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# VITAL RECORDS RECOVERY

## Covering Your Assets

**Every vital organization owes its birth and life to an exciting and daring idea.**

**—JAMES B. CONANT**

### INTRODUCTION

What are your personal vital records? Are they your car title, your home's deed, a marriage license, or even a divorce decree? Whatever they are, you spend a lot of time and effort to be sure they are safe because you know they may be difficult and time consuming to re-create later. The same holds true for your company's business records. They need a well-thought-out emergency management program if they are to be there when you need them.

Throughout this chapter, the references to documents and records apply to information stored on any media, including paper, magnetic, optic, or microfilm. There may be a bit of difference in how they are stored, but the issues for their handling and management are essentially the same.

This chapter focuses more on mitigating actions than on recovery, as that will address most of the emergency situations that you will encounter. Also included are recovery actions for small, contained records damage. There is always a chance that an emergency will overpower the best defenses and a recovery action will be needed. Few facilities are staffed or equipped for a large-scale recovery. Your best plan is to prearrange for a professional recovery service to come onsite to assist. Such a service is also a resource for designing your records mitigation processes. Remember that in a wide-area disaster, an outside service may already be engaged, so be prepared to take the initial preservation actions on your own.

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**A professional storage facility can be a safe and secure place for storage of documents not needed to run the business day-to-day and can also be a good source of information. Companies that provide this service include:**

**Fireproof Records Center—www.fireproof.com (http://www.fireproof.com)**

**Iron Mountain—www.ironmountain.com (http://www.ironmountain.com)**

**Archive America—www.archiveamerica.com (http://www.archiveamerica.com)**

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The whole point of storing your vital records is that they will be available when you need them. If they are not accessible, then why are you spending all this time and money to store them? Every company has a set of records that it must safeguard for future reference. These records might be contracts, customer lists, or personnel files. Vital records can encompass just about anything.

But typically, vital records refer to documents that your company must retain to comply with legal requirements. This could be accounting records to support tax reporting, hazardous waste disposal forms, or even quality verification records to defend against future product liability lawsuits. Other types of vital records might be engineering plans and drawings, product specifications, trade secrets, and computer database backup tapes.

Vital records can be stored on many different forms of media. They can be on paper, microfiche, CDs, data backup tapes, or removable disks. On which media are your company's vital information stored? The answer is probably all of these. Where are they stored? All over your facility! They are squirreled away in closets, under desks, on CDs, and sometimes at employees' homes. Even the vital records that are properly situated in routine storage—how well are they climate controlled for preservation? If they are stored off-site, who ensures they are well cared for? Will they be accessible and readable when you need them?

Whatever the media your vital records are stored on and wherever they are stored, you must have a plan for safeguarding them and recovering them in the event of a disaster. Each type of media requires its own recovery strategy. Each type of document has its own level of recovery urgency.

Our goal is to safeguard these documents, whatever media they are stored on. In

have the leisure time to shop around for the best service and the best price. Every hour counts.

Our plan reviews the different types of primary vital records storage media, action steps you can take to safeguard them, and steps you can take to recover them yourself. Even if you have a company lined up for an emergency, they may be busy with another customer when you call if this is a wide-area emergency (such as a flood or earthquake).

A company's records retention plan should address destroying out-of-–date documents, explain how to store records, and detail how to identify each container. If you uncover out-of-date or unmarked documents, you can use the records retention plan as authority to get the records custodians to clean up the storage areas. It is also a chance to educate people about the records retention and storage standards. This information will be very valuable as you work to build your plan.

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**If your company does not have a written records management and retention program, you may need to write one. It will make your recovery planning a bit easier.**

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## VITAL RECORDS INVENTORY

By now you know that the first step is to make an assessment of what you are going to protect. This will tell you how big the issue is. In the case of vital records, you need to know at a minimum four essential things. Refer to Form 18-1 from the companion url. The inventory, also known as a shelf list, can be combined with the risk assessment spreadsheets. Other information elements may also be useful, such as the document's expiration date, but you want to keep this plan basic:

- **Records.** What are these documents about? Are they customer records with credit card numbers, personnel files with legally protected information, or legal documents referring to lawsuits and court actions? The information content of a record will help determine its recovery priority.

- **Media.** Is this information stored on paper, magnetic tape, CD, microfilm? This will tell you what its storage conditions should be to protect its readability.

- **Originating Department.** This helps you track down someone who may know something about the document to properly prioritize it in the event of a recovery.

- **Location.** Vital records turn up in the strangest places, so you need to know where they are all stored. Otherwise, you may lose those vital first few hours after an emergency and the records will be damaged or unrecoverable.

### *LOCATE YOUR RECORDS*

The location for storing your records is extremely important. If most of your vital records are stored far away at some distant corporate headquarters, then that saves you from a lot of mitigation and recovery actions. Mitigation and recovery will be the responsibility of people at headquarters. You can then focus your efforts on ensuring a safe delivery to them for storage.

The best place to begin your vital records inventory is with your company's records retention plan. This will detail what types of records you are expected to keep and how long each type of record must be maintained. If you are lucky, then most of these records are stored in the same place, or in only a few places. The key thing is that you know where they are. Ask your records custodian for a copy of the records inventory or a listing of what types of documents are stored at which locations. Your next step is to visit these file rooms and see how much volume is involved. Vital records tend to be bulky collections, so expect to see a lot of boxes.

Companies that keep records in top shape should be admired. Most companies probably have outdated records lingering everywhere. The concern here is not housekeeping, but rather that excess records distract you from dealing with the truly vital records. Once it's apparent that you are looking carefully at the records, the records custodian should wake up and purge the storage areas of outdated documents. Just like cleaning out the garage or seeing the dentist, some people won't do what they should until they must.

It is time well spent to speak to the originators of these records. They can explain to you what is vital and why. Add to your documents inventory the retention period for each document type. Try to uncover any other vital records storage sites not listed, such as interim storage sites, various offices where vital records are stored for office use, and any other records storage. Most departments keep their own cache of records regardless of the need to safeguard or environmentally protect them. Now is not the time to fight that battle. Some of these are in boxes under a desk. Some are in the bottom of coat closets. Some are even stored in people's homes, as if that would be any safer. As you work with each department, find where these records are stored and add them to your records inventory.

Make a list of the locations and the types of media stored in each. Knowing which type of media is stored there helps you to quickly form a containment and recovery plan based on whether the room suffered water damage, smoke damage from a fire in an adjacent room, or deep-freezing due to loss of power in the winter. Each type of media has its own preferred storage conditions to protect readability. Paper can tolerate freezing as long as it is not wet. Airborne particles and pollution can damage microfiche. Extreme heat or cold can damage magnetic media such as tapes, diskettes, and fixed disk cartridges.

So now with the records inventory list in hand and knowledge of the types of media you need to protect, the quantities of material, and their locations, we can begin to figure out how to protect these records in an emergency.

### *PRIORITIZE YOUR RECORDS*

Classifying your records according to how valuable they are to your business is the biggest time saver you can provide for your vital records disaster recovery plan. This single action will help everyone involved to know which records are to

Record priority can be determined by legal requirements. It may be based on the cost to reproduce the same information from other sources. It can be determined by who the originating department is. Select a system that suits your business. Be sure you understand the legal retention period for all document types. If in doubt, consult a lawyer. Do not guess!

Once priority has been established, tag every record or record container. Priority tags should use simple color coding to speed the containment effort. Consider using one-inch-square stickers with different colors to indicate priority, such as red for top priority and black for do-not-recover records that have copies at a backup site. Post the color code explanation on the walls and be sure it is documented in your plan. Color coding is especially helpful when there is a fire and someone other than the company employees (fire/police) is performing the salvage operation.

Next, ensure that all your top-priority records are stored in the safest locations. This might be in a fireproof cabinet or in special moisture-proof containers. Typically, the safest place for your documents is on the middle shelf—midway between the floor (moisture, vermin) and the ceiling (sprinkler heads).

With all the records marked with their recovery priority, make up a floor plan for each storage site indicating the location of your top-priority records. Keep this plan posted in all copies of your recovery plan books. The facility security office should have this plan also for immediate action during a late-night disaster.

Another classification is by originating department. A visual identification tag is needed so you know which records belong to Human Resources, Finance, Legal, etc. Refer to your company's records retention plan for your standard marking information block. As these documents are recovered, be sure the originating departments are involved in the effort. They may be reluctant to have others perusing their stored documents for reasons of legal or privacy issues.

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**You might mark or stamp the originating department's name in the recovery priority colored tab.**

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## RECORDS TRANSPORTATION

Just as important as your storage process is how your records are handled during transportation. Do you have an off-site storage facility? Most companies have off-site storage for backup computer media. Imagine how valuable this information would be to an outsider. They can't hack through your network defenses, but could they easily snatch your tapes while en route to or from the storage room?

Just because records are traveling to somewhere, don't let your guard down about their security or environmental controls. Once outside the cozy confines of your storage room, they are susceptible to the ravages of all sorts of environmental dangers. Their security must be safeguarded just as well as when they are locked in your storage room. Their environmental "comfort" must also be protected. Improper handling can negate all the careful handling we have used so far. Prudent actions when shipping these records will ensure that they return to you as fresh as they were when they were sent out.

### *SECURITY*

Security during transit is not a lot different from security in your storage room. Keep the curious and the criminal away from your documents. Safeguard the documents from environmental threats so they will be readable upon arrival. Limit access to your records by starting with locked shipping containers. If the records are of very high value, employ a courier to personally carry these records to their destination.

Shipping of vital records should be by an overnight express delivery. This minimizes the amount of time the records are exposed to security and environmental threats. Shipments should be adequately insured to cover the expense of re-creating the material and should be in as inconspicuous a container as possible. Always require a signature from the receiving party. The shipper should provide a tracking number so the progress of the shipment can be monitored. This provides valuable clues when looking for materials missing in transit.

### *MAGNETIC RECORDINGS*

If a magnetic recording is being sent to someone to review, make a copy of it and send them the copy. Never ship the original. Other things to consider when shipping magnetic media include:

- Open-reel magnetic tape should be wrapped in bubble wrap or shock-absorbing material and packed snugly into containers. This will reduce their movement within the container and reduce the likelihood of damage during transit. It also acts as an insulator against temperature swings.
- Cassettes with a locking hub should have their hubs locked and be placed in a rigid container for shipping.
- Temperatures in transit should not exceed 110 degrees Fahrenheit. The best time of the year to ship these materials is the spring and the fall.
- Tapes and cassettes should be shipped in the same way that they are stored, on their edge. The weight of the media should be supported by the hub.

## RECORDS RETENTION

Every company has its own records retention requirements. If your company does not have any, then either you are accumulating massive amounts of paper (creating a fire hazard, housekeeping issues, and storage charges) or you are throwing out documents that you should be retaining to meet legal requirements. Either situation is a problem.

The details of the many things that go into a records retention plan are beyond the scope of this book. An important issue is the elimination of obsolete documents. This means you will have fewer documents to protect and to recover.

energy to maintain them within an acceptable environment. It takes people to move them around. Check with your lawyers, check with your accountants, and properly dispose of the excess. Some laws and regulations may require that the original documents be retained even if they are also recorded on other media.

As you implement your plan, work to identify those critical records that must be restored after a disaster. This is a very time-consuming and expensive process. But it begins with being able to quickly find these critical documents. The less clutter there is to wade through, the easier the plan will be to exercise.

The records retention plan will detail a standard way to identify documents. Know what each of the markings mean and where they are supposed to be placed. Be sure that all the high-priority records encountered are properly marked according to this standard.

When documents reach the end of their useful life, they are destroyed. When this happens, a record is made of the event so we know what happened to that document. A portion of a records retention plan will deal with how your company will record document destruction. In an emergency, documents not at the end of their useful life may be destroyed. A part of your recovery effort will be to make a list of what was destroyed. Be sure that your emergency procedure for reporting accidentally destroyed records agrees with your overall records destruction documentation policy.

## MEDIA STORAGE

Most business records have a fixed useful life, usually less than 10 years. If your records collection includes documents of historical or artistic value that you must retain indefinitely, then the storage and recovery of those types of documents are beyond the scope of this book. Always consult a restoration professional for questions about storing or recovering these types of artifacts.

In general, your vital records can be reasonably stored at room temperature. This is true for records whose useful life is 10 years or less. The ideal situation is for your records storage facility to be a separate room or set of rooms, with its own air filtration, heating, air-conditioning, and humidity controls. The storage environment of your records will be the major determinant of their useful life. The more controlled the environment, the longer they will be readable.

In general, your storage room should be between 62 and 68 degrees Fahrenheit with a relative humidity of 30 to 40 percent all year long. Temperature and humidity should not vary more than 10 percent from your established settings. If your room is cooler than this, allow magnetic media time to slowly warm to room temperature before use. Temperature and humidity will vary in different parts of the storage room, so keep the air circulating with a strong air-handling unit.

As the seasons change, so will the weather outside. Be sure your environmental control equipment can compensate for the temperature and humidity variations of the change of seasons and those that occur between day and night.

To monitor the climate in your storage area, install a thermograph and hygrometer. They will chart the conditions inside of the room over time. Pay particular attention to how well the humidity and temperatures stay within tolerance between daylight and nighttime hours—and between winter and summer. If something occurs when no one is around, these charts will indicate when the problem began. You might discover someone is turning off the heat to your storage room over the holidays and weekends, not realizing the impact on stored magnetic media.

Many smaller companies will assign a trusted employee to take the backup tapes home as a remote storage solution. This is not a good idea, as there are security and accessibility issues and risks involved. While you would like to trust all your employees, corporate espionage and damage caused by disgruntled employees are not unheard of. You wouldn't want to be in a position where you have to deal with performance issues with the employee who is storing your corporate data at home. A private home is also not going to be as secure as a professionally managed storage facility. Accessibility could be a problem if a disaster occurs and the employee is on vacation or not at home for other reasons. Listed here are some of the different media types you may have in storage and their particular requirements:

- ***Paper Document Storage.*** Paper is sensitive to humidity and to temperature. It slowly deteriorates. Rapid swings in either or both accelerate this process. If the documents are exposed to low humidity and high temperatures, they gradually dry out and become crumbly. If they are exposed to high humidity and warm temperatures, they become susceptible to mold.

To protect your most important records, store them on the middle to lower-middle shelves. This keeps them well off the floor in case of a flood or pipe leak and away from the sprinkler in case of a fire. It also keeps the records in the middle of the room's temperature range (cooler near the floor, warmer near the ceiling).

- ***Microfilm Storage.*** The first key to safeguarding your microfilm is to store it in an airtight container. This will protect it from dust, humidity, and impurities in the air. The container should be made from a noncorroding material such as anodized aluminum or stainless steel. If your microfilm is on a roll, the reel should be made of the same material as the container. Always use lint-free gloves when touching the film.

Store your microfilm on shelving and storage racks made from noncorroding material. Special cabinets designed for protecting microfilm can be obtained from industrial equipment suppliers. If possible, do not store your microfilm in rooms containing pressboard or particleboard as these may give off fumes that will damage the film.

The storage room should have its own temperature and humidity controls. Humidity should be between 30 and 40 percent, and it should never change more than 5 percent within a given day. Large swings in temperature and humidity are damaging to microfilm. The temperature should stay around 65 degrees Fahrenheit and vary no more than 5 percent in a given day.

cabinet designed to keep paper from burning will not be able to keep damaging heat away from your microfilm. The cabinet must be able to hold the internal temperature below 150 degrees Fahrenheit.

■ ***Magnetic Media Storage.*** Magnetic storage media requires every bit as much care as printed documents. The useful life of a tape can be sharply reduced by improper storage or handling. Unlike paper, you cannot readily look at a tape and determine if it is still readable or not. Improper handling can result in a tape becoming unreadable.

Steps must be taken to ensure that no contaminant of any kind encounters the recording media. You should never touch the magnetic surface at any time. Therefore, magnetic media, such as reel tapes, cassettes, and floppy disks, should only be stored and used in a very clean environment. In these rooms, smoking, eating, and drinking must be prohibited. Ideally, an air filtration system will be employed to screen out airborne contaminants.

Magnetic media are susceptible to variations in temperature and humidity. If storage and operating temperatures vary more than 15 degrees Fahrenheit, you must allow time for the media to adjust to the different conditions. Allow 4 hours for every 15 degrees Fahrenheit of temperature difference. Strong sunlight will also damage magnetic tape.

The components that make up magnetic tape will react with moisture and slowly begin a process of breaking down the chemical bonds. Carefully avoid water and moisture when tapes are exposed.

Before using a tape, inspect it for surface damage. Look for any debris on the tape (but never touch the media itself without lint-free gloves). If in doubt, clean the tape surface before use. Always return tapes promptly to their protective containers. Minimize how much tapes are handled. Ensure that any tapes being returned to service are first thoroughly bulk erased.

Magnetic tapes should never be dropped or treated roughly. When in storage, they should always be stored on end and never stored "flat" (with the reels parallel to the table). Magnetic tapes are susceptible to damage from magnetic fields. Never store tapes on or near machinery, on windowsills, or on top of electronic devices.

Magnetic media is worthless without the proper equipment required to read the media. As your storage media ages, periodically check to make sure you still have the proper equipment for reading the media. Work with your data processing hardware support team to make sure you are involved when new backup hardware is being considered. Software can also be an issue, as formats may change slightly when backup software and operating systems are upgraded. You may need to copy the old media to a new format as the technology changes.

## RISK ASSESSMENT

This is a good place to conduct a risk assessment of the threats facing your vital records. Refer again to Form 18-1 (from the companion url). Use the inventory list of documents to fill in the left side. Once all the documents are listed, identify the storage risks faced by these documents, based on the type of media and where they are stored.

If life were fair, you would be able to select your own storage facility. It would be a secure place without water pipes in the ceiling, with a reliable, steady environmental control system, and no external walls. The facility would be located in a place not susceptible to natural disasters, with a separate clean room for magnetic media storage. Unfortunately, vital records storage is usually on the low end of the floor space priorities, and you must compete for adequate floor space with everyone else. Vital records storage is an overhead cost and does not bring in any revenue. Therefore, it is treated like the coat closet—important to have, but it must fit in wherever it can.

A key part of the risk assessment is to identify the types of documents to retain and their priorities for restoration. With computers, many of these records can be duplicated from stored media—unless it was in the middle of the fire zone.

Storage risks include:

■ ***Water.*** This could be caused by a leaking roof, a burst water pipe, a sheared-off sprinkler head, a water leak on the floor above—any number of things. If this storage area is below ground, is it susceptible to flooding? Are the temperature and humidity automatically controlled? Never establish a records storage area in a room under a rooftop air-conditioner, as they tend to collect water. Also, keep away from rooms with overhead water pipes, steam pipes, and exterior walls. Spot coolers used in storage rooms collect water and are a haven for mold and bacteria. Subfloor cooling in computer rooms also collects water.

■ ***Smoke.*** If there is a fire in this room, what is the potential for smoke particles to penetrate the packing crates?

■ ***Structural Problems.*** Does the roof leak? Is it strong enough to withstand a very heavy snowfall or an unusual downpour? Look at the ceiling. Is it discolored at any place as if moisture was collecting there or had previously leaked?

■ ***Fire.*** Is there adequate fire suppression? Does this include fire-suppressing gas or are you relying solely on sprinklers? Is the room clear of clutter? Is anything stored against an electrical appliance or receptacle? Are extension cords in constant use? Are the walls fireproof? Is a fire hazard on the other side of any of the walls?

■ ***Humidity.*** How much humidity is floating about in this room? Does it vary appreciably during the year? Is a functioning humidifier/dehumidifier in operation?

■ ***High Heat and Deep Cold.*** Excess heat or cold can be very damaging to stored documents—especially for magnetic media and microfiche. Is this room well insulated and climate controlled?

■ ***Wide Temperature Swings.*** Wide temperature swings can age your material and cause humidity variations. The best long-term storage environment for your materials is a stable one that varies in temperature no more than 5 degrees

■ ***Theft.*** If there is something of value in these documents, you must take steps to reduce the likelihood of theft. This can be personnel information, credit card numbers in your customer files, or any number of things. Securing the room with a lock and key is a good start.

■ ***Sabotage.*** Similar to theft, except in this case, sabotage is when someone just wants to destroy what you are safeguarding. Like theft, sabotage may be difficult to detect.

■ ***Insects and Rodents.*** No food or drinks should ever be allowed in the storage area. Look around for signs of animal or insect infestation.

■ ***Magnetic Fields.*** If you are storing magnetic tape or diskettes, your materials may be susceptible to damage from magnetic fields. Be sure there are none present in your storage areas and also be aware of what is going on in adjacent rooms. Over-the-weekend construction work may not be reported to you yet could damage your media. This hazard includes small magnets and magnetized tools in the storage room.

## MITIGATION

Now you need to identify the mitigation actions to be taken to minimize the identified threats. Risks to your records depend on the types of media that they are stored on, how carefully they are stored, and how accessible they need to be.

Use the table in Form 18-1 (from the companion url), where you have previously identified the threat to each document. Now identify the mitigation actions you will use to reduce the impact or likelihood of that threat.

### *FIRE CONTROL SYSTEM*

■ ***Smoke Alarms and Fire Detection System.*** Early warning is your best deterrent against losing records to a fire—and most likely is mandated by the local fire code. These alarms must not only alert anyone in the storage area of the danger, but also your facility's security team so that the local fire department is dispatched immediately. These alarms are often used to trigger the gas fire suppression system. Special fire alarms are available that detect fires in their earliest stages. This permits quick intervention with a fire extinguisher before the sprinklers can kick in.

■ ***Sprinklers.*** These are necessary to contain fires and save the building. They also provide valuable time for people to escape an inferno. Most of the material stored in the records room will readily burn, so sprinklers are essential. A problem is that the tool you are using to save the room is damaging to what is stored there. Sprinklers are an inexpensive fire suppression tool and regulated by local fire code. Do not defeat the sprinklers' action by lining your shelves with plastic. It will only allow the fire to grow larger before the plastic melts (and is likely a violation of local fire codes).

■ ***Gas Fire Suppression.*** Gas fire suppression is the best first line of defense against a fire. It can snuff out a fire before the sprinklers' fusible link melts. Although the gas discharge may spew some particles in the air, the damage is far less than from sprinklers. A gas fire suppression system is expensive and requires a sealed room for best effect, so be sure the doors close automatically and snugly.

■ ***Fire Extinguishers.*** These come in several types based on the type of fire. In general, they should be of the "A" type, which is for combustible materials. Fire extinguishers must be inspected monthly. Employees should know where they are and how to use them.

■ ***Fireproof Containers.*** Use these for cash, checks, and vital records that cannot be replaced. After a fire, never open these containers until they are completely cooled, inside and out. If the inside is still hot, sudden exposure to fresh air may cause a flash fire. Documents protected from a fire by a fireproof container may be charred but readable.

■ ***Fire Drills.*** Drills should be conducted at least every three months, or more often if required by your local fire code.

■ ***Good Housekeeping.*** This minimizes the amount of rubbish in your storage areas. Rubbish accumulation is nothing more than fuel for a fire or food for vermin. Be sure it is removed daily. If possible, do not allow trash cans in the storage areas at all.

■ ***Electrical Equipment.*** Minimize electrical equipment in the storage areas. This is a potential source of fire and magnetic pollution.

- Move all possible electrical equipment out of and away from your storage area. This reduces the possibility of a fire starting in this equipment. Also, some equipment, such as copiers, can stir up paper dust.
- Electrical outlets should not be overloaded as this could start a fire. Always use equipment with properly grounded plugs.
- Extension cords are another potential fire source. Be sure to only use heavily insulated extension cords and never on a permanent basis.

### *ENVIRONMENTAL ISSUES*

■ ***Moisture Sensors and Alarms.*** These alarms alert you to the presence of moisture in your storage room. They are very useful if you have a raised floor or an area that is difficult to see, such as a drain in the room. These alarms may alert you to water buildup or excess moisture due to temperature changes.

■ ***Humidifier/Dehumidifier.*** This device will help to keep your records storage area within the proper humidity range.

■ ***Temperature Control.*** Some records may be stored on media that is susceptible to temperature damage. Actually, all media are susceptible, but some, like magnetic media, have little tolerance for high or freezing temperatures. These extremes even work to degrade your paper records but not as severely. Steady temperatures will reduce the load on your humidifier/dehumidifier.

■ ***Magnetic Check.*** Wherever magnetic media is stored, be sure to run a periodic check of magnetic influences on the storage area. Magnetic influences

### OTHER ISSUES

■ ***Secured Access***. Eliminate the people problem by limiting who has access to the storage areas.

■ ***Off-Site Duplication of Key Records.*** If you have very critical records, one of your best solutions is to store copies of these records off-site. Then, if a crisis occurs, you will not need to labor through an expensive records recovery process. This would require, however, that you maintain the off-site storage facility to the same high standards as used in your primary records storage facility.

■ ***Pest Extermination.*** These creatures are not welcome in your storage area. Insects, rodents, and anything else that might want to dine on your documents must be vigorously kept away from your records.

■ ***Proper Storage***

- Identification tags must be attached to every container. In a crisis, these tags will be used to prioritize the records to be recovered. Records recovery is an expensive and time-consuming process. Proper identification allows everyone to focus on the most critical records first.
- Any documents containing water-soluble ink should be stored on microfilm. If these documents get wet, they will probably not be recoverable.
- Store your most critical records on the middle shelf. This keeps them off the floor in case of a water problem, and the records stored above them will slow down the flow of water from a sprinkler or broken water pipe.
- Store all vital records at least four inches above the floor. If shelving is not available, use clean pallets.
- Do not store anything within six inches of the ceiling or lights.
- Do not store anything within 18 inches of a sprinkler head. That would interfere with the sprinkler's ability to put out a fire.
- Do not store anything in contact with an electrical device or obstructing any of the air-handling ducts.

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**A quick note on alarms. We talked about moisture sensor alarms, excess temperature alarms, and fire alarms. Alarms are useless unless people know what they mean and what to do when they hear one. During your training exercises, let your staff hear each kind of alarm and explain what to do when it sounds. Repeat this step with every exercise. Ensure that alarms in the closed storage room can be detected and acted on during the weekends and evenings.**

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### SECURITY MITIGATION ACTIONS

Unfettered access can lead to theft problems, increased insect issues (people bringing in food), potential for sabotage, and, in some cases, just nosy people rifling through documents. Always secure your vital records storage areas. If these areas are climate controlled, then the less often the door is opened, the better.

Begin with controlled access to your vital records. This may be as simple as locking the door to the storage closet. Controlling access is important to prevent someone from these actions:

■ ***Reading Your Records.*** If these are trade secrets, such as customer lists, you may not want anyone to casually peruse them. Someone reading your records and copying the information can be difficult to detect. If documents are worth keeping, they are worth keeping in secured storage.

■ ***Stealing Records Is a Form of Employee Sabotage.*** If these records are required for regulatory compliance, a disgruntled employee could attempt to damage a company's reputation or an executive's job performance by removing records. This can go undetected for a long time. Sometimes companies victimized in this way find out as the documents are published online. An angry employee could also steal the records in an effort to damage your ability to prove company compliance with legal requirements or even to hide their own crimes.

■ ***Damaging Your Records Is a Variation of Employee Sabotage***. Similar to stealing, someone trying to hide their own actions or trying to damage a company's reputation could damage records. Often this is done on a wide scale rather than stealing a few select documents; the miscreant may opt for damage through arson or heavy water damage.

### RODENTS AND INSECTS MITIGATION

Your vital records may be very appetizing to insects and rodents. Basic housekeeping steps can minimize your exposure to these pests. Clutter, dirt, and dust should never be allowed to accumulate. Eating and drinking should never be allowed in your records storage area. Break rooms and cafeterias should be as far from the storage room as possible to reduce exposure to these pests.

These pests also like to be comfortable. They prefer high temperatures and high humidity. Keep your storage room at the optimal temperatures for storing your media; this provides a built-in defense against pests. Ensure that there are no "dead spots" in your air circulation that might create a safe haven for these creatures.

A key way to prevent these creatures from setting up housekeeping is to not invite them into the room in the first place. Doors, windows, and vents should be opened as little as possible. Seal cracks in the walls and ceiling promptly. Inspect incoming materials for signs of insects before admitting them to your storeroom. Remove packing material before entering the storeroom as that is a conduit for the spread of insects.

If an infestation is discovered, the quickest method is to bring in a professional exterminator. Rodents are easier to treat because they can be trapped. Poisons should be avoided as a contaminant to the room's atmosphere.

the infestation. The best solution is to carefully freeze infested paper documents and all the containers around them to kill the insects.

### ACTION STEPS FOR YOUR PLAN

In an emergency, you will have an immediate need for damage containment supplies. These supplies should be purchased in advance and stored in a locked room far across the facility from the records storage area. The goal is that an emergency in the storage room will not also destroy your containment supplies. If possible, store the emergency materials on a cart for rapid deployment.

A list of the recommended supplies is found in Form 18-2 (from the companion url). What you need for your site depends on your risk assessment (things likely to go wrong) and your inventory (what types of media you are protecting).

The materials needed for an emergency fall into several categories:

- General items are basic items needed to clean up a mess. Some of these materials age over time (such as flashlight batteries) and should be rotated at least annually (out of the closet and into general use, with fresh batteries returned to the closet). Some of these items may be in regular use in departments across the facility from the storage area and a separate storage stockpile may not be necessary. Not listed here but useful will be a wide range of hand tools.

- Portable equipment includes the heavy tools you may need to address more severe problems. Smaller items, such as water vacuums and portable dehumidifiers, may be kept in your storage closet. Larger items, such as water pumps, may need to be obtained from the facility's maintenance department. In addition, you must list the telephone numbers of ALL local companies that will rent trucks with freezer compartments in case you must freeze and/or ship documents for off-site recovery.

- Individual equipment is the safety equipment for the recovery team. Be sure to inspect this annually and rotate out the older materials to the facility's cleaning staff.

- Drying and cleaning materials will be quickly consumed in a large emergency, so be sure you know who the local suppliers are.

- If the floodwaters are rising, if the roof or wall is missing, if the fire is now out, containment materials can slow the spread of damage or prevent additional damage from occurring.

### *MAINTENANCE ACTIVITIES*

Now that you have your storage facility safeguards in place, ensure that you don't let your guard down. Plan to make these activities a part of your normal routine:

#### DAILY ACTIONS

- Trash emptied.
- During off hours and weekends, ask your security guard to step into the room and see if it feels too hot or humid.
- Check locks on windows and doors.
- Look for ceiling leaks, especially after a major storm.

#### EVERY WEEK

- Do a housekeeping inspection and ensure all trash is promptly removed.
- Change the paper on the hygrothermograph's plotter.
- Check the corners of the room for warm, moist air circulation "dead spots."

#### QUARTERLY ACTIONS

- Call in pest control. Check sticky traps, doors, foundations, walls.
- Test fire and humidity alarms.
- Test water detection sensors.
- Inspect fire extinguishers.
- Check for magnetic fields in the storage area from electronic equipment and magnetized tools; do a magnetic check whenever neighboring rooms change, including the floor above and below.
- Meet with local emergency officials.
- Rotate supplies out of your emergency stock. Be sure that emergency recovery supplies are stored away from the vital records storage so they aren't lost at the same time.
- Be sure air filters on all equipment (such as air-conditioning) are changed.

You may also want to consider hiring a records storage professional to perform an audit on your off-site storage location, the security procedures in place, and the retrieval process. Whether you perform the work yourself or use a dedicated storage company, this can help you to identify gaps in the company's storage and retrieval process.

### IMMEDIATE ACTIONS IN AN EMERGENCY

In an emergency, the first concern is the safety of your people. You must wait until the vital records areas are structurally safe to enter. Buildings are substantially weakened by fire, flood, and any major shock to their structure. In the event of a fire, you must check with the on-scene fire marshal in case the site needs to be sealed for a criminal investigation. This is where your predisaster liaison with local emergency services will pay off. An investigation may not start for days. Work with local officials to gain access to remove your undamaged records—but only do so with the permission of the proper authorities. Before entering, put on the hard hats stored with your emergency supplies. Ceilings are easily weakened in a structural emergency.

inform them where your records recovery operation will take place so they can assign a detail to keep the curious away from your documents. Immediately call sister companies requesting help from their records custodians. Begin setting up your damage mitigation area so recovery operations can begin as soon as the teams are ready.

When entering a damaged area, begin your initial damage assessment. This is a quick walk-through to see which records are obviously damaged. Determine which vital records are damaged. Use the color coding on your containers to see the recovery priority of all damaged containers and their type of damage (heat, water, exposed to air, etc.).

Before opening any file cabinets, use your hand to feel their outside temperature. If they are still hot, allow them to cool thoroughly before opening. A fireproof cabinet prevents a fire by sealing the contents from an oxygen supply. If the contents are sufficiently hot, and you open the cabinet too soon, you will see your documents turn into a flash fire and quite possibly injure someone.

Based on your initial damage assessment, divide your helpers into teams. There is no set size on a team since each emergency is unique.

- ***Damage Containment Team.*** These people focus on containing the damage. If there are now holes in the walls or ceiling, they should hang heavy-ply plastic to keep out further weather damage. If documents are strewn about on the floor that are too numerous or cannot be picked up for another reason, the damage containment team will locate and lay plywood to protect the documents from foot traffic.

- ***Assessment Team.*** These folks will identify the records to be retrieved from the storage area based on their preestablished priority color code. They should take many photographs during all phases of the operations. Assessment pictures can be reviewed for understanding the amount of damage and may be useful to the insurance company. Pictures taken during the recovery can be used as source material for the after-action report.

- ***Shuttle Team.*** These are the people who are carrying documents from the storage room to the recovery area or for transportation to the off-site storage location.

- ***Triage Team.*** This team will log all documents as they are received from the damaged storeroom to begin tracking them through the recovery process. They will examine incoming documents and assign them to three categories: not damaged, damaged, or beyond recovery. Damaged documents will be categorized by the recovery technique to be used. They also ensure that the priority documents are addressed first. The triage team will monitor the flow of documents to the recovery team and may identify documents to send on for immediate freezing and later recovery. The triage team will also identify those documents that are unlikely to be salvageable. They may be charred beyond recovery or deteriorated due to water or physical damage. Note these documents on your recovery log, tag them, and, if made of paper, freeze them for later evaluation.

Some teams may use a color code for documents to indicate their disposition. Take care not to confuse these with the color codes assigned to the documents in normal storage. Use whatever color system suits your situation, but a suggested one is as follows:

- Green for undamaged documents: Send them on to storage.
- Red for priority documents: These are the documents to be recovered first.
- Yellow for lower-priority documents: These should be sent to be frozen and reviewed for potential recovery later.
- Black for documents beyond hope of recovery.

### *WHAT IF THE EMERGENCY MISSED ME?*

In many instances, your building may be damaged but your records are intact. In those cases, you must decide if they are safe where they are or if they must be evacuated to a safer place. Safety involves both physical security and environmental security. If the air-conditioning system still works, plan to stay where you are. Work to return the storage area to its proper environment to inhibit the growth of mold.

Before the emergency, you had a secure building. There were secure walls, locks on the doors, guards at the front door, and other security measures. Once a major structural emergency is contained, there may be holes in the roof or walls, strangers wandering about, and less than adequate physical security for your records. In addition, power may not be functioning in the building until major repairs are completed. You must decide to stay or go.

If you stay, and if your temperature and humidity control equipment are not working, then it is just a matter of time until problems begin. Insects may begin to creep in, mold begins to grow, and your records begin to deteriorate. Still, it is a major effort to pack everything up and move out. Packing, transportation, reestablishing a controlled atmosphere at the new site, and then moving everything back later is a frighteningly difficult challenge. What to do?

The key to this question is how soon electrical service, air-conditioning, heating, and humidity control can be restored to your storage areas. If your rooms are unharmed, turn off the air circulation immediately until the air has settled. This should prevent circulating smoke fumes throughout your storage areas. After the emergency has been contained, try to maintain the flow of clean, filtered air at the proper temperature and humidity levels to avoid a forced move of your records.

If you stay, ensure there are adequate air filtration, ventilation, and climate controls in your storage room. This may require the use of a large portable electrical generator and portable air-handling units. With wires running all the way from the generator in the parking lot up to your storage area, and then with the expense and effort involved with portable air-handling units, you can quickly see what a major job this will be.

### *WHAT IF THE EMERGENCY HIT ME?*

There are detailed recovery steps later in this chapter, but the issue here is that if your storage facility is unusable, you must relocate it to an off-site facility. This off-site facility must have security for your documents. It should have as much of the climate control capabilities as your old site as possible. On short notice this could be a problem, so if possible, contract with a storage company to be used on an as-needed basis. If practical, ship the documents to another company site. This will greatly simplify the security arrangements.

Once the disaster has passed and the document recovery process is under way, the new records storage room must be carefully prepared. Be sure that it is completely dry. All the old carpeting, shelving, furniture, and anything else that may harbor mold or fungus must be replaced. Walls, floors, and ceiling must be treated for mold and fungus before returning documents to this room. Be on the lookout for hidden water under tile or raised floors.

Allow fresh paint to dry for at least two weeks. This allows the solvents to dissipate and the airborne paint particles to settle.

When all the excitement is passed, sit down and write an after-action assessment. This is where you can recognize the people who helped through the crisis and critique how realistic your plan was. Include the photographs taken during the emergency. You should also review actual expenses incurred for future budgeting.

## RECOVERY TECHNIQUES

There are many recovery processes that can be used. Most companies turn this work over to a professional recovery service as they lack the expertise and equipment to do it in the face of a major emergency. Document recovery is a very delicate business that, if not properly done, will complete the destruction of your vital records. If you expect to recover your own documents, here are some of the steps to take. You should also study the finer details of document recovery from books dedicated solely to that subject. Time spent practicing before an emergency is an excellent idea.

### *WATER DAMAGE TO PAPER RECORDS*

Water is a threat to all your vital records. Just about any paper documents can be recovered from water damage (except those containing water-soluble ink, which should be microfilmed before storage) if promptly treated. Paper records begin deteriorating in as little as three hours. Within the first day, mold, fungus, and bacteria begin growing on paper. Recovery is basically to remove the documents from the water and then remove the water from the documents. If the document is not to be immediately recovered, then it should be quick-frozen until it can be processed. Freezing can protect a paper document for up to five years.

Begin your paper recovery process by stabilizing the atmosphere in the work area to between 50 and 60 degrees Fahrenheit, with a humidity level between 25 and 35 percent. Temperatures and humidity in a room tend to vary based on how close you are to the heater or dehumidifier, so use fans to circulate the air and equalize the conditions. Remove from the room any wet things that are not the documents being treated, such as wet clothes and unneeded packing material.

Review paper documents for damage. Water-soluble inks will not likely survive a good soaking. The wettest records are usually the ones that were on the lower shelves or directly under the fire sprinkler (so be sure not to store your most valuable records in either location). Among your priority records, process the wettest ones first.

Remove all metal fasteners from the documents. This will prevent rust from forming on the fastener and then spilling over onto the document. Use plastic milk crates or similar containers to transport documents because they allow for some of the water to drain off. Never pack them more than three-quarters full as the weight of the wet papers will further damage your documents. For the same reason, you should not stack books atop each other in these crates.

Wrap the documents in freezer paper before placing them in the crate, about 200 sheets at a time. Wrap books and set them in the crate with their spine toward the bottom. Always make a list of any documents you have found, their condition, and where you sent them. Mark the identity of the documents on the outside of the freezer paper.

#### AIR-DRYING PAPER RECORDS

Air-drying is the easiest but most labor-intensive process for recovering paper documents. It is most suitable for small amounts of documents or lightly damp books. Drying documents in the open air requires a lot of space and time. After drying, the documents will never look the same and may be permanently stained by soot and water. Note these considerations:

- Wet paper is easily torn. Handle every document very carefully.
- Individual sheets of coated paper are very difficult to air-dry. Send them to a freeze-dry facility. If they are to be air-dried, carefully separate them immediately. Books printed on coated paper should never be air-dried. They should be frozen immediately and sent for professional recovery.
- Books suffer the most from air-drying. Most will be distorted from the moisture and will require rebinding. Very wet books should always be freeze-dried. If you decide to air-dry books, interleave absorbent paper every few pages. Do not stress the spine. Place absorbent paper inside the front and back covers. Change the absorbent paper every several hours. Dampness will persist in the spine and the covers for quite some time, so you must check often for mold. Never return books to shelves until fully dry to reduce introduction of mold into your facility.
- Air-dried documents, especially books, are susceptible to mold.
- Mud can be brushed from dry documents. Trying to remove mud while the paper is still wet simply pushes the mud into the document fibers.

As you begin your recovery efforts, use the nylon fishing wire in your emergency supplies to string some drying lines. Take care where you place the wire as it is

In your drying room, keep temperatures lower than 70 degrees Fahrenheit and humidity below 50 percent to inhibit the growth of mold. Use fans to circulate the air to the dehumidifiers to accelerate drying. If your drying efforts are conducted outside, keep in mind that prolonged exposure to sunlight will accelerate the aging of paper.

An alternative to a drying line is to spread the documents out on tables covered with absorbent paper. Interleave sheets of paper with absorbent paper if they are very wet or in a book. Change this paper as needed, depending on how wet the documents are. Use your fans to keep the air circulating around the room to the dehumidifier.

Other recovery methods include photocopying damaged documents and discarding the original. This solution may depend on any legal requirements for maintaining the original document. Another is to use a low-heat clothing iron to gently heat the moisture from the paper.

Dried records always require more storage space when finished. Photocopy water-damaged documents if possible and keep the copy (assuming there is not a legal requirement to keep the original).

### FREEZE-DRYING PAPER RECORDS

Freezing is a way to stop the progress of damage to your damp paper-based documents. Those documents that cannot be recovered quickly or those that will be transported off-site for recovery should be frozen. If the quantity of documents is small, use dry ice to freeze them during transport. If the quantity is large, call in freezer trucks. Freeze documents to between 20 and –40 degrees Fahrenheit. Freeze as quickly as possible to prevent damage from the formation of ice crystals.

If a commercial recovery service is used, they will freeze your documents and possibly vacuum dry (freeze-dry) them. This process reduces stains and odors caused by smoke and also eliminates mold. Freeze-drying is a passive process and may take several weeks or more to complete. Freeze-drying is the best solution for recovering wet books. In the case of slightly damp books, freeze-drying will kill any mold. In the case of very wet books, it will reduce the damage to the book in addition to killing any mold.

Wrap bundles of documents in freezer paper and place in interlocking milk cartons. Document bundles should be about two inches thick. The milk cartons allow for air circulation and moisture drainage. Be sure to label the bundles so you know what they are without unwrapping them. Books should be wrapped separately. Never fill the cartons more than three-quarters full, as damp paper is weak and easily damaged.

When preparing books for shipment to a freeze-drying facility, support the bindings to reduce the likelihood of swelling. This will reduce the amount of rebinding required for your recovered material.

Even though your records are in a recovery facility, you must still ensure their security. Depending on the sensitivity of your data, you might want a security guard present in the drying room at all times. Now is not the time to drop your guard.

### UNRECOVERABLE DOCUMENTS

The destruction of any document must be carefully recorded. Be sure to clearly identify what the document was, any identifying titles or routing codes, and why (or how) it was destroyed.

### *FIRE DAMAGE OF PAPER RECORDS*

Fire damage to your records can be just as severe as water damage. Fire will char documents, cover them with soot, and make them more brittle. They may also be wet and smell of smoke. Even portions that are not burned may be darkened by heat and smoke. If you can do without the original document, make a photocopy and discard the original. Handle these documents as little as possible as they may be quite brittle and crumble in your hands.

Place every fire-damaged document on paper towels or absorbent paper. Move these documents by picking up the absorbent paper, not by touching the document itself. The absorbent paper will also pull some of the moisture out of the document.

### *MICROFILM*

Wet microfilm must be delivered to a film duplicator as soon as possible. Line containers with clean trash bags and fill them with clean cool water. Submerge the film in the water and deliver them to a professional recovery service within 48 hours. The recovery service will professionally wash the media and dry it.

### *OPTICAL AND MAGNETIC MEDIA*

Wet magnetic media should be placed in bags of cold water for transportation. The media should never be frozen. Use distilled water when rinsing magnetic materials. Tap water may contain chemicals or other materials that would dry on the media. Air-dry the magnetic media in a clean room within 48 hours. Conduct a quick check of the recovery area and ensure no magnetic sources are present, including magnetized tools.

Once magnetic storage media is dry, promptly copy it onto fresh media. Clean the read heads frequently.

- ***Tapes.*** Immediately rinse dirty water and mud off magnetic tapes. Be sure to never touch the magnetic media with your bare hands. When touching the media, use lint-free gloves and handle as little as possible. Whenever possible, handle the tapes by the hubs or the reel. Air-dry in a clean room to prevent the settlement of dust and other particles on the media.

- ***Compact Disks.*** Handle the CD carefully to avoid scratching. Air-dry to remove moisture.

- ***Floppy Disks.*** Pack wet disks vertically in bags of cold water. Rinse thoroughly before air-drying.

Vital records protection is not difficult, but requires some thought and action before a disaster strikes to keep the damage to a minimum. The key is a good records retention policy so that you are storing as little as possible and destroying records you no longer need.



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