpile

The stockpile supplies are stored and sealed in waterproof containers on the dock.

Inventory

The supplies will be inventoried annually to determine that all materials are present and in good condition. Batteries and duct tape have a limited shelf life and may need to be replaced at regular intervals.

Appendix B1: Disaster Supply Stockpile

Supplies the archives may have on hand to mitigate any disaster:

OPERATIONAL SUPPLIES **Item**	Quantity Needed	Quantity Present	Date Checked
clipboards	3		
extension cords, 50-foot, grounded	3		
flashlights	3		
garbage bags	1 box		
labels, adhesive	3 boxes		
light sticks, chemical	100		
lights (shop) & bulbs	3		
markers, waterproof	1 box		
note pads	1 carton		
paper towels or Handiwipes	1 carton		
pens & pencils	4		
scissors	3		
tape, duct	3 rolls		
tape, nylon	3 rolls		
tape dispenser, heavy-duty	3		
tape, masking	3 rolls		

Appendix B1: Disaster Supply Stockpile

OPERATIONAL SUPPLIES **Item**	Quantity Needed	Quantity Present	Date Checked
utility knives/blades	3		
aprons, disposable	7		
blankets, non-wool	7		
first aid kits	1		

Appendix B1: Disaster Supply Stockpile

INDIVIDUAL SUPPLIES **Item**	Quantity Needed	Quantity Present	Date Checked
nonperishable food	1 carton		
gloves, latex or rubber	25		
goggles, liquid-tight & safety	3		
masks	1 pack		
plastic plates, cups, and utensils	1 carton ea.		
protective clothing (e.g., rubber aprons, Tyvek coveralls)	7		
respirators	7		

SALVAGE SUPPLIES **Item**	Quantity Needed	Quantity Present	Date Checked
alcohol	1 bottle		
blotter paper, white	50 sheets		
boxes, cardboard¹	100		
boxes, polyethylene	10		
buckets (for rinsing)	3		
clothesline (nylon or 30-lb. monofilament)	100 feet		
clothespins, plastic	100		
dehumidifiers	1		

Appendix B1: Disaster Supply Stockpile

SALVAGE SUPPLIES **Item**	Quantity Needed	Quantity Present	Date Checked
fans	1		
freezer bags, 1-gal.	50		
Freezer/waxed paper	3 rolls		
garbage cans, plastic, 5-gal.	3		
garbage cans, plastic, 30- to 50-gal.	3		
interleaving paper (paper towels or uninked newsprint)	500		
Mylar sheets, 3-mil, 12" x 15"	500		
photo trays/shallow dish pans (for rinsing)	3		
tables, 6-ft., folding	3		

SITE CLEAN-UP & REHABILITATION **Item**	Quantity Needed	Quantity Present	Date Checked
bleach	3 gal.		
Brooms/squeegees	3		
Mr. Clean	3		
disinfectant	3		
fungicide	3		
Mops/buckets	3		
sponges, cleaning	3		
Wet/dry vacuums	1		

Appendix B1: Disaster Supply Stockpile

SITE CLEAN-UP & REHABILITATION **Item**	Quantity Needed	Quantity Present	Date Checked
Work gloves	7 pair		

Appendix B2: Suppliers & Service Providers

Supplies

A key part of disaster preparedness is the identification of emergency contacts, service providers, suppliers, and other resources vital in disaster recovery. This section lists the types of

supplies that might be needed in a disaster, and provides some information about the types needed and, in some cases, the types of suppliers from which they can be acquired.

Alcohol: Used to remove mold from covers of books, but does not kill mold. Denatured and isopropyl alcohol are least toxic and most readily available. Alcohol should not be used on rare archives.

Art supply stores: Source of blotter paper and some other specialized supplies.

Bleach: May be used in 10% solution with water to serve as a disinfectant. Never use on archives' materials, and be sure to ventilate the area.

Book press: Used for pressing dry or nearly-dry bound volumes and papers to reduce cockling and distortion of pages. Available from conservation suppliers.

Bread trays: Used for stacking manuscripts, maps, oversized documents, works of art on paper, and other loose documents for transport and air-drying.

Containers, cardboard: Used for packing archival materials.

Containers, plastic: Used for packing collection materials.

Dehumidifiers, portable: Used to reduce humidity in small, enclosed spaces to facilitate drying.

Dish pans: Used for rinsing photographic materials, computer diskettes, and other small items.

Disinfectant: Used to clean shelves and other surfaces, especially following water damage. Brand name cleaners such as Lysol are available. An economical option is bleach used in a 10% solution with water.

Dry ice: May be used to keep materials cool during transport or while awaiting transport. Available from chemical suppliers. Handle carefully, and never with bare hands, as it can cause injury to unprotected skin.

Fans, industrial: Used to increase air circulation, particularly in spaces where archives are being dried, as air movement increases evaporation and reduces the risk of mold.

Fungicide: Used to treat mold-infested materials and spaces.

Garbage bags: Prevents moldy materials from spreading spores.

Garbage cans, plastic: Used for cleaning or rinsing dirty materials, for storing and transporting materials and supplies, and hauling debris. Tight-fitting lids are preferable.

Generator, portable: May be used to provide temporary power.

Generator, heavy-duty: Provides power adequate to operate chillers and provide electricity. Coordinate with Building Maintenance.

Appendix B2: Suppliers & Service Providers

Gloves, work: Used for protection during recovery processes and heavy lifting.

Goggles, safety: Liquid-tight goggles should be available when working when working with chemicals.

Hoses, garden: Used for cleaning dirt/mud from material, and may have applications in site clean-up.

Humidity/temperature monitors (includes hygrometer, hygrothermometer, hygrothermograph, psychrometer): Monitors temperature and humidity levels, to ensure that they are sufficiently low. Hygrothermographs provide a constant recording of temperature and relative humidity over time.

Labels, adhesive: May be used for labeling boxes and other general purposes.

Light sticks, chemical: Plastic tubes containing nonflammable, non-toxic chemicals that provide temporary, low-level light when the tubes are bent or shaken. Will emit light for 30 minutes to 12 hours, depending on the type. Long-lasting, low-intensity light sticks are useful for marking pathways and identifying obstacles in dark recovery sites. They have a shelf life of about four years.

Lighting, portable/shop: Provides lighting for work crews when normal power and lights are unavailable.

Moisture meter: Measures the humidity inside an object. Different types are available, including some that are electronic psychrometers with a special sensing probe. Flat or "sword" probes may be inserted between pages of a volume or papers in a file, then the device provides a read-out of the humidity. The devices are helpful in monitoring progress during drying, especially air-drying.

Mylar: Individual sheets for separating wet paper documents. Available from conservation suppliers.

Newsprint, uninked: Used for interleaving wet materials to increase evaporation. Roll ends may also be available from *Juneau Empire* for a minimal charge.

Office supplies: Clip boards, note pads, markers, labels, scissors, utility knives, etc. necessary in recovery operations.

Pallets, wooden: Packed boxes may be stacked on pallets to facilitate transport.

Paper, blotter: Used in drying loose paper materials. White blotter paper is preferred.

Paper, freezer or waxed: Used to separate individual volumes prior to freezing.

Paper towels: Used for general cleaning. May also be used to interleave bound volumes during air-drying.

Photo processing trays: Used for rinsing photographic materials, computer diskettes, and other small items; shallow dish pans serve the same purpose.

Plastic (polyethylene) sheeting, clear: Used for a variety of purposes: to protect shelves, cabinets, furniture, and equipment from continuing threat of water; as temporary window covering; etc. (6-mil or 4-mil)

Respirators: Used when mold or other biological contaminants are present.

Saw horses: Can be used with plywood boards to serve as temporary tables.

Shovel: Used for clean-up and debris removal.

Sponges, natural latex -- Used for removing dirt and soot from archival materials, especially for edges of bound volumes. 100% pure latex sponges contain no chemicals or residues.

Appendix B2: Suppliers & Service Providers

Squeegee broom: May be used for removing water from floors.

Tables, folding: May be needed for temporary work space or for air-drying operations. May be borrowed from churches, civic organizations, schools, etc.

Services

This section lists the types of services that might be needed in a disaster. Refer also to *National Suppliers & Service Providers*.

Architect: Building rehabilitation.

Carpenter: Building rehabilitation.

Chemist: Provides expert advice in case of biological contamination, especially in a mold outbreak.

Conservator: Provides advice on stabilization and salvage; performs conservation treatments on affected items including books, paper, electronic media, photographic materials, textiles, etc.

Contractor, building: Building rehabilitation.

Data processing hot/cold site: Necessary in the event critical automation functions cannot be executed.

Data recovery service: Performs restoration of data on magnetic or optical media.

Dehumidification service: Provide portable dehumidification equipment that can dry out buildings, furnishings, and collections on-site.

Electrician: Building rehabilitation.

Engineer (construction, civil, mechanical): May assist with building rehabilitation.

Exterminator: Treats insect or rodent impacted sites.

Tape: Duct tape, filament tape and tape dispensers for sealing boxes, affixing plastic sheeting over cabinets and shelves, and for various other uses.

Wet-dry vacuum: Used to remove small quantities of standing water.

Fire alarm system: Maintains detectors, alarms, systems.

Fire restoration: Companies that provide smoke odor removal for buildings and furnishings. A few also deodorize and clean affected materials in the collection. Some will trim soot-damaged records.

Fire sprinkler system service company: Provides maintenance and tests.

Freeze-drying service: May provide vacuum (thermal) drying or vacuum freeze-drying of collections. It is important to know which method each vendor uses.

Freezer space: May be used for temporary storage of archives. Freezing mitigates mold risk and prevents further swelling and distortion of paper-based materials.

Fumigation service: Treats mold infested materials, furnishings, etc.

Glazier: Window replacement and repair.

Health & Social Services/Environmental Conservation Departments: Assists with clean-up in case of a toxic, biological, chemical, or other contaminant-related disaster

Appendix B2: Suppliers & Service Providers

Information services specialist: Provides consultation regarding information systems, including restoration of equipment, recovery of software and data files.

Janitorial service: May assist with building clean-up.

Lawyer: May be needed in case of disputes with various contractors, and advises on liability issues.

Locksmith: May assist with building rehabilitation.

Magnetic media restoration: Recovers and duplicates magnetic media including computer tapes, audio cassettes, videotapes, etc.

Microform restoration: Cleans and duplicates microform materials.

Relocation/Moving Company: May be needed if operations must be moved to another location.

Mycologist: Assists in identifying source of mold outbreak and may assist in recommending treatments and evaluating fumigation services.

Plumber: Building rehabilitation.

Preservation specialist: Provides consultation services regarding all elements of recovery operations.

Risk Manager: May be consulted if problems develop with the insurance company.

Roofer: Building rehabilitation.

Security/guard service: May be needed if supplemental security is needed, particularly in cases where doors, windows, and security systems are damaged.

Space, drying: Off-site area in which drying operations can be carried out.

Space, office/storage: Off-site space in which routine office functions can be carried out or in which unaffected materials can be housed if the building is unsuitable.

Trucking service, refrigerated: Provides transportation of materials to off-site storage space, freezer facilities, restoration services, etc. especially regarding mold risk.

Videotape restoration: Cleans, stabilizes, and duplicates damaged videotape materials.

Appendix B2: Suppliers & Service Providers

National Suppliers & Service Providers

The following list includes companies that provide specialized services and information that may be useful in carrying out disaster recovery activities. Each entry includes the company's name, mailing address, telephone number (if no web address) and internet address.

Traditional archival suppliers carry many basic disaster recovery supplies such as mylar, blotting paper, etc.. Consult the following companies' websites: Gaylord, Light Impressions, and University Products, Inc.

Alaska Marine Lines *transportation*

Juneau, AK

aml.lynden.com

Computer Forensic Services *salvage of
Northbrook, IL computer media*

lwgconsulting.com

AK Division of Emergency Svcs. *disaster*

Ft. Richardson, AK 99505-5750

ak-prepared.com

services

Detex Corporation *life safety &
New Braunfels, TX security*

detex.com

Alaska State Museum *conservation*

Scott Carrlee, Conservator

Juneau, AK 99801 Phone: 465-4800

museums.state.ak.us/

consulting

Disaster Recovery Services, Inc.

Fort Worth, TX

drs.net

*comprehensive
recovery services*

Aldrich Chemical Company, Inc. *masks*

Milwaukee, WI

sigma-aldrich.com

Document Reprocessors *comprehensive
San Francisco, CA recovery services*

documentreprocessors.com

American National Red Cross *disaster*

Washington, DC 20006

redcross.org

services

Dust Free, Inc. *indoor air
Royse City, TX solutions*

dustfree.com

Belfor USA *disaster recovery*

Fort Worth, TX

belforusa.com

environmental control

mold removal

Eastman Kodak Co. *reprocessing of
Kodak film*

kodak.com

Blackmon-Mooring Steamatic

Fort Worth, TX

bmscat.com

disaster recovery

fire & water

Enviro-Air Control Corp. *refrigerated
Houston, TX dehumidification*

enviro-aircontrol.com

equipment

Appendix B2: Suppliers & Service Providers

Federal Emergency Management Agency Washington, DC 20472 <i>fema.org</i>	<i>consulting services</i>	Light Impressions Rochester, NY <i>lightimpressionsdirect.com</i>	<i>conservation supplies</i>
Film Technology Company Los Angeles, CA <i>filmtech.com</i>	<i>motion picture film restoration</i>	National Archives & Records Administration Conservation Lab College Park, MD <i>nara.gov</i>	<i>information</i>
Foundation of the American Institute for Conservation Washington, DC 20006 <i>aic.Stanford.edu/</i>	<i>conservation</i>	National Emergency Response & Rescue Training Center College Station, TX 77840 <i>teexweb.tamu.edu/nerrtc/</i>	<i>consulting services</i>
Getty Conservation Institute Los Angeles, CA <i>getty.weu/conservation/institute/index.html</i>	<i>conservation preservation</i>	National Fire Protection Assn. Quincy, MA <i>nfpa.org</i>	<i>information on fire safety standards & practices</i>
Halotron, Inc. Las Vegas, NV <i>halotron-inc.com</i>	<i>disaster recovery environmental control</i>	National Trust for Historic Preservation Washington, DC <i>nthp.org</i>	
Knox Company Irvine, CA <i>knoxbox.com</i>	<i>disaster recovery environmental control</i>	Pest Control Services, Inc. Lansdowne, PA <i>termitesonly.com</i>	<i>consultation on pest control and fumigation</i>
Lab Safety Supply Janesville, WI <i>labsafety.com</i>	<i>protective clothing safety supplies water sensors</i>	Excalibur Data Recovery Division North Billerica, MA <i>excaliburdatarecovery.com</i>	<i>salvage of computer media</i>
		University Products, Inc. Holyoke, MA <i>universityproducts.com</i>	<i>conservation supplies</i>

Appendix C: Evacuation & Emergency Procedures

Use these instructions during emergency evacuations for the protection and safety of building occupants.

Evacuation When Fire Alarm Sounds

Notice to evacuate is indicated by the fire alarm system, which warns archives' building occupants of imminent danger. When fire alarm sounds, follow these steps:

1. Evacuate to the nearest safe exit immediately. Walk rapidly. Do not run.
2. Do not panic others. Do not use the elevator.
3. Turn off all lights and close all doors, if possible. Do not lock doors,
4. Before opening doors, feel the door and if it is hot, do not open it. Choose an alternate route. If you are in an area filled with smoke, take short breaths, breathe through your nose, crawl along the floor where the air is cooler and place a (damp) handkerchief over your mouth and nose. If forced to make a dash through smoke or flame, hold your breath.
5. Assemble at Centennial Hall and check in with the state archivist.
6. If safe to remain in the building, the state archivist will locate the reason for the alarm while the fire department is en route.
7. State archivist will escort the fire department to the location of the problem.

After evacuating the building, personnel will assemble at Centennial Hall for a head count. Once the fire department verifies that the building is safe to re-enter, the state archivist will notify staff.

Appendix D: Emergencies--Bomb Threat

1. A person who receives a telephone threat should try to keep the caller on the line. Remain cool, calm and collected.
2. Obtain as much relevant information as possible (refer to the *Bomb Threat Report Form* on the following page).
3. After the caller hangs up immediately dial **911** and provide requested data. Then, notify the division director, state archivist and Building Maintenance.
4. Pull **FIRE ALARM** and follow evacuation procedures (refer to *Appendix C*).
5. All staff are responsible for scanning their office areas on their way out of the building for unusual packages or unfamiliar or unidentified items. Report findings to the state archivist.

Appendix D: Bomb Threat Report Form

Date: ____ / ____ / ____ Time: _____ AM/PM

Staff receiving the call: _____

Exact words of caller:

Ask the caller the following questions:

- a. Who placed the bomb? _____
- b. What does it look like? round square Other _____
 package briefcase
- c. What kind of bomb is it? _____
- d. What will cause it to explode? _____
- e. What is your name? _____
- f. When is it going to explode? _____
- g. Where is the bomb? _____
- h. Why was it placed? _____

Other information to aid in the investigation and search:

- a. Voice characteristics of the caller
 - male female young middle age high pitch deep
 - soft raspy loud intoxicated calm angry
 - crying normal laughing disguised old
- b. Speech:
 - fast stutter slow nasal distinct slurred
 - foul lisp incoherent distorted taped message well spoken

Appendix D: Emergencies—Bomb Threat

c. Note Background Noise, Unusual Sounds, or Other Information:

Appendix E: Emergencies--Fire

1. When you discover a fire...**PULL FIRE ALARM!**
2. Dial **911** and provide the information requested.
3. If in no imminent personal danger—use fire extinguisher to help control small fires. When in doubt or personal danger, leave the building.

Follow emergency evacuation procedures.

Appendix F: Fire Safety

Liaison & Training

Regular dialogue between the archives and the Juneau Fire Department promotes the overall goal of fire safety.

Fire develops in four stages:

1. Chemical products only. The first stage of combustion is a chemical reaction in which a carbon-based material (fuel, such as wood or paper) mixes with oxygen and is heated to a point where flammable vapors are produced. At this point, there are no visible signs or smells. This stage may last from a few minutes to several hours.
2. Smoke.
3. Flame.
4. Heat. Temperatures may quickly reach 1,800°F (1,000°C). Within only three to five minutes, the temperature may be high enough to "flash," igniting all adjacent combustibles.

Detectors are inspected/tested at the recommended frequency and by appropriate methods. These inspections not only verify that each detector is present in its location, but also that its power source is valid (e.g., that batteries are operative) and that it is functioning at optimal sensitivity. Currently inspections are performed by Detec, which found the archives to be out of compliance in June 2003.

Fire Suppression

The state archives is protected by an automatic sprinkler system and also provides portable extinguishers.

Portable Extinguishers

Five portable Dry Chemical (ABC type) extinguishers are available for staff use. The extinguishers are located on the loading dock, near the first floor rear exit, adjacent the stack doors on the second floor, and in the stack area (2). They are inspected/serviced regularly by Southeast Extinguisher Service. These inspections not only verify that each extinguisher is present in its location, but also that the pressure, volume, condition, etc. pass code. Type A rated extinguishers combat solid combustibles such as wood and paper; Type B for flammable liquids such as grease and oil; and, Type C for electrical fires. Staff should note that the chemical used in these extinguishers is very caustic and difficult to clean up. They can be used 5-12 feet from the fire base.

Sprinkler System

A water-based automatic sprinkler system with sprinkler heads is the most reliable, safe, and effective means of fire suppression and protects the non-stack first and second floor areas of the archives building. The state archives stack and vault area is protected by Halon, a gaseous fire extinguishing substance.

Staff Training

It is recommended that archives staff be trained annually in the following for optimal response in the event of a fire:

- Protocols for notifying the Fire Department and in evacuation procedures (see *Appendix C*).
- Live, hands-on fire extinguisher operation training
- Understanding how the sprinkler system operates
- Responsibilities staff have when sprinkler system activated
- Operation of manual fire alarms

It is recommended in this manual that the *state archivist* meet at least annually with the Fire Marshal or appropriate other Fire Department staff to ensure coordination of plans and to identify areas of concern.

Fire Suppression

The archives' building is protected with an Ansul Halon 1301 system and sprinkler fire suppression. In the event of a fire, the suppression system will operate according to system specifications. When the sprinklers/suppression system discharges during working hours, staff will immediately vacate the building as per emergency evacuation procedures.

Appendix G: Automation Backup & Recovery Plans

Backup of systems, software, and data files is the responsibility of the Information Systems Specialist.

Computer Backups

1. Software and data files are backed up under supervision of the Information Systems Specialist. The backup systems and schedules are as follows:
 - *Week 1: Tape 1 (Monday thru Friday) are used for automatic nightly backup @ 11 PM.*
 - *Week 2: Tape 2 (Monday thru Friday) are used for automatic nightly backup @ 11 PM*
 - *Monthly full system backup on first working day of month; use monthly backup tapes*
 - *Tapes are stored between rows 14 & 15 on top of cabinet.*
 - *Information Systems Specialist administers policies and procedures.*

In the event of a disaster, it may be necessary to operate data processing functions *off-site* in the State Office Building or other site to be determined. Official policy will be delineated by the division director.

Recovery

In the event that data processing equipment, tapes, or other devices are damaged in a disaster, the Information Systems Specialist will be responsible for recovery operations.

Appendix H: Floor Plans

Floorplans are on file with Building Maintenance. This contact phone number is: 465-8414

Appendix I: Packout Form

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Appendix J: Inspection Checklist

The inspection checklist may be used as part of a comprehensive disaster preparedness program. Staff can conduct periodic inspections and information-gathering activities to reduce the archive’s vulnerability to disaster. Building maintenance has certain systems responsibilities and are not included on this checklist.

The *Prevention/Protection Plan* (page 5) notes when, by whom, and how inspections are done.

General Preparedness	OK?	Needs Action (Describe)	Action Complete (Date & Initial)
Disaster plan written/updated			
Disaster supply kit created and inventoried			
All shut-off valves, breaker switches, etc. clearly labeled			
Staff have keys to janitorial closets			
Windows	OK?	Needs Action (Describe)	Action Complete (Date & Initial)
Window frames and sills in good condition			
Caulking and window seals sound			
No cracked or broken windows			
Fire Safety	OK?	Needs Action (Describe)	Action Complete (Date & Initial)
Fire Marshall conducts annual visit			
Appropriate extinguishers present, inspected on schedule			

Appendix J: Inspection Checklist

Sprinkler suppression system operating			
Suppression system tested according to manufacturer's recommendations			
Protection from Water Damage	OK?	Needs Action (Describe)	Action Complete (Date & Initial)
No water sources (pipes/plumbing, etc.) located above archives			
Storage areas checked weekly for leaks, seepage, etc.			
No leakage or seepage through walls			
Valuable and fragile materials stored in protective enclosures			
Security	OK?	Needs Action (Describe)	Action Complete (Date & Initial)
Building exterior well lighted			
Locks and alarms on all doors			
Intrusion detectors and alarms present and monitored 24 hours day			
Locks rekeyed and vault combinations changed regularly			
Keys collected from staff upon termination			

Appendix J: Inspection Checklist

Housekeeping	OK?	Needs Action (Describe)	Action Complete (Date & Initial)
Cleaning supplies and other flammable materials stored safely			
Trash removed nightly from the building			
Food and drink prohibited and prohibition enforced			
Pest management strategies in place and effective			

Appendix K: Salvage Procedures

DRYING WET BOOKS & RECORDS

There are currently five ways to dry wet books and records. Advice from a conservator or preservation specialist experienced in disaster recovery can be helpful before making the final selection(s).

It is important to understand that no drying method restores materials. They will never be in better condition than they were when drying began. If time must be taken to make critical decisions, records should be frozen to reduce physical distortion and the risk of mold.

Paramount is the safety of the staff, which should wear protective, latex gloves and long sleeves. If mold is present, wear a respirator. Some mold species are toxic; if any health effects are observed, contact a doctor and/or mycologist. When cleaning items with dry mold, ensure the mold spores are drawn away from you, e.g. by the use of a vacuum cleaner. Staff must wash hands with hot water and soap thoroughly after handling materials with mold.

Air-Drying

Air-drying is the oldest and most common method of dealing with wet books and records. It can be employed for one item or many, *but is most suitable for small numbers of damp or slightly wet books and documents*. Air-drying is extremely labor-intensive; it can occupy a great deal of space, and it can result in badly distorted bindings and documents. It is seldom successful for drying bound volumes on coated paper.

Dehumidification

This is the newest method to gain credibility in the archival world, although it has been used for many years to dry out buildings and the holds of ships. Large commercial dehumidifiers are brought into the facility with all collections, equipment, and furnishings left in place. Temperature and humidity can be carefully controlled to specifications. This technique is successful for damp or moderately wet books, even those with coated paper, as long as the process is initiated before swelling and adhesion have taken place. The number of items that can be treated with dehumidification is limited only by the amount of equipment available and the expertise of the equipment operators. This method has the advantage of leaving the materials in place on the shelves and in storage boxes, eliminating the costly, time-consuming step of moving them to a freezer or vacuum chamber.

Freezer Drying

Books and records that are only damp or moderately wet may be dried successfully in a self-defrosting blast freezer if left there long enough. Materials should be placed in the freezer as soon as possible after becoming wet. Books will dry best if their bindings are supported firmly to inhibit initial swelling. The equipment should have the capacity to freeze very quickly, and temperatures must be below -10°F to reduce distortion and to facilitate drying. Documents may be placed in the freezer in stacks or may be spread out for faster drying. This method will take from several weeks to several months, depending upon the temperature of the freezer and the extent of the water damage and leaves of coated paper may adhere to one another.

Vacuum Thermal Drying

Books and records may be dried in a vacuum thermal drying chamber into which they are placed either wet or frozen. The vacuum is drawn, and heat is introduced. Drying typically occurs at temperatures above 100°F , but always above 32°F . This means that the materials stay wet while they dry. It is an acceptable manner of drying wet records, but often produces extreme distortion in books, and almost always causes adhesion of coated paper. For large quantities of materials, it is easier than air-drying and almost always more cost-effective. However, extensive rebinding or recasing of books should be expected. This method is a solution for materials that have suffered extensive water damage. Given the elevated temperature used in drying, it is most appropriate for materials with short-term (under 100 years) value.

Vacuum Freeze-Drying

This process utilizes sophisticated equipment and is suitable for large numbers of very wet books and records, as well as for coated paper. Books and records must be frozen, and then are placed in a vacuum chamber and dried *at temperatures below 32°F* . Sublimation occurs and ice crystals vaporize without melting. There is no additional swelling or distortion of materials. Rare and unique materials can be dried successfully by vacuum freeze-drying, but leathers and vellums may not survive. Photographs should not be dried this way unless no other possibility exists. Consult a photograph conservator. If only a few documents are dried, vacuum freeze-drying can indeed be expensive.

How to Air-Dry Wet Records

Wet records may be air-dried if care is taken to follow guidelines suggested by preservation experts. The technique is most suitable for small numbers of records that are damp or water-damaged only around the edges. If there are hundreds of single pages, or if the water damage is severe, other methods of drying will be more satisfactory and cost effective. Stacks of documents on coated, or shiny, paper must be separated immediately to prevent adhesion, or they must be frozen to await a later drying decision. Care must be taken with water-soluble inks as well. Records with running or blurred inks should be frozen immediately to preserve the written record. After the items are dry, conservators can be contacted for advice and assistance.

If records must be air-dried, the following steps will help achieve satisfactory results. Wet paper is extremely fragile and easily torn or damaged, so care must be exercised. Once wet, records will never look the same, and at least some cockling or distortion should be expected.

1. Secure a clean, dry environment where the temperature and humidity are as low as possible. The temperature must be below 70°F and the humidity below 50%, or mold will probably develop and distortion will be extreme.
2. Keep the air moving at all times using fans in the drying area. This will accelerate the drying process and discourage the growth of mold.
3. Single leaves can be placed on tables, floors, and other flat surfaces, protected if necessary by paper towels or clean, uninked newsprint. Alternatively, clotheslines may be strung close together (6-foot lengths spaced 1-inch apart) and lightweight records/photographs may be laid out or clothespinned.
4. If records are printed on coated paper, they must be tediously separated from one another to prevent them from sticking together. Place a piece of polyester film (such as Mylar) on the stack of records. Rub it gently down on the top document. Then slowly lift the film while at the same time peeling off the top sheet. Hang the polyester film up to dry on the clothesline using clothespins. As the document dries, it will separate from the surface of the film. Before it falls, remove it and allow it to finish drying on a flat surface.
5. Once dry, records may be rehoused in clean folders and boxes. Or they may be photocopied or reformatted onto microfilm. Dried records will always occupy more space than ones that have not been water damaged.

How to Air-Dry Bound Volumes

Air-drying is most appropriate for books that are only damp or wet in places, such as along the edges. Books that are soaking wet should be vacuum freeze-dried to minimize cockling of leaves and distortion of bindings. Books containing coated paper should be frozen while still wet and vacuum freeze-dried. Books with running or blurred inks should be frozen immediately, then vacuum freeze-dried.

1. Refer to steps 1 and 2 of the previous section.
2. Volumes can be dried on any flat surface, but tables make far easier work. Cover the tables with plastic or uninked newsprint.
3. Interleave with paper towels or clean, uninked newsprint at least every 50 pages; turn pages carefully to avoid tearing them. Be careful not to interleave too much, or the spine will become concave and the volume distorted. Complete the interleaving by placing clean blotter paper inside the front and back covers. Stand the volume on its head, fan it open, and place it on several sheets of absorbent paper. Change the interleaving frequently. Turn the volume over each time it is interleaved.
4. When volumes are dry but still cool to the touch, they should be closed and laid flat on a table or other horizontal surface, gently formed into the normal shape, with convex spine and concave front edge (if that was their original shape) and held in place with a light weight. *Do not stack* drying volumes on top of each other. In no case should they be returned to shelves until thoroughly dry; otherwise mold may develop, particularly along the inner margins.
5. Dampness will persist for some time in the inner margins, along the spine, and between boards and flyleaves. You may use a moisture meter to determine whether the paper is dry. Normal dry paper generally has about 7% moisture content. Check often for mold growth while books are drying.
6. If the edges are only slightly wet, interleaving is not required. Stand the volume on end and fan it open slightly in the path of a flow of air (as from a fan). To minimize distortion of the edges, lay volumes flat under light pressure (e.g., a book press or paper-covered bricks) just before drying is complete.

EMERGENCY SALVAGE OF PHOTOGRAPHS

Some historical photographs are very sensitive to water damage and may not be recoverable. Most prints, negatives and color slides, however, can be air-dried; the emulsion (picture/image) side should be face up. Some photographic processes can withstand immersion in water for a day or more, whereas others would be permanently disfigured or even destroyed by a couple of minutes of exposure. In general, wet photographs

Appendix K: Salvage Procedures

should be air-dried or frozen as quickly as possible. Once they are stabilized by either of these methods, there is time to decide what course of action to pursue.

Ideally, salvage should occur under a conservator's supervision. A conservator can minimize damage to a collection if s/he can direct the salvage and treat the collection immediately after the damage has occurred. Time is of the essence: the longer the period of time between the emergency and salvage, the greater amount of permanent damage that will occur.

Minimum Immersion Time

Photographs in water will quickly deteriorate: images can separate from mounts, emulsions can dissolve or stick together, and staining can occur. Mold can grow within 48 hours at 60% RH and 70°F, and it often causes permanent staining and other damage to photographs. For these reasons photographs need to be dried as quickly as possible. If photographs cannot be dried promptly, they should be frozen.

Salvage Priorities for Wet Photographs

In general, films (plastic-base materials) are more stable than prints (paper-base materials); therefore, prints should be salvaged first. Important exceptions include deteriorated nitrate and safety films, which are extremely susceptible to water damage.

Some photographic processes will not survive immersion. Photographs made by the following processes should be salvaged first: ambrotypes, tintypes, collodion wet plate negatives, gelatin dry plate negatives, lantern slides, deteriorated nitrate or safety film, autochromes, carbon prints, woodburytypes, deteriorated or unhardened gelatin prints and color materials.

Photographs that are more stable in water include: daguerreotypes, salted paper prints, albumen prints, collodion prints, platinum prints and cyanotypes.

Air-Drying Photographs

If personnel, space, and time are available, photographs can be air-dried. Separate photographs from their enclosures, frames, and from each other. If they are stuck together or adhered to glass, set them aside for freezing and consultation with a conservator. Allow excess water to drain off the photographs. Spread the photographs out to dry, face up, laying them flat on an absorbent material such as blotters, uninked newsprint, paper towels, or a clean cloth. Photographs may curl but can be flattened later.

Freezing Photographs

If immediate air-drying of photographs is not possible or if photographs are stuck together, freeze them. Place the photographs in small plastic bags before freezing, several to a bag. If possible, interleave photographs before freezing with a non-woven polyester material or wax paper. This will make them easier to separate when they are eventually treated.

Drying Frozen Photographs

Frozen photographs may be thawed and then air-dried. As a group of photographs thaws, individual photographs can be carefully peeled from the group and placed face up on a clean, absorbent surface to air-dry. Vacuum thermal drying, where the frozen material is thawed and dried in a vacuum, is not recommended for photographs. Gelatin photographs undergoing this procedure have a tendency to stick together. Wet collodion glass plates must **never** be freeze-dried; they will not survive. This is also true for all similar collodion processes such as ambrotypes, collodion lantern slides, and tintypes.

SALVAGE PROCEDURES: MICROFORMS

Microforms subject to water damage will be professionally cleaned and dried by the Central Microfilm Laboratory within 48-60 hours. In most cases, the film should not be used again. Instead, a duplicate copy will be generated and damaged film discarded.

Salvage Priority

1. Color microforms are most vulnerable. If the film is important, it should receive highest priority.
2. Silver-gelatin and other emulsion film, while relatively stable, should generally be salvaged next.
3. Diazo and vesicular films are most stable and should generally be salvaged last.

Procedures for Roll Microfilm

If the film is a duplicate and replacements are readily available, do not attempt salvage. If salvage is required, follow these steps:

1. Fasten a rubber band around the box so the box, label, and roll will remain together.
2. If the film is dirty/muddy, put in a 5-gallon bucket filled with clean, cold water. Agitate gently to remove major dirt deposits.

Appendix K: Salvage Procedures

3. Drain off water. Replace with fresh water that is clean (preferably distilled) and cool until ready for packing to the Central Microfilm Laboratory.
4. Pack wet or damp reels of film in boxes lined with three layers of heavy duty plastic garbage bags (10-gallon size). Fasten each plastic bag separately and seal all boxes, marking them "WET FILM FOR REWASHING & DRYING." Each box may contain 40-50 reels of 35mm film (about 80-100 reels of 16mm film) with a maximum weight of 35 pounds.
5. Prepare and enclose a packing list in the container, and retain a copy of it.
6. Transfer film to the Central Microfilm Lab.

Procedures for Microfiche

If the fiche is a duplicate and replacements are readily available, do not attempt salvage. If salvage is required, follow these steps:

1. Keep the fiche in clean, cool water until ready to salvage.
2. Set up small buckets, shallow dish pans, or photo trays with clean, cool water.
3. Dip the fiche in the series of water baths to rinse off dirt, mud, or other debris.
4. Hang individual microfiche sheets on clothesline to dry. Be sure clothespin is attached to edge of sheet and does not contact the image area.

Freezing

If film cannot be salvaged within about 60 hours, freeze it.

SALVAGE PROCEDURES: COMPUTER MEDIA

Salvaging lost data and files is attained by restoring from backup tapes. If the following salvage techniques described here are implemented, place the salvaged media in older equipment to avoid damaging newer, more costly hardware. If in doubt, always consult a data recovery specialist. *Appendix B2, Suppliers & Service Providers*, lists some of those companies.

CD-ROM & Optical Disk

Appendix K: Salvage Procedures

1. Rinse in cool, clean water.
2. Dry with a very soft, non-abrasive sponge. To accelerate drying, use a blow dryer turned to the "cool" setting.

Hard Drives & Magnetic Tapes

To the extent possible, use backups stored *off-site*. If salvage is required, contact specialized companies listed in *Appendix B2, Suppliers & Service Providers*.

Diskettes

The objective in salvaging diskettes is not to save the diskettes themselves, but to allow you to copy data from a wet disk to a new one.

1. Remove the disk from its plastic casing.
 - a. 3½" diskette: Gently pry up the metal "door" and remove the diskette inside. A spring will be visible, and it must be removed. The plastic disk will now be visible. Use a thin screwdriver to slide the end in slightly (do not touch the magnetic medium), and pry open each end to break the plastic seal that holds the two sides together.
2. Reach in (using clean hands or lint-free gloves) and gently remove the magnetic medium.
3. Gently rinse the magnetic medium in clean, cool water. Wipe with a lint-free cloth.
4. Open a new diskette, using the procedures outlined in step 1. Remove the magnetic disk from within the casing. Place the salvaged magnetic medium into the new case. When salvaging 3½" diskettes, you do not need to reattach the metal "door" or spring, but be sure the plastic fits snugly together so it does not get jammed in your disk drive.
5. Insert the disk into the floppy drive of an older PC.
6. Copy the damaged disk onto a new diskette.
7. Remove the salvaged magnetic medium and discard it. You can then continue using the diskette housing for additional salvaged diskettes.

Appendix L: Utility/System Malfunctions

Emergency Shut-Off's & Mechanical Rooms

For emergencies including the main **water** shut-off valve, **heating/cooling** system controls, main **electrical** cut-off switch contact: **Building Maintenance—465-8414 (wk); 321-4461 (cell)**

Appendix M: Vault Combination & Master Keys

The following staff know the combinations or have master keys for the external doors, dock doors and vault:

Name/Position	Office Phone
<u>Ken Nail, State Archivist</u>	<u>465-2275</u>
<u>Larry Hibpshman, Archivist II</u>	<u>465-2241</u>

Appendix L: Utility/System Malfunctions
Appendix M: Vault Combination & Master Keys
