Disaster Preparedness

Introduction

The availability of records is critical to the maintenance of Texas state government functions. This section identifies state requirements for vital records, defines the most common hazards for records, outlines a preventive approach for reducing the risk of an avoidable disaster, provides guidelines for developing a disaster recovery plan, and suggests actions that can be taken after a disaster to recover state government information maintained on different types of record media.

The focus throughout this discussion will be on the impact of a disaster on records. More general provisions for disaster planning to protect human life, buildings, or equipment will not be addressed.

Tornado photograph courtesy of National Severe Storms Laboratory (NSSL), one of the National Oceanic and Atmospheric Administration's internationally-known environmental research laboratories dedicated to improving the nation's severe weather warnings and forecasts.

The Governor's Division of Emergency Management (under the Department of Public Safety) provides leadership, supervision, and training at both the state and local levels for developing mitigation actions to cope with potential hazards; for providing direction and control during emergency situations; and for coordinating recovery and rehabilitative operations after a disaster has occurred. The Department of Information Resources has disaster recovery planning guidelines and standards available for data processing operations. Security requirements to protect records in electronic format are also discussed in "Electronic Records" (Part V, *Texas State Records Management Manual*).

Statutory Requirements

Texas Government Code §441.183, "Records Management Programs in State Agencies," requires each agency head to "identify and take adequate steps to protect confidential and vital state records" as part of its records management program.

In addition to the legally mandated protection of vital records, which focuses on the rapid reconstruction of state records from backup copies of paper, microfilm, or electronic media, the discussion of disaster recovery in this part includes guidelines and recommendations for the broader concepts of disaster prevention, recovery planning, and the salvage of other, non-vital records that are important to agencies. Disaster recovery planning should be part of the total records management program.

Disaster recovery will be ineffective and/or unnecessarily expensive if other aspects of records management are not developed. For example, an agency that has never inventoried and appraised its records holdings will be in a difficult position to make appropriate decisions after a disaster about which records have sufficient value to justify the cost and efforts of salvaging. If an agency does not have an approved records retention schedule in place or has not implemented the schedule, there will be the additional problem during disaster recovery of dealing with obsolete records that no longer have value to the agency, but have not been disposed of in a timely manner.

Definitions

Texas Government Code §441.180(7) defines a vital state record as any state record necessary to:

- the resumption or continuation of state agency operations in an emergency or disaster.
- the re-creation of the legal and financial status of the agency.
- the protection and fulfillment of obligations to the people of the state.

NOTE: In certain occupations and applications, such as health and medicine, vital records are defined as those pertaining to birth information, death records, etc. Note that the definition of a vital state record in the Texas Government Code §441.180 does not carry those meanings.

Vital records may be in any form or medium (magnetic tape, microfilm, paper, etc.). When we refer to vital records, we include all vital records regardless of the medium on which the records are stored. Whatever the records medium, vital records can only be preserved if they are properly identified and protected. (See pages 4 through 6 for a discussion of preparing for a disaster by establishing a vital records program.)

Disasters are generally defined as occurrences causing widespread destruction and distress. As applied to records management in state government, an information disaster results in the loss of records necessary for the operation of an agency's official business.

When the impact of a disaster includes the irreparable loss of information, the disaster is also referred to as a catastrophe. A goal of providing this part of the *Texas State Records Management Manual* is to assist agencies with preventing or recovering from disasters before they become catastrophes. (See pages 16 through 29 for a discussion of disaster prevention and recovery planning.)

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Vital Records Program

A vital records program is a required component of an agency's records management program. To be successful, a vital records program must satisfy these five conditions:

- Those records vital to the continuation of agency business have been identified and selected for protection.
- The records are identified and protected in accordance with accepted records management practices.
- The agency's vital records are identified on its "Records Retention Schedule" (Form SLR 105), which each agency must submit to the State and Local Records Management Division.
- The vital records can be accessed, collected, or reconstructed in an acceptable amount of time to resume operation following a disaster.
- Program procedures are documented and consistently reviewed/updated.

Identifying Vital Records

There are some generally accepted types of vital records. For example, in the *Texas State Records Retention Schedule*, you will find records series that are commonly considered vital in state agencies. These records series are identified by an "*X*" in the VITAL column.

Vital records are, however, specific to each agency. That is, the nature of an organization determines what is vital to its particular operation. The selection process for vital records unique to an agency can be difficult but it is the first step in establishing the overall vital records program.

Records Requirements

Begin identifying these vital records by asking yourself the question, "In the event of a disaster, what records are absolutely necessary to resume operations?" Also, consider the following requirements for records that would justify their designation as vital:

- Operational requirements—the needs of the operation and continuation of the agency's mission.
- Legal requirements—the need to provide proof of authority or activity.
- Governmental requirements—state and federal laws or regulations specifically defining the need to designate certain records as vital.

Analysis of Records

If possible, an analysis to identify records vital to the operation of the agency should be done at the time of the records inventory. See "Records Scheduling" (Part II, *Texas State Records Management Manual*) for details of the process. During the inventory, you will be inspecting each records series and examining its values, and this is a good time to evaluate the records for vital status as well. If the inventory has been done, base your analysis on the inventory worksheets and the agency retention schedule.

There are many elements to consider concerning the selection of agency vital records. The responsibility for the vital records program lies primarily with you, as records management officer, but it is unreasonable to assume that you can know everything about every department or division within your agency. Therefore, collaborate with representatives of each area, including the audit and legal departments. Analyzing records for vital protection requires integration and coordination within the entire agency.

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The success of the vital records program depends greatly on the common sense and foresight of the records management staff and the other managers and personnel involved in this collaborative effort.

Vital versus Permanent

Vital records are not necessarily permanent records. For example, accounts receivable may be vital records until payment is received; or a contract may have a vital retention period of the span of the contract agreement, after which it is no longer vital. Analyze each records series for its importance at each stage of the record series life cycle.

Vital versus Archival

Similarly, vital records and archival records are not synonymous concepts. In general, archival and historical records are retained for research or historical use. A records series with archival value may indeed be vital to your agency, but do not assume this in the absence of analysis.

Statutory Compliance

Once you have identified all the vital records of your agency, note the vital designation by placing an "*X*" in Field 11 (VITAL) of the agency's "Records Retention Schedule" (Form SLR 105) across from the corresponding records series entry. Identifying all of the vital records of your agency on its records retention schedule and submitting the schedule to the State and Local Records Management Division satisfies the requirement of Texas Government Code §441.183 that vital records be identified. It is also an additional legal obligation of each agency, however, to protect identified vital records adequately from hazard.

Methods of Protecting Vital Records

The four most common and effective methods of vital records protection are:

- Duplication by microfilming.
- Duplication and dispersal of copies.
- On-site storage.
- Off-site storage.

Microfilming

Microfilming involves preserving the vital records on microform (microfilm, microfiche, or any medium containing microimages) and is generally done when the nature or volume of records makes other types of duplication impractical. Microfilming is often used for creating duplicate records of current information. Another popular use for microfilming as a vital records protection method is maintaining a master microfilm negative from which duplicates are made for general use. In this application, the master is kept safe from misuse, breakage, or other hazards.

Microfilming is generally considered one of the safest methods of protection, but the film does require a special storage environment. See "Document Imaging" (Part VI, *Texas State Records Management Manual*) for a discussion of the benefits and limitations of microfilming and for detailed information on requirements for storage of microfilm.

Dispersal

Dispersal is another accepted protection method. It is the process of maintaining more than one copy of a vital record.

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There are two standard methods of dispersal:

- Routine distribution.
- Planned distribution.

Both methods are based on the assumption that it is very unlikely that a disaster will affect different locations at the same time.

Routine distribution is used in many agencies, especially those with several locations or offices. During the regular course of business, vital records are distributed to various locations for use and reference. As long as these records are maintained at two or more locations as specified in the agency retention schedule, you may not need additional protection.

Planned distribution involves the distribution of copies of vital records, created specifically for protection purposes. These copies can be in any information medium or format. Duplication of the information does not always require copying in the original medium, although duplicating in the same medium (paper to paper, magnetic tape to magnetic tape, for example) is often the most economical and least complicated way to protect the information. The copies are then sent to designated vital records storage facilities until the retention requirements are met.

Planned distribution is a good protection method for the systematic rotation of vital records' backups on computer tapes. Many agencies routinely rotate their magnetic tapes off-site, so that at any one time a substantial amount of information is located away from the place of business. Should a disaster occur at either location, the records can be reconstructed from the backup tapes. The State and Local Records Management Division will help you establish a rotation schedule and will store backups at low cost to your agency.

On-Site Storage

On-site storage involves having special security storage equipment on the premises of your agency. You can provide considerable protection for your vital records by storing them in fire-resistant containers, file cabinets, safes, or vaults designed for vital records protection. The equipment must be designed specifically for the type of record medium it contains and should be used exclusively for vital records.

Your agency's fire protection plan should include precautions to prevent fire, and the water or chemicals used to suppress the fire, from spreading to the areas where the protected records are located.

When possible, build or obtain a fire-resistant vault if you choose on-site storage of vital records. Vaults are well suited for records protection because they combine the benefits of space, environmental control, and integrated security. Floors, walls, ceilings, and entrances can be secured against fire and other dangers.

NOTE: Vital records stored in basements are almost certain to be damaged or destroyed in the event of a fire, as water used to extinguish the blaze will seep through upper floors to the basement level.

Storage Equipment

All records protection equipment is rated for safety and damage resistance. Use the ratings in determining the on-site storage methods to use for vital records protection. Rating information labels are attached to all protection equipment. Examine these labels carefully. They certify that identical equipment has been put through tests and was able to withstand specified levels of intense heat, sudden cooling, and severe impact.

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Storage Environment

The American National Standards Institute (ANSI), the National Fire Protection Association (NFPA), the Underwriters Laboratories (UL), and the Texas State Library and Archives Commission by administrative rules have established recommended or required standards for the storage of records media.

Temperature and humidity limits (required for records containers to protect the integrity of the records medium being stored):

Media	Temperature °F	Humidity
Paper	350	100%
Microfilm (silverbase)	150	85%
Magnetic media	150	85%

Recommended storage conditions for records media:

Media	Temperature °F	Humidity
Paper	60-70	50-60%
Microfilm (silverbase)	65-70	20-30%
Magnetic media*	65-75	30-50%
Optical media*	14-122	10-90%

*Required by administrative rules.

Required or Recommended Standards

The most recent version of the following applicable administrative rules and standards will be helpful in selecting storage equipment and proper environment conditions:

Texas Administrative Code

Microfilming Standards and Procedures (13 TAC §§6.21-6.35).

Electronic Records Standards and Procedures (13 TAC §§6.91-6.99)

ANSI/NAPM IT 9.11, *Imaging Media—Processed Safety Film—Storage.*

ANSI/NFPA 75, *Electronic Computer/ Data Processing Equipment.*

ANSI/NFPA 232, *Protection of Records.*

ANSI/NFPA 232A, *Fire Protection for Archives and Records Centers.*

Evaluating On-Site Storage

Consider these aspects of on-site storage before making a final on-site storage decision:

- Does the storage area have proper temperature, ventilation, and humidity controls?
- Are there electromagnetic fields nearby that could damage computer tapes or disks?
- What security measures are in place to stop unauthorized access to the storage area?
- Is the building itself secured against fire, flood, vermin, and other disasters?
- Is the storage equipment adequately safe from disasters and sabotage?
- Would you feel safer storing the only copy of a vital record on-site, or storing it off-site in a records storage center?

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Off-Site Storage

Off-site storage of vital records involves placing them in a records center away from the place of agency business. If the activity rate for the original records is low, the original records should be stored off-site for safety. If an alternate format is chosen; for example, paper replaced by microfilm for active reference, make one copy of the microfilm and store the master off-site.

The type of records storage center you select will depend on the needs and resources of your agency. For agencies in the Austin area, the State Records Center is available for off-site storage on a cost recovery basis. Other storage facilities can be agency-operated, commercial, or a facility shared with other agencies with similar records protection needs. Your vital records volume may not warrant a large building or vault, but an organization with such a building may be able to lease space.

Off-Site Storage Advantages

The primary advantages of an off-site storage center include:

- In an emergency, records can be retrieved quickly because they are all in one place.
- Staff members are trained in current records management and professional storage techniques.
- Many off-site centers are designed to store vital records and are equipped with the necessary environmental controls and detection devices.
- The security in an off-site facility provides added protection, and access to records is restricted to those individuals designated by the state agency.
- It is often possible, depending on services in your area, to select a center that is far enough away as to be unaffected by a disaster involving your agency.

Evaluating Off-Site Storage

Questions to consider in choosing an off-site storage facility:

- If your agency suffered a disaster or needed any stored records for any reason, how quickly could you have access to the information?
- What security controls are employed to limit access to your records? How is the building protected from unauthorized entry during and after hours?
- How does the center control temperature, humidity, air filtration, and electromagnetic fields? Does it meet the American National Standards Institute (ANSI) standards for storage? Are the records protected against insects, rodents, and mold?
- What type of insurance is available for the center and for your records?
- What type of fire prevention, detection, and suppression systems are used?
- What type of retrieval index system is used?
- What are the procedures for transfer, retrieval, and disposal of records?
- If the main power in the area should fail, does the center have auxiliary power to maintain the temperature, humidity, and security equipment?
- Is there an established disaster recovery plan?
- Is duplication and reproduction equipment available?

Before you commit to storing your vital records in an off-site center, visit the site. Ask for and examine client references.

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Off-site storage is, in most cases, the best method for protecting vital records, but the security of the records must be guaranteed.

Vital Records Program Administration

Once all vital records have been identified and you have selected the appropriate protection methods, it is time to implement the administrative components of the vital records program.

Good program administration begins with the selection of one person who has the authority and skill to carry out all elements of the vital records program. Administration of the program should be the duty of the agency records management officer, who is responsible for the records management program for the entire agency. The records management officer has the most knowledge of the agency's total records holdings. Depending on the size of the agency and its records management department, the records management officer might also have a staff of records analysts with broad knowledge of records and information management.

Establishing Operating Controls

Based on the needs of the agency, appropriate controls should be established by the records management officer to monitor the vital records management program and to ensure its effective implementation.

Many agencies maintain various types of forms to establish these procedural controls. Several of the forms are described in the following paragraphs. These examples are not required by the State and Local Records Management Division; they are presented as suggested means of maintaining records control.

Vital Records Retention Schedule

In compliance with state law, you will have already identified vital records on your agency's retention schedule,

but many agencies choose to have an additional retention schedule exclusively for vital records. The schedule should list the vital records series titles, the retention period for each, the information medium, specifications for records protection, and any special instructions.

Container Labels

If vital records are being stored on-site by an agency, the container may be labeled to call attention to the special nature of the contents. A label should be applied to all containers, whether disk pack, microfilm box, file box, or any other holding unit.

Include on the label:

- Vital record code or agency item number which corresponds with the agency's records retention schedule.
- Records series title.
- Date of records.
- Retention period.
- Department of origin.
- Any special instructions.

NOTE: Do not use labels if you are storing material at the State Records Center. The center's security protocols require that boxes be free of markings except for a designation described in "State Records Center" (Part VIII, *Texas State Records Management Manual*).

Rotation Schedules

Rotation schedules are important to track the activity of magnetic media backups and working copies, especially if you are rotating them off-site. The schedules show the status and location of records at all times and can ensure proper rotation of duplicates.

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Documentation of Procedures

Create written documentation of the procedures that you establish for your agency's vital records program. Proper documentation establishes the standards for your agency's management of vital records and emphasizes the importance of the program.

The procedures should include:

- Purposes and objectives of the program.
- Persons authorized to access the vital records.
- Temperature and humidity levels and any other environmental considerations the records require.
- Equipment specifications, operating procedures, and precautions.
- Examples and explanations of the forms used in the control and processing of vital information.

Disaster Prevention

In addition to establishing a vital records program, effective records management includes making all reasonable efforts to prevent, prepare for, and recover from disasters. To prevent a disaster from damaging your records, you must first recognize potential hazards. The most common threats to records include damage caused by fire, water, theft, sabotage, and adverse environmental conditions. Records management officers should establish a close working relationship with the agency facility administrator, if there is one, to take steps to prevent disaster.

Fire Hazards

One of the most important factors in safeguarding records is the prevention of fire, which should be discussed with local fire prevention personnel.

You can approach this problem by minimizing the chances that a fire will start and maximizing the chances for extinguishing it as quickly as possible.

Recommended precautions against a fire disaster:

- Prohibit smoking in records storage areas.
- Do not store records with chemicals, cleaning supplies, etc.
- Do not store records by a furnace, radiator, or heater.
- Remove paper clutter from the area.
- Follow approved retention periods for records to ensure the timely destruction of obsolete records and removal of inactive records, thus decreasing the availability of potentially flammable material.
- Make sure all wiring is safe.
- Comply with all local fire, electrical, plumbing, heating, and construction codes.
- Have fire extinguishers checked at regular intervals. Show agency staff where they are located and demonstrate how to use them.
- Clearly mark fire escape routes and exits; have regularly-held fire drills to practice emergency procedures.
- Periodically evaluate the fire prevention system in use, such as smoke detectors and/or a sprinkler system.

Water Damage

Regardless of the many forms that a disaster may take, the actual damage to records is often caused by the secondary effects of water. An earthquake, for example,

can cause water pipes to burst. Flooding and water damage also result from the sprinklers or hoses used to put out a fire.

Records storage areas flood because of the damaging winds and rain associated with a hurricane or tornado. A variety of other circumstances can cause sewers to back up, water pipes to break, and water drains to get clogged.

Preventive measures to reduce the risk of water damage include:

- Avoid storing records in basements, under water pipes, or directly on the floor.
- Locate all your drains and have them checked regularly.
- Regularly inspect the sprinkler system, and check the general condition of the records storage site to determine if the area is susceptible to flooding, if the building has structural defects, if the roof is developing leaks, etc.
- Look for any potential water hazards during routine inspections of the plumbing, drains, water pipes, etc.
- Do not install carpet in records storage areas. If flooding occurs, the carpeting will retain water and prevent drainage as well as create a problem in stabilizing temperature and relative humidity in the affected area.

Theft and Sabotage

The appropriate level of security for specific records series needs to be determined by taking into consideration the following:

- Classification of the records as open or confidential.
- Characteristics of the medium used to record the information.

- Identification of vital records.

- Physical features of the building where the records are used or stored.

There should be an initial security analysis and periodic evaluations of the security being provided in the records storage and active files areas.

Basic security precautions:

- Determine who needs access to particular records series and limit the number of staff members who handle records.

- Limit access to records storage areas.

- Be aware that terminated employees may pose security risks. Have the employee turn in all relevant identification and keys before leaving.

- Ensure that all access control systems, intrusion detection systems, and alarm systems are maintained on a regular basis.

- Make security checks at closing time to ensure all exits and windows are locked, all equipment has been turned off or unplugged, all lights and water faucets are off, and no unauthorized personnel are in the building.

- Keep the exterior of the facility well-lit at night.

- Establish procedures that will be followed in the event of theft or vandalism.

NOTE: Further information on security requirements for records maintained on computer systems can be found in "Electronic Records" (Part V, *Texas State Records Management Manual*).

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Environmental Concerns

Most modern paper stock is undergoing a continual process of deterioration caused by its typical high level of acidity, and the problem is intensified by atmospheric pollution. Records maintained on microform or magnetic media are also highly susceptible to deterioration if appropriate precautions are not taken to regulate temperature, humidity, pollution, and lighting.

The most important factor for environmental control is to avoid extremes. All forms of record media are damaged to some degree by fluctuating temperature and humidity. Excessive heat can cause paper, microforms, and magnetic media to become brittle. High humidity promotes the growth of molds and fungi.

To help prevent accelerated deterioration of records, you should avoid storing records in attics, basements, and warehouses that are not in some way climatically controlled. In situations where even minimal control of relative humidity is difficult to achieve, an effort should be made to keep air circulating through the records area. Mildew is more likely to grow if air is stagnant.

Avoid storing records in areas where there is smoke, dust, or chemical fumes produced by paints or copying devices. Direct sunlight and bright lights will also shorten the life of records. The records area should be free of food, beverages, and plants in order to prevent soiling of records and to reduce the possibility of attracting insects and rodents.

NOTE: Temperature and humidity limits, and recommended storage conditions for different types of recorded media can be found on page 10.

Disaster Recovery Planning

Disasters have not been known to inquire about one's state of readiness before striking. Knowing what (and what not) to do before, during, and after a disaster will prevent panic, lessen the severity of damage, and enable you to implement an organized recovery operation.

The following guidelines are offered to assist agency records management officers in the development of a disaster recovery plan and salvage procedures for records, which can be tailored to the specific agency's needs. By preparing a recovery plan prior to the disaster, agency staff will be able to immediately begin the process of an effective response.

NOTE: For a sample format for developing a disaster recovery plan for records see pages 30 through 34 of this section.

All sources of supplies and services listed on the plan should be contacted in advance to arrange for resources to meet the agency's needs. Sources should be contacted on a regular basis to determine whether those supplies and services are still available and to re-confirm specified agreements.

Keep in mind that in the event of a wide-scale, major disaster your sources may not be available because they have their own damages to deal with or because they are assisting someone else. In addition, outside help may not be available for one or two weeks, so keep as many recovery materials as possible on-site.

The plan should be reviewed and updated twice a year to reflect changes in personnel, records holdings, policies, procedures, and sources of supplies and equipment. It is recommended that an in-house recovery team be established and that each member of the team receive two copies of the records management disaster recovery plan—one to keep at work and one to keep at home. Training in disaster recovery techniques should be available to all staff members and mandatory for those individuals serving on your recovery team.

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Recovery Team Responsibilities

For most agencies, the in-house disaster recovery team should have at least four members with alternates. Each team member should be assigned and prepared to perform one of the following duties in the event of a disaster:

- Team leader—Overall management of salvage operations; coordination with administrative offices; authorization of expenditures for wages, supplies, transportation, and services; public relations.
- Supervisor of salvage team—Assemble, train, and direct work crews; control work and materials flow.
- Coordinator of support services—Assemble supplies and equipment; provide food for work crews.
- Recordskeeper—Inventory control of damaged records; damage/salvage assessment; document damage and recovery operation.

Disaster Recovery Operations

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

Most disasters, however, seem to occur when the building is unoccupied—during the early morning hours, on weekends, or during holiday closings. In the event of a major disaster, do not enter the building until it has been declared safe to do so by fire or emergency management personnel.

The following steps are recommended for an effective records recovery operation:

- ➤ Activate the in-house disaster recovery team.
- ➤ Establish security and safety.
- ➤ Assess the damage.
- ➤ Stabilize the environment.
- ➤ Salvage damaged records.
- ➤ Carry out post-disaster assessment.

Recovery Team

The disaster recovery team should be contacted and assembled prior to the start of work to salvage records after a disaster. The team members must be briefed on the procedures to be followed and the priorities to be met. Each person should be given a specific area of responsibility. No salvage activity should begin until a plan of action has been determined by the team leader.

One of the immediate priorities for the action plan must be to obtain the various services, equipment, and supplies needed during the salvage operation. The disaster plan should provide most of the basic information; however, it may be necessary to spend considerable time on the telephone. A communications center should be established immediately, which can function as a centralized point for the organization of the recovery effort and to help avoid confusion and delays whenever possible.

Arrangements must also be made to take care of the needs of all personnel involved in the recovery effort. Hot coffee/tea and food should be available in an area where people can rest and relax, separate from the disaster area.

Security and Safety

Throughout the initial period of damage assessment and during recovery activities, security and safety precautions are essential. Security control measures should restrict access to the damaged area(s) and be maintained through the use of security personnel, a sign-in/sign-out register, and identification badges. Only authorized personnel should be permitted to enter the building.

Safety precautions during the recovery process include:

- Reviewing disaster areas for hidden hazards such as shorted motors or broken electrical wires.
- Avoiding standing water and wet carpets that make use of electrical equipment dangerous.
- Installing and using temporary wiring properly.
- Using care with fire and water-damaged files. Wet records are heavy. Caution must be used in opening cabinets or lifting storage boxes.
- Using face masks and protective gloves, and immediately washing or cleaning clothing may be necessary due to the health hazards caused by fungal and bacterial organisms.

Damage Assessment

The type and degree of damage must first be examined. One or more disaster recovery team members should walk through the entire area and take notes to answer questions, such as:

- How much damage has occurred?
- What kind of damage is it (fire, smoke, soot, clean water, dirty water, heat, humidity)?

- Is it confined to one area or is the entire building damaged?
- How much of the records holdings have been affected?
- What types of record media have been damaged (paper documents, microforms, photographs, magnetic tapes and diskettes)?
- Are the damaged records easily replaced (is there a preservation duplicate stored off-site, are these convenience copies of records)?
- Are the damaged records irreplaceable and what is their value (is this the only copy of the information, how important are these records to the business of the agency)?
- Can the records be salvaged by the in-house recovery team, or will outside help be required?

A realistic and thorough assessment must be made as quickly, efficiently, and safely as possible. The damage to records should be appraised without handling the records whenever possible, as further irreparable damage may result. Before you begin handling the materials, photographs should be taken to document the damages.

Stabilizing the Environment

While the character and degree of damage is being assessed, steps must be taken to stabilize the environmental conditions affecting the records. Mold growth, which can appear within 48 hours, is encouraged by conditions of high humidity and high temperatures. By reducing relative humidity and temperatures, you can reduce the risk of mold and thereby buy time for the recovery operations. The following equipment should be readily accessible to help stabilize the environment:

- Portable generators in case a power failure occurs.
- Pumps to remove large quantities of standing water.
- Fans to circulate the air.
- Thermometers, hygrometers, or other devices to measure the temperature and humidity.

The air should be circulated in the damaged area to eliminate any stagnate air pockets. This may be accomplished by running fans constantly. If possible, the fans should be configured to expel the humid air from the area. Dehumidifiers can help to lower the humidity, although they are usually effective only in small, enclosed areas and tend to increase the temperature in a room. They can also freeze up in the lower temperatures required for salvage and recovery operations. Temperature and humidity should be monitored constantly.

Any standing water should be pumped from the area. Extreme caution must be taken, as standing water can conceal hazards. All wet debris and carpets should be removed.

Treating Water-Damaged Records

The choice of specific steps to be followed for salvaging records will vary according to the type of records medium being treated and the cause of the damage. The records most likely to be salvaged after a disaster are those that have water damage. A number of options are available for treating water-damaged materials.

Paper Records

A decision has to be made by the recovery team leader in consultation with the records management officer and any available conservation personnel whether water-damaged paper records will be air dried or frozen.

When materials are slightly damp and the quantity is considered manageable, air-drying may be considered. If the material is soaked, it should be frozen, regardless of the quantity.

Freeze and thermal vacuum-dry method—The most effective procedure for stabilizing water-damaged records and archival materials is to blast freeze them to a temperature of -20°(F) and then to dry them by a thermal vacuum process. Freezing offers several advantages because it allows time to:

- Estimate recovery costs.
- Prepare and coordinate subsequent steps in the drying and recovery operation.
- Clean up the affected areas of the disaster site.

In addition, freezing stabilizes water-soluble materials such as inks, dyes, etc., which may run during natural drying. The subsequent thermal vacuum-drying will cause water to pass from a frozen state to a vapor without returning to liquid form. Under such conditions, the feathering of inks is slight. Freezing and thermal vacuum-drying will also lessen stains and reduce and remove the odor caused by smoke.

Drying without freezing method—If it is decided that the freeze and thermal vacuum-drying method is not practical, natural drying of the damaged material is possible. Rooms chosen to be drying areas must have good air circulation and low humidity; this requirement can be achieved by the use of fans, dehumidifiers, and/or air conditioning.

Microforms

In the handling of water-damaged microforms, speed is again essential in order to prevent the breakdown of the film emulsions and the onset of bacterial growth that will destroy film images. Water-damaged microfilm

and microfiche should not be frozen since development of ice crystals may be harmful. Damaged microforms should be kept under water, preferably distilled water, and sent as quickly as possible to a professional micro-processing laboratory for film cleaning services. Handle the film as little as possible.

Electronic Media

The disaster recovery planning for records stored on electronic media should include the implementation of an effective program for creating regular backups of critical or essential files and storing these in a safe location. Unless there is no other alternative, file recovery efforts should proceed through reliance on use of backup files rather than attempting to re-use damaged media. For electronic media disaster planning purposes, system support backup tapes and disks and documentation should be stored off-site and such storage is required by state regulation for vital records. A typical backup would consist of establishing three versions of data: the previous generation of data, the active data, and a copy of the active data.

If the circumstances require the salvaging of water-damaged electronic media, they should not be used until thoroughly cleaned and dried and the housing or containers replaced. This will avoid damage to equip-ment, especially disk drives.

Magnetic tapes which have become wet have a good chance for information recovery. Hand dry all external surfaces with a soft, lint proof cloth and air-dry the tape using a tape cleaner or winder to run the tapes from reel to reel. A company specializing in magnetic tape restora-tion should be consulted.

Drain and blot floppy diskettes with soft, lint-proof cloth. Peel the jacket away from the diskette and rinse the diskette with distilled water. Drain the diskette and place flat; blot and air dry approximately eight hours. When dry insert into new jacket. Copy data to new diskette. If the information copies properly, discard the damaged diskette. Clean copy equipment drive heads to prevent permanent damage to the heads.

NOTE: Further information on the planned backup of records on magnetic media can be found in "Electronic Records" (Part V of the *Texas State Records Management Manual*). Off-site backup storage of vital records maintained on electronic media is required by state regulation. The State Records Center offers disaster recovery storage services on a cost recovery basis to state agencies in the Austin area.

Post-Disaster Assessment

An essential component of the disaster recovery process is an assessment after the disaster recovery operation is completed. The assessment should note the effectiveness of the disaster plan and should include an evaluation of the sources of supplies and equipment, and of any off-site facilities used. Once the assessment has been made, the disaster plan should be amended where necessary to reflect any inadequacies that have been identified. Never assume that since your agency has experienced a disaster it will be a long while, if ever, that you will have another one.

Plan Ahead. Be Prepared.

The real disaster is when agencies fail to prevent those situations which are damaging to records but could have been avoided, or fail to be prepared to make an effective response when a disaster strikes so that valuable state records can be recovered.

The objectives of disaster recovery planning for records management are to identify potential hazards to the maintenance of records needed by the agency for official state business and, as much as possible, to prevent emergencies from happening. In the event of an unavoidable calamity, agencies can still be prepared to ensure continuation of services to the public by efficiently recovering vital state records.

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Disaster-Recovery Plan

Sample Format

I. Name of agency

II. Date of completion or update of this plan

III. Agency staff to be called in the event of a disaster:

Disaster Recovery Team	Name	Telephone Numbers (home and office)
Leader		
Members/alternates		
Building maintenance		
Building security		
Legal adviser		

Note below who is to call whom upon discovery of a disaster ("telephone tree"):

IV. Emergency services to be called (if needed) in the event of a disaster:

Service	Contact	Telephone Number
Ambulance		
Carpenters		
Chemist		
Data processing backup		
Electrician		
Emergency management Coordinator		
Exterminator		
Fire department		
Food services		
Locksmith		

Micrographics vendor

Plumber

Police department

Security personnel (extra)

Software vendor

Temporary personnel

Utility companies

- Electric
- Gas
- Water

Other individuals/groups to assist in cleanup

V. Locations of in-house emergency equipment and supplies (attach map or floor plan with locations marked).

Item	**Location**
Batteries	
Badges (employee identification)	
Camera and film	
Cut-off switches and valves	
- Electric	
- Gas	
- Water	
- Sprinkler system (if separate)	
Extension cords (heavy-duty)	
Fire extinguishers	
First aid kits	
Flashlights	
Ladders	
Mops, sponges, buckets, brooms	
Nylon monofilament	
Packaging tape and string	
Paper clips (non-rust)	

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Paper towels (not colored)

Pencils/waterproof ball point pens

Plastic trash bags

Rubber gloves

Scissors

Transistor radio (batter powered)

Wiping cloths

Writing tablets

VI. Sources of off-site equipment and supplies (if maintained on-site, note location):

Item	Contact	Telephone Number
CB radio		
Dehumidifiers		
Drying space		
Dust masks		
Fans		
Fork lift		
Freezer or wax paper		
Freezer space		
Fungicides		
Generator (portable)		
Hard hats		
Pallets		
Plastic milk crates		
Plastic sheeting (heavy)		
Pumps (submersion)		
Rubber boots or overshoes		
Refrigeration truck		
Safety glasses		
Spotlights		
Trash cans (plastic, small/large)		
Unprinted newsprint		

Vacuum/freeze-drying facilities

Waterproof clothing

Wet-dry vacuum

Work tables and chairs

VII. Salvage priority list

Attach a copy of the records retention schedule identifying all vital records series. The location and record medium of the preservation duplicate for each vital records series should be noted.

It is also very helpful if other records series are reviewed to determine their priority for salvage should a disaster occur. The following questions can be helpful in determining priorities:

- ➤ Can the records be replaced? At what cost?
- ➤ Would the cost of replacement be less or more than restoration of the records?
- ➤ How important are the records to the agency?
- ➤ Are the records duplicated elsewhere?

To identify this process, priorities may be assigned as follows:

1) Salvage at all costs (for example, records that are historically valuable or non-vital records that are important to agency operations and very difficult to recreate)

2) Salvage if time and resources permit (for example, records that are less important to the agency or somewhat easier to recreate)

3) Dispose of as part of general cleanup (for example, records that do not need to be salvaged because they are convenience copies and the record copy is at another location)

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VIII. Agency disaster recovery procedures

Attach a list of specific procedures to be followed in the event of a disaster in your agency, including responsibilities of in-house recovery team members.

IX. Follow-up assessment

If a disaster does occur, a written report, including photographs, should be prepared after recovery and attached to a copy of the disaster plan. The report should note the effectiveness of the plan and should include an evaluation of the sources of supplies and equipment, and of any off-site facilities used.

(Adapted from *Basic Guidelines for Disaster Planning in Oklahoma*)

Comments or complaints regarding the programs and services of the Texas State Library and Archives Commission may be addressed to:

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