Disaster Recovery Plan and Program: Manual of Procedures for Records Services Department of Smith County

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5th Edition

RSD

NOTE: If emergency/disaster already exists, skip to page 5 immediately.

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Preface

This Manual, though it can act as a model for other agencies, is originally meant only for the use of the Record Services Department (RSD) of Smith County, though its contents, as such, are applicable for any organization. It is dedicated to be a practical document to be necessarily updated or revised, whenever needed. All extreme incidents are meant to be covered as to such incident management techniques.

Any suggestions for improvement are, of course, always welcomed. However useful its need, it also exist for larger educational purposes, which has not been neglected, because a general introduction to the subject of disaster recovery has, in fact, been appropriately provided as well.

Introduction

The purpose of this Manual is to only cover the basic needs in terms of the levels of response required for potential emergencies or disasters that might occur to the RSD or, in particular, its Records Center. There will be presented an overview of concerns regarding the nature of emergencies and the ability of the RSD to practically engage in probable degrees of disaster preparedness.

The latter point covers also the matter of disaster prevention techniques and efforts that may be pursued for rationally trying to help avoid the occurrence of emergencies and, especially, any incidents that might become unmitigated disasters. For the encouragement of a fast response, as might be so needed, the fifth page covers **all** the immediate and essential information needed. The rest of this text is for providing a support structure covering both theoretical and practical questions involved with this particular subject.

This *Disaster Recovery Plan and Program: Manual of Procedures* then meets its intellectual obligations. Of course, it is rightly understood that supplementary information can and ought to be obtained; this then is for properly acquiring much greater details pertaining, logically, to all extended specifics on how to handle a wide range of real-world crises from just small emergencies to disasters of a truly great magnitude. A subject bibliography is, thus, included in this effort.

What is contained, in this circumscribed publication, can be of some use more for the limited needs of Smith County's various agencies and offices, not coverage for the extended scope of larger concerns. Its limitations are recognized. This volume's Emergency Procedures and Contingency Plan Reaction Sheet, on page 5, should, therefore, be more than just adequate for almost all situations that might, thus, normally arise, meaning as to most predictable or conceivable hazardous or dangerous incidents that would be so confronted.

The rest of what is contained is really for further study and consideration, as to some things that could be realistically done, pertaining to proper recovery procedures that would be so directly due to records-related disasters. However, there are principles of conduct and ways of thinking that could be held applicable to larger concerns related to how crises may best be handled professionally. In any event, this document is merely a tool fully subject to any possible revisions and updating as thought needed.

Legal Authorizations: Background Information

The following material is given so as to usefully provide the needed legal and related context for any proper discussion of the important subject at hand. It can help, moreover, to put such a matter into a larger perspective.

Vital Records Program Requirement: LGC Section 203.021(5)/GC Section 441.183(4)

Disaster Recovery Requirement: LGC 418 (Texas Disaster Act of 1975)

Essential records are covered by: LCC Section 201.003(5)/GC Section 441.180(13)

Electronic records protection requirements mandated by: 13 TAC Section 7.75(b)/13 Section 6.94(a)

In addition to all of the above, it is equally well to consider that every agency ought to have its own Continuity of Operations Plan (COOP), which is so fully consistent with the allied recommendations of the Federal Continuity Directive 1. There ought to be significant and documented planning for either natural, technological, or civil disasters, besides, e. g., possible common acts of arson or vandalism.

Every COOP must, necessarily, include coverage of an organization's need for saving and/or restoring all of its essential (crucial/vital) records; they are those particular records/records series definitely needed within 24 hours or less after any disaster; they are, thus, absolutely required to appropriately insure the survival and integrity, work and purpose, of an agency.

There needs to be present, moreover, an essential records protection program (ERPP) verifying that all records series designated/identified as being essential are provided degrees of protection by, e. g., off-site storage, duplicate copies availability, etc. The ERPP should, in addition, be reviewed annually (at a minimum) by the agency's Records Management Officer (RMO); the Smith County RMO, being a trained professional, can be rightly called in to help with an appraisal of the ERPP if wanted. It is a service to any County entity that is freely provided, by the Record Services Department, as a logical part of its work.

Identifying Essential Records: Imperative Action

For a professional aid in helping to readily identify an organization's essential records, one can consult ANSI/ARMA 5-2010 *Vital Records Programs: Identifying, Managing, and Recovering Business-Critical Records*; it sets the requirements for establishing a vital records program and identifying and protecting vital records, assessing and analyzing their vulnerability, and determining the impact of their loss on the organization.

That publication is available from either the American National Standards Institute (ANSI) or the Association of Records Managers and Administrators (ARMA) International.

Emergency Procedures and Contingency Plan Reaction Sheet

Establishment of Emergency and Disaster Recovery Plan

1st goal: Basic/essential outline guide for a fast reaction [this one-page sheet]

Names, phone numbers, fax number, email addresses of all immediate resource personnel

E. g., flood – 1st call: Maintenance **(903) 590 4761**

Facilities Services Phone: (903) 590 4650 Steve Christian, Director Phone: (903) 590 4761

Email: SChristian@smith-county.com Natasha Jaime, Secretary Phone: same #

Fax: 903 535 0918

County Fire Marshal/Emergency Management

Fire Marshal/O.E.M.A: Jim Seaton Phone: **(903) 590 2653** Email: jseaton@smith-county.com

1st Assistant Fire Marshal: Oren Hal Phone: **(903) 590 2657** Email: OHal@smith-county.com

Information Technology

CTO – Don Bell Phone: **(903) 590-4650** Email: dbell@smith-county.com Fax: (903) 590-4658
Network Admin. - Brian Chou ext. 4652 bchou@smith-county.com
IT Specialist - Will Christian ext. 4657 WChristian@smith-county.com
IT Technician - Jason Davisson ext. 4656 JDavisson@smith-county.com

For a natural disaster or terrorist attack: 1 (800) 222 1222

If none of the above listed resources can, thus, help the particular situation(s), then dial: **911**

Note: Disaster Recovery Supplies Container is located, in first section of RC, on far left-hand side in a corner formed by the Room G (cage). A fire extinguisher is next to it on the floor, besides the other fire extinguishers located throughout the Records Center.

All of the above provided information exists so as to readily yield knowledge of those people and resources that can be made available for getting help most immediately supplied to the most likely problems/crises that might arise at the Record Services Department or its Records Center.

In addition, especially among large departments, there can be a “telephone tree” established for having a list of people who can be called and they, in turn, would call others to activate an entire system of disaster prevention workers, for various occasions and/or degrees of action, that could be taken. The incident/disaster management planning can, therefore, become rather elaborate, if wanted or needed.

Chapter 1 Overview of Concerns about Emergency and Disaster Preparedness

There may be the useful need for some discussion on terminology as to mere emergencies versus genuine disasters of different magnitudes of seriousness. The presented idea of a disaster, e. g., could be applied to an entire regional incident that substantially disrupts much of the infrastructure, with a primary local example being a major tornado's devastation or, perhaps, a series of them savagely striking over a shorter rather than a longer period of time. They are surely hazardous incidents.

A tornado directly slamming into the Cotton Belt Building could cause some or, perhaps, major damage depending upon its vital intensity and length of time, completest duration, taken by it to violently tear into the fullest structural reality of this edifice. Very little of it, perhaps, might be left standing.

Since the Records Center, as well as the entire Record Services Department (RSD), exists in a basement area, though classified as the first floor, the only "conceivable" major disaster for the RSD would be a tornado so powerful as to make the 2nd floor (and above) collapse within the building. Such an incident, as to its obvious ferocious magnitude, would then be unquestioned as being a truly genuine disaster.

In true contrast, an emergency is a much more limited incident, such as flooding, a toxic gas release, or, perhaps, a large-scale police event, such as a dangerous person or animal being present. Because emergencies, properly understood, are defined as being limited in both time and the area affected, the probable concerns for recovery training and related logistics would, on balance, equally be limited.

The emergency could very well be concluded long before resources would be effectively deployed or become useful; this is while, for a true disaster, unaffected areas nearby could then provide the needed skilled manpower and supplies to cover the dimensions of a terrible situation, which is here contrasted with just a simple emergency situation (a, e. g., partly or mostly flooded basement).

What is the point being made? The problem being confronted needs to be kept carefully in perspective as to the use of resources, manpower or otherwise, for dealing with the particular situation, whether a brief or circumscribed emergency or, in contrast, a truly full-blown disaster. Thought is then important.

In short, there are reasonable differences between the anticipation of deploying just some simple emergency preparedness measures **versus** actual disaster preparedness, as to the scale involved, for either trying to mitigate possible consequences or seeking recovery measures of a critical nature.

<u>Distinguishing Emergencies v. Disasters</u>

A mere emergency situation, an unplanned adverse incident, such as, e. g., a leaking/broken water pipe, must be distinguished from a true disaster such as, e. g., uncontrolled/major flooding of the entire Records Center that will damage probably hundreds of boxes of records, many thousands of file folders, etc. Flooding is, of course, taken to be the most common cause of unplanned business interruptions.

Risk assessment/risk analysis should be first directed toward controlling any emergency situation, as soon as possible. Emergencies, which are defined as being of a limited scope, do not usually result in major losses. However, if at all possible, any such situation(s) should not be allowed, at a minimum, to ever later become an actual disaster. Disasters, normally, result in quite significant financial losses.

An actual disaster means an incident beyond the immediate capacities of placing mere emergency controls over a situation. It is something, in reiteration, that truly has dire and usually very seriously expensive consequences as well. As must be said, appropriate outside resources must then be quickly called upon, increasingly so, as to, first, stabilize a situation and, next, to try to mitigate, as much as may be reasonably possible, the basic results of a true disaster. So, intelligent thinking is notably required.

Actions to Take: A Disaster and What to Do

At the initial stages of a true disaster, all life-safety operations are held to be logically paramount. Due to the readily understood need for viable quick action to then save lives, responders sometimes take extreme risks that they would normally not take; this is due to the rather very intense situations versus those that are not as dynamic, as with a simple emergency. These inordinate risks may, perhaps, be accepted as part of the immediate nature of the disaster recovery job to be undertaken with speed and determination. Dangers can be faced by rescue workers, whether professionals or not. Time then becomes a tremendous key factor, as to what or how much can be reasonably done.

At a certain (often indefinable) point in the entire or overall recovery process, therefore, a disaster response will suddenly or otherwise morph, over time, from just initial lifesaving matters to substantial hazard control to, then further, proper actions taken for both needed and long-term recovery.

Through this (sometimes haphazard) continuum, the situation confronted full force moves from being once highly dynamic to relatively routine, over the course of days to the weeks/months that follow, for the fullest recovery needed or, perhaps, expected. How much of a sustained recovery that can be achieved may then, at some point, simply become a fairly debatable proposition over time.

As the incident, slowly or quickly depending upon the perspective chosen, moves through this obvious continuum, the risk-taking tolerance will, surely, more and more rationally decrease. What is meant?

Post-disaster workers will, not surprisingly, then tend to more routinely operate in a "workplace" that is fairly well characterized as to its presented hazards and, therefore, will logically implement the various and appropriate hazard controls. The passage of time tends to affect attitudes.

Simultaneous with and immediately subsequent to the lifesaving phase is what may be simply called the urgent phase; it could then be defined, for instance, as that period where, although there are no more immediate victims to rescue or, perhaps, citizens to get out of harm's way, however, the situation is still very dynamic, e.g., flood waters may still be found to be rising, the air still contains hazardous levels of contaminants, more tornadoes could readily develop as per observed weather patterns, etc.

During this phase, which may not (always easily) look that much really different from the initial disaster phase, responders may still, in the minds of objective observers, take some fairly unacceptable risks with the still logical intention, of course, to mitigate the situation. Hazardous situations could yet easily exist.

Unfortunately, there is not always a very clear separation or easy distinction between the early and urgent phases of an incident, and as a regrettable result, some responders may still take unnecessary risks, thus, endangering their safety and long-term health. Response leaders, as a consequence, need to be more critically aware as to when a disaster or very severe emergency moves from the initial phase to the urgent phase; for true disasters of towering magnitudes, steps should be taken to better ensure the attempt to properly control the real or potential hazards necessarily faced by their personnel.

Response personnel, it can be instructively remarked, also need to be well alerted to the genuine and significant differences between early/initial and urgent phases and, in addition, the proper value of taking appropriate and rational steps to then minimize the real or potential hazards to keep themselves safe while yet attempting to fairly mitigate the results of the very urgent situation then at hand.

As a subtopic, disaster/emergency management is often the generic name of an interdisciplinary field dealing with certain strategic organizational management processes; these are used to protect critical assets of an organization from hazard risks that can, of course, potentially cause further disasters or catastrophes, and to ensure the perpetuation of the organization. Planning, thus, becomes essential.

In terms of what needs to be made subject to recovery, the assets, e. g., of an organization, agency, etc. can be categorized as either living things, non-living things, cultural, informational, or economic. Hazards, in turn, are normally categorized by their particular cause, either natural or manmade.

What can be known as the entire **strategic management process** is divided into four fields, as an aid in the proper identification of the involved processes. The rightly noted four fields, as are applied toward extremely hazardous incidents, normally deal with

- risk reduction,
- preparing resources to respond to the hazard/disaster,
- responding to the actual damage caused by the hazard and limiting further damage (e.g., emergency evacuation, quarantine, mass decontamination, etc.), and
- returning as close as possible to the state before the hazard/disaster/catastrophic incident.

The nature of the strategic management process occurs, of course, in both the public and private sector, sharing, on the whole, the same kind of processes, but with different focuses; the former looks to the governmental operations and mission, while the latter naturally stresses the profit and loss realities of business enterprise; and yet, in both instances, many capital assets are often put at stake.

It can be critically noted, however, that Emergency Management is a strategic process, and not a tactical process; thus, as is logical, it habitually exists at the executive level in an organization. Nonetheless, it normally has no direct power; the Emergency Management (EM) function, therefore, serves as an

advisory or coordinating function to better ensure that all parts of an organization are appropriately focused on the then logically intended common goal: restoration of normal business after the crisis.

One can then see that effective EM, therefore, substantively relies on a comprehensive and holistic integration of emergency plans at all levels of the institution/organization; and, a proper understanding is to be held, moreover, that the lowest levels of the agency/entity are to be responsible for rationally managing the emergency first and, as needed, getting additional resources and assistance from the upper levels, meaning when and where required; all adverse incidents must be properly managed.

There is, in effect, a normal proximity of **command and control** (line and staff assignments) pertaining to an emergency; however, a real disaster, especially of any increasing magnitude, requires firm executive action rather sooner than later, of course. The most senior official, in the organization administering the EM program, is normally called an Emergency Manager, or, perhaps, use of a derived form based upon the term used in the field (e.g. Business Continuity Manager). Wise actions, not titles, are basic.

In any event, as can be easily guessed, the institution of sound and thorough EM planning is, at all times, essential to the success of any organization in fundamentally retrieving itself out of a crisis situation or, perhaps, what could be an even greater disaster should only poor planning exist. The next chapter will, therefore, consider those proper and well tested measures and actions that can be practically taken to reasonably overcome or, at the least, to substantially mitigate a true disaster.

After reading through this text, however, there should be no ignorance, at a minimum, of the ways and means of planning for how to possibly handle emergencies or disasters, especially the latter pertaining to various kinds of natural, technological, or civil disasters; these may, in fact, need to be placed within the valid range of possibilities, as to various institutional responses needed.

Equally, every County agency should develop a truly rational appreciation for the significant need to both have and maintain the updatability of its Continuity of Operations Plan, besides having an essential records protection program fully in place.

Chapter 2 Discussion of Disaster Recovery: Methods and Techniques

Before going into the more both practical and highly detailed aspects of disaster recovery methods and techniques, there will be the general consideration of the theory and thinking behind such necessary work. Structure will be here given as to what needs to be thought about for formulating a realistic recovery plan; this is, as could be guessed, to then better fight against the likely horrors and terrible consequences of any potential or likely natural or, perhaps, manmade disaster.

Methods and Techniques

The occurrences of tornadoes, hurricanes, earthquakes, and, e. g., well-publicized bombings in major cities and in Federal office buildings have all, therefore, had the logical and expected effect of alerting all businesses and government agencies as to the critical importance of having in place a good disaster recovery plan. The need, therefore, should never be rationally questioned; it is a part of due diligence.

There are, not surprisingly, certain universally key features that must be intelligently incorporated within any such well-designed and thought-out crisis plan. These important matters cover the appropriate needs to correctly identify correct procedures, for four standard phases, which do then critically involve:

- Prevention
- Preparedness
- Response, and
- Probability of loss, if an emergency/disaster occurs

The prevention phase sketches the activities or measures to limit or reduce the assumed probability of (an expected) loss, meaning directly, if an adverse incident then occurs. The preparedness phase relates to the idea that an organization's resources are rightly positioned before an emergency/disaster occurs. Things can be done, measures can be taken. Never be unaware of capacities and capabilities.

Activities related to proper preparedness do encompass the developing and updating of the plan, testing all existing emergency systems, training employees, stocking requisite emergency supplies, arranging for the correct engagement of all suitable/available recovery vendors, and, also, establishing "hot sites."

Those are the prearranged locations, for recovery purposes, where a complete computer operation is, thus, fully set up and immediately ready for action, if/when needed. It is different, for instance, from a "cold site" that must then be actually supplied with all of the computer equipment and any other such pertinent machines, supplies, etc. needed to assist with all/any (expected) recovery operations.

The response phase means, of course, that whatever necessary (or assembled) resources that do exist are to be properly activated to then protect the organization/agency from loss. These related kinds of

activities can be made to happen before, during, or directly after the adverse incident; they then include contacting the pre-arranged group known as the response team, notifying appropriate authorities, securing facilities, and alerting all records and information management recovery vendors.

The probability of loss phase is the rational assessment time logically taken to find out about the exact or, at least, general parameters and extent, scope and range, of the damage/loss that really occurred. Recovery activities are then related to restoring resources or operations after the disaster/incident. These proper activities correctly cover such matters as, e. g., dehumidifying records, restoring data onto computers, and physically bringing back or, perhaps, just downloading essential/vital records from off-site server storage. Many other examples could be given. Above all, be proactive and stay alert.

Not surprisingly, one ought to understand that a professionally developed disaster recovery plan (DRP) is, therefore, to be used thoughtfully as the logical and interrelated foundation for:

- Understanding the important financial and other reasons for having such a plan in existence
- Identifying needed preventive measures to be taken against records and information loss
- Beginning a company-wide response to disasters that threaten data/records/information
- Recognizing who would be among useful response personnel and their fixed or flexible roles
- Estimating cost of and various types and durations of business disruptions or major delays
- Providing off-site storage for all essential records and reliable backup computer data storage
- Defining alternative sites for all mission-critical tasks, including computer-related operations
- Establishing recovery procedures for any damaged important data/records/information
- Mandating what are to be the correct recovery priorities for all mission-critical operations
- Identifying sources of supplies, equipment, and services for recovery and restoration actions
- Testing the plan's effectiveness through mock disasters and making any needed changes

Failure to have a valid DRP, moreover, can then have many baleful consequences, including the fact that records can be lost and/or damaged permanently, meaning when necessary precautions are, thus, not properly taken to protect them. Degrees of protection are, of course, always to appropriately exist. For instance, even small precautions are, routinely, taken to protect most electronic data from loss.

This is then simply done by controlling extremes in temperature and humidity, backing up all high-value data, installing antivirus programs that detect and eliminate computer viruses, using surge protectors to limit damage caused by electrical variances, and removing any magnetic items from around or near hard drives or disks. A good DRP is updatable, subject to intelligent revisions, and maintains its flexibility.

In the end, the true empirical test of a rigorously sound DRP is one that fully permits business activity to resume within 24 hours after a disaster for the computerized information, and within just a few days or less for all other operational matters, at a minimum.

All this becomes logically inclusive of any other precautionary procedures and rational safety measures to be rightly used for protecting records and associated business operations. The entire DRP, therefore, necessarily encompasses something well beyond just simple records recovery; it then, also, necessarily includes fundamental recovery of the worksite, restoration of any essential equipment, and the cognate reconstitution of the (needed) work force as well. It is a notably full-cycle concern at its best.

Just having a good DRP available provides a responsible means of being able to intelligently compare and contrast what exists in the plans that other organizations have; parts of those other plans could, thus, be adopted or adapted for incorporating any possibly superior features and modifying or deleting others in one's own DRP, as the case may be.

Note: The following information, so as not to reinvent the wheel, was simply excerpted, reworked, and adapted for use here from the EPA website's section on: Records, Chapter 5: Disaster Recovery and Salvage, Sections 3 to 8. Different levels and kinds of disasters will, of course, help to appropriately determine how much of what is presented below may or may not be applicable, at certain times, or to different degrees of probable applicability. Whatever may reasonable help a particular situation should be done, meaning according to the professional recommendations so offered.

3. Records Recovery Step 1 - Pack-Out

Almost all damage to records during a disaster is, in the end, usually water damage. Even records that survive initial damage by fire or explosion will have been both saved and further damaged by water.

Recovery of records from water damage involves three steps: **Pack-out**, **Restoration**, and **Relocation**.

a. Determine pack-out goal. Start with the end in mind. Do not begin pack-out until a site has been carefully selected. Will the volume of damaged records and the intensity of the damage require records to be sent off-site for restoration? Can some or all damaged records be salvaged in-house? Is a combination of in-house and off-site restoration advisable? Answers to these questions will clarify the answer to the important question of where damaged records should be removed to, for the work to be done. Remember that freezing soaked records will buy time, so that decisions about a method of restoration can be made at leisure.
b. Determine pack-out logistics. Options for removing wet boxes from shelves should be selected in accordance with the extent of the damage (quantity), the intensity of the damage (quality), and the number of available staff. A large number of dampened boxes and a large number of staff might make the bucket-brigade system function well. Boxes so badly soaked that the integrity of the box is compromised might call for conveyor belts or transferring boxes directly from shelf to streamline and, if possible, with a minimum of handling.

c. Document contents of removed boxes. Any box removed from the shelf must be identifiable by box numbers. If a box is wet but structurally sound, this may be automatic. If the box cannot be relied upon to remain intact or cannot be salvaged, place its contents in a plastic garbage bag, one box per bag, and ensure that any box panel with identifying numbers is placed in the bag with box contents. Note: Tie each bag securely to better ensure integrity.

d. Document removal of boxes. Keep careful records about what box numbers and from what locations have been removed, and where they have gone. If box removal is sizeable, this information is best eventually entered into a database, so that reports can be acquired on various fields: total number of removed cubic feet, cubic feet per record group, etc. Data can also be arranged in multiple formats: by shelf location, by accession number, etc.

e. Remove damaged boxes. Transport with least handling possible to either the location for in-house drying or to the dock for transfer to off-site freezer or drying facility.

f. Special concerns - **fire-damaged records**. Extreme caution must be used in handling paper damaged by fire. The records will likely be both brittle and wet. Pieces of paper toweling or unprinted newsprint (from preservation supplies) should be placed under each charred page before moving the item. The towel or newsprint serves two purposes: to absorb moisture and to provide support. The corners of the towel or newsprint are then used to lift and move the document more securely.

g. Special concerns - **muddy records**. Do not attempt more than minimal cleaning of wet records during the pack-out phase. Bound volumes may be gently dabbed with a sponge or soft cloth to remove mud or surface dirt, but do not rub or brush. Do not attempt to open water-damaged bound volumes. Loose textual records, if already soaked, may be rinsed, but do not wash in the sense of using friction on the page. Attempting to remove mud from wet paper forces dirt further into the paper's fibers. Note: Save cleaning until documents are dry.

h. Special concerns - **photographic media and microfilm**. Stabilize wet black and white photographs, negatives, and microfilm by sealing in polyethylene bags and placing in plastic (not metal) garbage cans under cold, clean running water. Do not allow them to dry. They may be left in running water for up to three days before being transferred to a professional recovery unit, but the earlier recovery begins, the better. Color photographs must be transported to a professional photofinishing laboratory within 48 hours after water immersion since the color

layers will begin to separate. If this is not possible, freeze them. Note: There is some inherent risk with freezing color photographs since ice crystals may form and rupture the emulsion layer.

i. Special concerns - **preparing materials for freezing**. Place materials designated to be vacuum- or freeze-dried in interlocking plastic milk crate containers, which are lightweight and provide air circulation and proper drainage. Loosely pack materials, unwrapped, in crates until crate is approximately three-fourths full. Wrap bound volumes with freezer or wax paper and place on their spines in crates. Note: Do not pack volumes too tightly, allow for needed air circulation. Place oversized material on uncolored cardboard, and wrap in packages not more than two inches thick. As was explained above, burned and charred materials require special care in handling, as the paper or bindings are very brittle. Support single sheets on uncolored cardboard and secure them with another sheet of cardboard or heavy paper.

4. Records Recovery Step 2 - Restoration.

Restoration involves returning records to the condition in which they were prior to the disaster, if at all possible. This effort is handled either in-house or off-site, and these matters below are some of the important issues involved.

1. Virtually any wet document can be restored **if** prompt and proper action is taken. Exceptions are documents containing water-soluble ink. Immediate microfilming is the only reliable solution here, and even this may be unsatisfactory, as should be, thus, logically expected.

2. In-house restoration is suitable for records that are damp or moderately wet only in places. It is accomplished by fanning and refanning files amid rapidly circulating, dry air, detailed below.

3. Off-site restoration is usually accomplished through professional companies and, therefore, is not detailed in this plan. Agency involvement, in such a process, is limited to visiting records at the recovery site from time to time, ensuring necessary security, and obtaining progress reports from the company(ies) doing the restoration work.

4. As noted above in Step 1 - Pack-out above, freezing wet records can stabilize them. No further damage occurs while wise choices of restoration processes can be reached in a calmer atmosphere. Freezing records also gives the option of drying a few boxes at a time on site.

5. Off-site drying is expensive in terms of the cash outlay to a contractor. In-house drying is also expensive, however, in the amount of staff time required to do it well. Choice of method may, therefore, be logically influenced by proper consideration of these costs.

a. Following are the restoration steps to be carefully followed.

1. Set up drying area(s). Select an area where heat and air conditioning are still operable, and where space permits ease of activity. Set up tables, floor fans, and, possibly, dehumidifiers. Cover work surfaces with plastic sheeting. Direct fans to blow into the area, but do not train them directly onto work surfaces. Air should be generally circulating, but not blowing directly onto drying paper.

2. Fan the records. The basic goal is to separate damp and moderately wet sheets of paper from each other to better allow circulating air to then dry them. Remove files from boxes, and stand them up in milk crates or other non-rusting (plastic) supports. Fan folders, so that pages are not in a solid block. If fastened pages are significantly wet, it may then be necessary to remove any existing fasteners.

3. Preserve documentation and provenance (office of origin information). Keep boxes bearing box number in context with box contents, or in some other fashion ensure identification information remains attached to the files. Ensure that the exact order of all files remains intact if at all possible.

4. Refan, as may be, thus, needed. Check records at least daily, and do refan to expose damp areas of pages to dry air. Continue to do this, of course, until all the records are dry to the touch, meaning with no damp spots remaining.

5. Special concerns - **bound materials**. Blot bound volumes with unprinted newsprint or paper towels at intervals of two to ten pages, changing the interleaving as frequently as possible and as often as necessary until dry. Blotting paper should be removed regularly, and interleaving should be changed at the same time, until all the volumes are dry. Bound volumes may be partially opened, at this time, to allow drying by fans. Wet volumes of coated pages should not be allowed to dry unless thin sheets of Mylar polyester are inserted between pages. When coated paper dries together, the clay coating that makes it shiny bonds with the clay coating of

the next page, producing an irreversible bond stronger than the paper. It is then virtually impossible to separate the pages, which needs to be noted as such.

6. **Monitor climate**. Note: The warmer and drier the air, the faster records will dry. Large floor fans should circulate air, but not be trained directly on the documents. Leave fans running 24 hours per day, 7 days per week. Relative humidity of 35-50% is optimum. Dehumidifiers may, therefore, be logically necessary to help better achieve drier air.

7. Provide security. While records are in the drying process, damaged records must be protected by security equal to that provided in the stacks.

8. Do not try to clean records until dry. After the documents are dry, mud becomes dirt, which can be brushed off with (soft) cheesecloth or soft-bristled brushes.

9. Rebox the records, when dry, in new boxes. Record box numbers on their fronts and any other pertinent information that may be useful in properly identifying the contents. Occasionally, contents will not fit back into a box because they have then swelled and warped in the drying process. When this happens, the accession takes up additional space. It may, perhaps, be necessary to reassign such an accession to a different location or, as another option, to rework the box list to show (current) contents of boxes.

10. Keep the agencies or officers appraised about the progress of the work and conditions of the records. Let owners of affected boxes honestly know the situation. Provide complete information about what happened, how it happened, steps taken to solve the physical problem(s), accession and box numbers of affected records, and recovery steps in progress until the last work has been done for such recovery.

5. Records Recovery Step 3 - Relocation.

Recovery, therefore, is not actually complete until the records are back on the shelves or in cabinets from which they were removed during the pack-out. The steps, in this process, include the following.

a. Prepare the shelves. Shelves that have held wet records should be sanitized before replacing records on them. Wash shelves and floor in the affected area(s) with a weak solution of sodium hypochlorite (common bleach). Note: Dilute the bleach with just enough water so that the bleach can be just barely smelled. Option: An even more effective treatment, if made available, is quaternary ammonium compounds, available under a variety of brand names.

b. Physically relocate boxes. Move boxes to their correct shelf locations as whole boxes are returned from off-site or on-site drying operations. This can happen one box at a time if necessary.

c. Edit documentation. Update any documentation that was prepared during the pack-out phase so that a master list of affected accessions correctly shows which boxes are back on the shelf and which are still unavailable for reference purposes. This is a good follow-up procedure for checking on the work itself.

d. Provide owner box lists. Prepare lists in which content of boxes is different from when originally shipped to the records center. This will be the case if restored records occupy more space than the undamaged records, requiring extra boxes and/or shifting of contents from one box to another. More correct information will logically result from this effort.

e. Monitor shelves. Check shelves periodically, for at least several weeks, to then better ensure that mold or fungus has not developed. As might be needed, do spot disinfection, cleaning, and drying.

6. Freezing and Drying Options.

To stabilize water-damaged materials, freeze at temperatures below 20 degrees Fahrenheit. Freezing and storage retains records in the condition in which found, and prevents further deterioration while records await treatment. It, also, usually provides needed time to better assess the damaged material and to restore the building or stack area so affected. Frozen records can be recovered by the following methods. Any may be preferable in a particular situation.

Note: They are listed, in order, from the least to most expensive as to treatments possible.

a. **Air Drying**. This process is described in detail in "Records Recovery Step 2 -Restoration. The process exposes as much paper surface as possible to the circulating air. This is to reduce environmental qualities favored by mold: high temperature, high humidity, and stagnant air. The advantage is, of course, that it normally requires little cash outlay. However, there are several disadvantages, such as the disruption of provenance and original order of the records. It is, also, very time- and labor-intensive, and therefore quite expensive in staff time. Physical distortion of the paper will occur. Note: Glossy paper will, unless handled carefully, stick together when dry, which could be quite a grave issue.

b. **Dehumidification**. Dehumidification is accomplished by pumping dry air into the building and pumping damp air out. This process is useful for slightly damp records. Advantages: records dry in situ without having to be moved; structure (wet walls, etc.) is also dried at the same time. Disadvantages: it is a very noisy process; dried records will be physically distorted.

c. **Freeze-Drying**. This process pulls moisture out of frozen materials to a large-surface coil from which the water evaporates. (It is the process on which a frost-free freezer operates.) It runs by cycling the temperature up to the thaw point, so distortion of paper is pronounced and coated papers will stick together. It is, of course, done off-site, so security of records may be compromised.

d. **Thermal Drying and Vacuum Thermal Drying**. Operates on the clothes-dryer principle. It is a relatively inexpensive process which pulls water out of records by heat. The main disadvantage is that the heating is usually very hard on the paper. In fact, it is the process used in "artificial aging" experiments. Of course, it is most useful for drying only temporary records with a relatively short retention period. Note: It should **not** ever be used for any permanent records, unless they will be, e. g., photocopied or microfilmed after recovery and the originals discarded.

e. **Vacuum Freeze-Drying**. Operates by "sublimation" in which crystalline ice is then converted to steam just at 32 degrees Fahrenheit without becoming water. Papers dried by this method are not cockled; water-soluble inks do not then run; coated papers do not stick together. It is, in addition, particularly useful for records that may be affected by mold, as sterilization can, thus, be done after drying at little additional cost. The primary disadvantage is that it is expensive; but, it may be rightly justified for preserving high- priority permanent records.

7. Contaminated Records.

Receipt of records which have been exposed to hazardous materials must be isolated and handled according to the exposure of the contaminant. The first step, of course, is to properly identify the type of contaminant and, next, provide the appropriate personnel with the type of protective equipment needed to, thus, ensure required personal safety and, also, for preserving the correct integrity of the documents themselves.

a. **Steps for Handling Contaminated Records**. In the event of any chemical or pesticide contamination, the following steps should be taken, along with professional consultation about such measures.

1. Move documents to a clearly well-ventilated area to maximize air flow.
2. Before sorting, persons handling the records must put on protective clothing, mask/respirator (if needed), and certified chemical resistant gloves.
3. The most desirable piece of clothing would be coveralls made of woven fabric such as cotton, polyester, a cotton-synthetic blend, or a nonwoven fabric. Woven fabric should be a tightly woven, sturdy material (such as denim) weighing 7 to 10 ounces per square yard. Coveralls should be worn over long-sleeved shirt and long pants. In some cases, a chemical-resistant suit should be worn.
4. Gloves should always remain on while removing any outer layers of protective clothing.

b. Contaminated Records Which Can Not Be Salvaged. Often paper records may be so thoroughly contaminated that keeping them would provide an unacceptable risk. If the information is critical and not available in any other medium, the following precautionary measures must be rationally taken.

1. Drape a large piece of plastic over a photocopy machine and make sure that all buttons and trays are securely covered.
2. Place sturdy tape along the sides, top, and cover to hold the plastic in place.
3. Copy documents by placing them in a face-down position, and do not use the manual feed.

8. Confidential Materials

Records classified as confidential are restricted to processing or use by cleared individuals and require special intellectual and physical protection. Access to confidential materials may only be granted to individuals who have the appropriate security clearance, (who may have signed any possibly required security agreement), and whose official duties do then require such access (i.e., the "need to know"). The following are some guidelines for properly handling such confidential materials.

a. Transportation should be arranged through the use of a vehicle with a closed vehicle which can be operated by cleared personnel.
b. All confidential material should be handled by a County employee with the proper level of security clearance, if so needed.
c. When confidential documents are moved from their secure location, they must be protected with a cover sheet that indicates that the material is confidential.
d. Keep confidential materials separate from non-confidential materials as a good practice.

Conclusion

The foregoing brief overview of the expressed concerns about the nature of emergency and disaster preparedness lead, naturally, into the related discussion of disaster recovery methods and techniques requisite to the handling of the occurrence and associated consequences of a disaster. Disaster response and recovery services and cognate abilities, as has been stressed, ought, therefore, not to become any kind of an institutional afterthought. It is, in a sense, an imperative organizational matter not to be casually neglected.

The preceding exercise was done, however, without any illusion whatsoever as to any kind of pretended absolute comprehensiveness, meaning pertaining to such a very large and often highly involved subject. These merely twenty-three pages are just purely introductory in nature; thus, further dedicated study and serious thought is requisite to the proper attainment and increase of any wanted knowledge base on this important topic.

Readers are encouraged, in addition, to freely consult the vast literature, on the Internet, in public libraries, and elsewhere, that is ever increasing on the expansive subject of disaster recovery, inclusive of its implications and ramifications. This publication itself, of course, cites related significant websites having quite useful and pertinent bibliographies, which can be profitably consulted.

Any suggestions, comments, thoughts, opinions, etc. about this manual would be welcomed as to its improvement.

Appendix

FEMA: Standard Checklist Criteria for Business Recovery

Completed By:

Name: _____

Company: _____

Room: _____

Street: _____

City, State, Zip: _____

Phone Number: _____

Business Recovery

Plan for: _____

Business Recover Plan (BRP) LEVEL 1 (Executive Awareness/Authority). Answers: Y N N/A

1. Has a BRP been:

a. Developed?

b. Updated within the last 6 months?

Business Recover Plan (BRP)--LEVEL 2 (Plan Development and Documentation. Y N N/A

1. Has a classification (critical, important, marginal) been assigned to the Business Process/Function/ Component that this Facility/Function supports?
2. Has a BRP been:

a. Documented?

b. Maintained?

3. Does the BRP include the following sections:

a. Identification?

b. Incident Management?

i. Responsible company officer?

ii. Personnel responsible for updates?

c. Response?

d. Recovery?

e. Restoration?

f. Plan Exercise?

g. Plan Maintenance?

h. Business Recovery Teams and Contact Information?

4. Does the BRP identify hardware and software critical to recover the Business and/or Functions?

5. Does the BRP identify necessary support equipment (forms, spare parts, office equipment, etc.) to recover the Business and/or Functions?

6. Does the BRP require an alternate site for recovery?

a. Does the BRP provide for mail service to be forwarded to the alternate facility?

b. Does the BRP provide for other vital support functions?

7. Are all critical or important data required to support the business being backed up?

a. Are they being stored in a protected location (offsite)?

8. Do you conduct a walk-through exercise of your Plan at least annually? (This should include a full walk-through as well as "elements" of your plan (i.e. accounts payable, receivable, shipping and receiving, etc).

9. Does the walk-through element exercises have a prepared plan which includes:

a. Description

b. Scope

c. Objective

10. Is a current copy of the BRP maintained off-site?

11. Do all users of the BRP have ready access to a current copy at all times?

12. Is there an audit trail of the changes made to the BRP?

13. Do all employees responsible for the execution of the BRP received ongoing training in Disaster Recovery and Emergency Management?

Disaster Restoration Companies: Local Listing

Pro Clean Restoration (903) 566-7576 email: info@procleanrestoration.net

Fax: 903-566-1486

3507 Westway Street, Tyler, TX 75703

Services: Emergency Water Damage Service, Smoke-Content & Structural Cleaning, Air Duct Cleaning

Steamatic of East Texas, Inc. Emergency Hotline: 1 (800) 622 9277 (903) 597 2381

3411 Robertson Road, Tyler, TX 75701

Services: Fire Restoration, Water Damage, Carpet Cleaning, Duct Cleaning, and more

Specialty Restoration of Texas Emergency: 1 (888) 553 2687 (903) 561-1100

3808 Timms Street, Tyler, TX 75701

Services: Disaster Recovery & Relief, Fire & Water Damage Restoration, Duct Cleaning

ServiceMaster Clean (903) 534-5231

12851 State Highway 155 S, Tyler, TX 75703

Services: Disaster Recovery & Relief, Air Duct Cleaning, Fire & Water Damage Restoration

Mr. Flood Emergency (800) 590-1833

Serving the Tyler Area.

Services: Disaster Recovery & Relief, Water Damage Restoration, Carpet & Rug Cleaners-Water Extraction, Pump Out Cleanup, Basement & Building. Coverage: 24/7 30 minute emergency water-damage clean-up service, flood-damage cleaning service, sewage-damage cleanup, mold-damage restoration, fire-damage clean-up service; emergency water-damage restoration service, emergency flood-damage cleaning service, and emergency water-damage extraction.

Servpro (903) 561 0168

4802 Tidwell Drive, Tyler, TX 75708

Services: Disaster Recovery & Relief, Water Damage Restoration, Air Duct Cleaning

SWS Environmental Services

Serving the Tyler Area. (866) 863 0957

Services: Disaster Recovery & Relief

Service Master Company

307 Enterprise Street, Longview, TX 75604 (903) 291 8795

Services: Disaster Recovery & Relief, Janitorial Service, Cleaning Contractors

Omni Construction (903) 297 2555 email: information@omniconstruction.net

Fax: 903-297-2556

305 Enterprise Street, Longview, TX 75604

Services: Disaster Recovery & Relief, General Contractors, Altering & Remodeling Contractors

Texas Flood (903) 643 9034

Fax: 903-297-2556

10261 State Highway 149, Longview, TX 75603

Services: Disaster Recovery & Relief, Fire & Water Damage Restoration, Carpet & Rug Cleaners

Bibliographies on Disaster Recovery: Websites

The following ten sites cover well over 200 different books and other publications ranging over literally many different aspects of disaster recovery related and greatly interrelated topics:

http://www.amigos.org/?q=node/404/

http://www.planning.org/research/postdisaster/bibliography.htm

http://preserve.harvard.edu/bibliographies/emergencyresponse.html

http://www.colorado.edu/hazards/publications/holistic/bib_6.html

www.ala.org/Template.cfm?Section=libraryfactsheet...cfm

www.museum-security.org/disasterbib.html

www.lyrasis.org

http://cool.conservation-us.org/bytopic/disasters/

http://www.nedcc.org/resources/leaflets/3Emergency_Management/05EmergencyMgmtBibliography.php

http://www.mbkcons.com/wkshp/disaster/disasterbib.htm

http://idisaster.wordpress.com/bibliography

Also, it would be, of course, logically useful to consider the necessarily very related topics of risk assessment, risk management, and risk mitigation: http://decreaseorganizationalrisk.blogspot.com/

For FEMA information:

Federal Emergency Management Agency
U.S. Department of Homeland Security
500 C Street SW, Washington, D.C. 20472
(202) 646-2500
(800) 621-FEMA /TTY (800) 462-7585
http://www.fema.gov/

http://www.ready.gov/index.html

For obtaining an ever wider range of related information with numerous links, one can consult the following: http://www.usa.gov/Government/State_Local/Disasters.shtml

Conservation, Disasters, and Business Continuity:

Stanford University Libraries Conservation Online http://palimpsest.stanford.edu/

Disaster Resources: http://www.disaster-resource.com/

http://www.disaster-recovery-plan.com

Contingency Planning and Management http://www.contingencyplanning.com/

Association of Continuity Planners http://www.acp-international.com/

Business Continuity Institute http://www.thebci.org/

MIT Business Continuity Planning http://web.mit.edu/bcmt/

Northeast Document Conservation Center http://www.nedcc.org

www.emergencymgmt.com/.../social-media-bibliography-for-emerge...

State of Texas

Texas State Library and Archives Commission: Disaster Planning and Recovery

https://www.tsl.state.tx.us/slrm/disaster/index.html

Disaster Preparedness Manual

https://www.tsl.state.tx.us/sites/default/files/public/tslac/slrm/recordspubs/dppdf.pdf

State of Texas Action Plan for CDBG Disaster Recovery. Grantees under the Department of Defense. Appropriations Act, 2006:

http://www.glo.texas.gov/GLO/_documents/disaster-recovery/action-plans/rita/06-DRPlan.pdf

Texas Counties - Resources:

www.co.el-paso.tx.us/clerk/records management.htm

www.co.washington.tx.us/ips/cms/Countyoffices/CountyClerk/

Note: All of the foregoing internet source links mentioned, as with all such sources, can be made subject to change and without prior notice. Readers need to keep this fact in mind.

ARMA International – Bibliography on Disasters:

Superstorm Sandy is a reminder to all organizations that disaster doesn't discriminate. Here are some resources to help you prepare your records for anything Mother Nature might throw your way:

Emergency Management for Records and Information Programs, 2nd Ed.
This is the second edition of the best-selling *Emergency Management for Records and Information Programs,* which has been revised and expanded to provide more guidance on electronic records security and data privacy, the role of business process analysis in vital records identification, and new protection and planning concepts derived from the U.S. National Incident Management System.

Vital Records Programs: Identifying, Managing, and Recovering Business-Critical Records (ANSI/ARMA 5-2010)
Vital Records Programs: Identifying, Managing, and Recovering Business-Critical Records sets the requirements for establishing a vital records program, including: identifying and protecting vital records, assessing and analyzing their vulnerability, and determining the impact of their loss on the organization.

Evaluating and Mitigating Records and Information Risks
This guideline provides a framework for establishing systems to evaluate information risks and describes a process for framing a risk management system using a risk quadrant: administrative, records control, legal/regulatory, and technology risks. Among administrative risks are those that must be addressed by an emergency management program. Purchase includes an Excel risk assessment tool.

An Ounce of Prevention: Integrated Disaster Planning for Archives, Libraries, and Records Centers
This second edition of the award-winning *Ounce of Prevention* from the Canadian Archives Foundation is essential for larger archives, libraries, or record centers beginning or updating an institutional disaster plan. The authors take the approach that disaster recovery planning must touch every department of an organization and that emergency response must be a carefully mapped strategy.

The e-Policy Handbook, 2nd Ed.
This revised edition of *The e-Policy Handbook* is packed with electronic rules, step-by-step guidelines, sample policies, and e-disaster stories to help organizations: manage new and emerging technologies; write and implement effective policies; train employees; and safeguard confidential company and customer information.

Disaster Recovery: Best Practices

www.cisco.com/en/US/technologies/collateral/tk869/tk769/white...

www.enterprisenetworkingplanet.com/netsysm/hybrid-cloud-**disaster**...

www.baselinemag.com/c/a/Storage/**Best**-**Practices**-in-**Disaster**-**Recovery**...

http://disasterrecoverybestpractices.com/

http://www.computerworld.com/s/article/97620/Eight_best_practices_for_disaster_recovery

http://www.e-janco.com/Newsletters/2012/20120202-Business-Continuity-Best-Practices.html

http://www.itworld.com/data-centerservers/206461/afcom-offers-disaster-recovery-best-practices

http://infochief.com.vn/News/Diaster%20Recovery%20Best-Practices.pdf

http://www.computerweekly.com/report/IT-disaster-recovery-plan-best-practices-Fundamentals-in-DR-planning

http://www.business2community.com/tech-gadgets/it-disaster-recovery-plan-best-practices-starting-from-scratch-0486757

http://www.databaseguides.com/disaster-recovery-best-practices

http://www.computersgazette.com/disaster-recovery-best-practices-6-practices-to-developing-a-your-business-continuity-plan-2872930

http://www3.cfo.com/article/2012/10/regulation_records-management-bieri-risk-compliance-disaster-recovery

http://www.rimpa.com.au/assets/2011/01/CodiceDisasterRecoverypresentation.pdf

RSD