

Counter disaster reaction and recovery plan

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About: This advice refers to **physical records**. The storage of **digital records** on network servers, in data centres, or in the cloud is **NOT** covered by the scope of this guidance. The protection and recovery of digital records needs be addressed within your Public Office's business continuity plan.

1 Introduction

This advice describes the process of formulating Counter disaster plans. It supports a public office's preparedness for, and recovery from natural and man-made disasters affecting records in physical format.

A counter disaster plan for records is a component of the large risk framework surrounding disaster which also includes business continuity planning, the protection of people, property and other business assets.

Damage or loss to records in a disaster could mean that the responsible public office is unable to service business needs, meet legal requirements, or community expectations. In the worst case scenario, the loss of records could result in significant gaps in New South Wales's cultural history.

A [counter disaster plan](#) is essential to protecting and preserving physical records, and supports recordkeeping responsibilities under the [State Records Act 1998](#), including a public office's obligations to:

- *ensure the safe custody and proper preservation of the State records that it has control of (section 11(1))*
- *establish and maintain a records management program for the public office in conformity with standards and codes of best practice (section 12(2))*

The [Standard on the physical storage of State records](#) (issued February 2019) includes requirements for each storage area and facility to have a current counter disaster reaction and recovery plan, also known as a counter disaster plan, to reduce risk and assist in the recovery of records after a disaster.

1.1 Types of disasters

Disasters affecting and potentially damaging (or destructive to) records can be natural or man-made, and may include:

- natural events such as earthquakes, cyclones, bushfires, floods, vermin
- structural or building failure such as malfunctioning sprinklers, heating or air conditioning systems, leaks in roofs, poor wiring
- industrial accidents such as nuclear or chemical spills
- criminal behaviour such as theft, arson, espionage, vandalism, riots, terrorism or war
- accidental loss through human error
- unsuitable storage conditions which accelerate the decay of materials

Disasters are not always large or obvious. Any unplanned incident that results in significant damage or loss, or requires additional resources could be considered a disaster. For example, a water leak affecting one shelf of records may only be a small-scale incident, but can be considered a disaster if the records affected are of significant value and will result in financial or information loss, legal action or loss of reputation.

It is best not to view disasters by *scale* of damage, rather the **effect** that the incident creates.

1.2 Why be prepared

Disasters that affect or destroy records can disrupt the operations of the Public office, through:

- loss of operational information
- inability to account for decisions and actions, and
- inability to protect the rights and entitlements of the organisation and its client's.

Disasters can potentially result in severe financial loss, loss of the Public Office's reputation and/or credibility, and good will.

A prepared Public office can activate their counter disaster plan to react quickly to a disaster, thereby increasing the chances of controlling the impact, reducing the level of loss, and associated recovery costs.

Furthermore, appropriate storage conditions (see [Standard on physical storage of State records](#)) and risk mitigation measures (e.g. regular monitoring and maintenance activities) can prevent incidents from occurring or escalating into disasters.

[NSW State Archives and Records: Solutions for storage guide](#) provides practical advice for storage solutions, developed to support understanding and implementation of the *Standard on the physical storage of State records*. The section on planning records storage assists public offices to meet the principles within the standard.

2 Before a disaster: Counter disaster planning

2.1 Counter disaster plans

A counter disaster plan aims to minimise risk and ensure that in the event of a disaster, quick and decisive action can be taken to get salvage efforts underway, before circumstances result in further damage to records.

Objectives of a counter disaster plan are to:

- ✓ Mitigate risks affecting records
- ✓ Prioritise records for protection and salvage
- ✓ Outline what to do in different disaster situations

A counter disaster plan for physical records should complement and be integrated with business continuity plans and other emergency procedures.

It is important that the development of a counter disaster plan has executive support and approval, and is supported by a governance framework.

2.2 Establishing the planning team

Staff from a range of workgroups need to be brought together to identify specific risks, prepare the counter disaster plan, and take charge in the event of a disaster.

Ideally this team would include the,

- [Senior Responsible Officer](#)
- Records Manager, and
- whomever has responsibility for **insurance** coverage and liaison

as well as staff representatives covering functions, such as;

- Executive/senior management
- Building/Facilities management
- Records and information management
- Work Health and Safety
- Site security
- Strategy and governance, and
- Corporate services.

The team will need to nominate a Co-ordinator to oversee response activities and assign duties. The Co-ordinator must have appropriate delegation (i.e. senior manager / executive) to declare a disaster and to escalate issues to the CEO or beyond the organisation. A deputy Co-ordinator should also be nominated as an assurance measure.

In addition to taking charge in the event of a disaster, the team's responsibilities are to:

- undertake a risk assessment to identify potential disaster scenarios
- develop response plans for identified scenarios
- ensure salvage priorities are known and included in the counter disaster plan, and
- regularly monitor and review counter disaster plans.

2.3 Plan coverage

A counter disaster plan needs to cover all aspects of disaster preparedness from prevention, protection and response, to recovery and rehabilitation, and consider records in all physical formats and locations, regardless of whether they are temporary or permanent records.

The plan needs to:

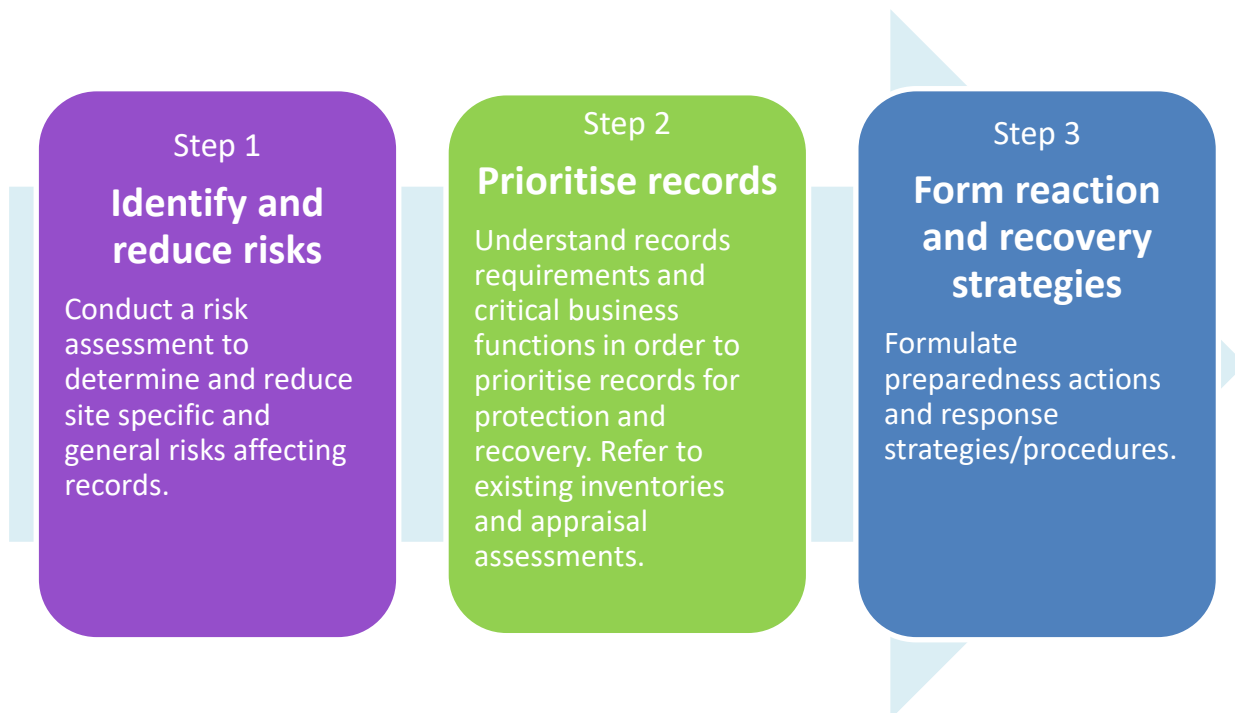
- document disaster preparedness, response, and recovery procedures
- complement and be integrated with business continuity plans and other emergency procedures
- be regularly revised and practiced
- include information about insurance coverage, and
- include provisions for emergency access to equipment and supplies.

The plan should be supported by:

- a clear policy statement which mandates the plan and defines responsibilities (requirement under the Standard on Records Management)
- results of a risk assessment and analysis, and
- list of priority records and evidence of appraisal.

2.4 Key steps

Counter disaster plans can be formulated by following these key steps:



Depending on your public office's circumstances you may choose to undertake these steps in a different sequence or concurrently.

2.5 Example of plan structure

A counter disaster plan may have the following structure:

- Introductory statement (including purpose, objectives and scope)
- Responsibilities and duties of key personnel
- Emergency contact tree (including disaster response team and general staff)
- Summary of threat assessment/risk analysis
- Prevention measures
- Goals and objectives for training, testing and review
- Information about insurance policies and key contacts at insurance provider
- Response procedures (including arrangement for alternative sites and communication strategies)
- Lists of contacts for additional assistance such as disaster recovery vendors and suppliers of additional resources
- Floor plan showing storage locations, disaster response supplies, and emergency exits/alarms
- Summary information about inventories of records prioritised for salvage, and retention and disposal authorities
- Guidance and procedures for records salvage and recovery
- Results of plan monitoring and testing, and
- Review/revision schedule.

Plans do not always need to be established from scratch, existing plans or templates can be used provide a base, however, they must be customised to address site specific risks identified through the risk assessment.

2.6 Collaborative efforts

Public offices may wish to pool resources with other public offices to work together on aspects of counter disaster plan development, collaborative efforts can allow for:

- identification and treatment strategies for common risks
- development of common response strategies which can be deployed regardless of location
- identification of sources of expert assistance
- sharing of resources and costs e.g. shared training or supplies, and
- establishment of a regional support network where a number of public offices could assist each other when a disaster strikes.

However, not all risks or strategies will be common, public offices also need to consider site specific or record specific risks, and be fully aware of their own capabilities and the level of outside expertise required.

3 Step 1. Identify and reduce risks (Risk assessment)



Understanding risk is vital to developing strategies to respond to disasters.

A risk assessment covers the identification, analysis, and assessment of risk to work out which events are likely to occur and their potential impact on records.

See: NSW Treasury's [Risk Management Toolkit](#) for detailed guidance on how to conduct risk assessment.

Also refer to: Australian Standard on Risk Management (AS ISO 31000: 2018).

Risks can be reduced through implementation of the [Standard on records management](#) and [Standard on physical storage of State records](#). These standards help lessen the impact of a disaster, through:

- knowledge and documentation of the types of records held
- identification of high value / high risk records and where to locate them
- regular records sentencing to reduce unnecessary holdings
- assessment of appropriateness of storage areas
- regular site monitoring and maintenance activities, and
- site access and security provisions.

A review of your Public office's level of conformity with these standards will help inform your risk assessment and assist in the mitigation of risks.

3.1 Identifying risks

Some risks will apply generally to multiple storage areas or public offices, others are site specific or unique to a single storage area or public office. It is important to consider both types of risk.

Public offices will be able to re-use existing risk assessments for storage or business continuity plans, and determine:

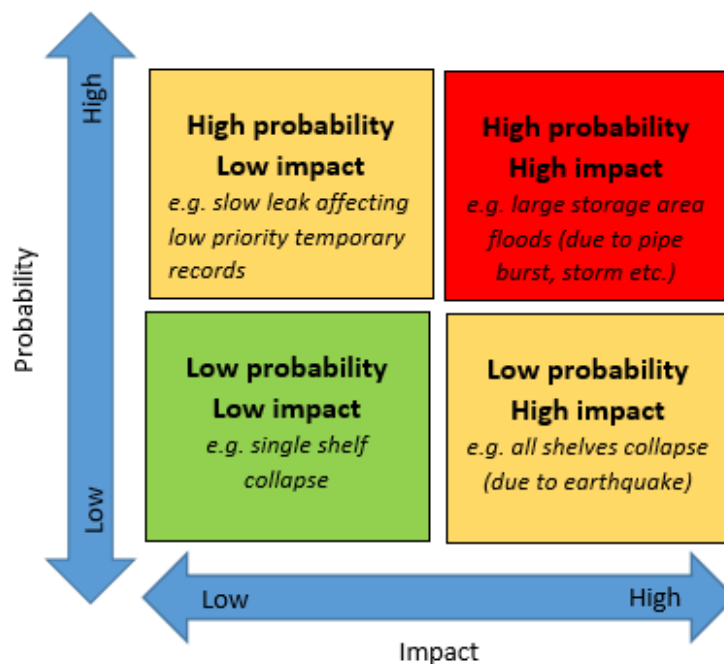
- Compliance with standards issued by NSW State Archives and Records
- Site-specific risks, for example:
 - building structure and state of repair (*tip: Conduct regular audits of the building*)
 - geographic positioning and surrounds (e.g. near airports, chemical plants, waterways or in a bushfire prone area)
 - history of natural disasters in the area
- Ability to respond to disasters and resources available
- The impact that the loss of records would have on business
- Priority records and where they are located
- The acceptable level of risk.

Further risk considerations are outlined in Principle 1 of the [Standard on physical storage of State records](#).

3.2 Analysing risk

Once identified, risks can be analysed and ranked on a risk matrix (a scale of probability versus impact). Remember the scale of risks affecting records may differ to the scale of risks affecting health and safety or business continuity.

Fig.1 Example of disaster risk matrix (for risk relating to records)



Considerations for analysing and ranking risks include:

- investigating the frequency of particular types of disasters (often vs. rarely)
- determining the degree of predictability of the disaster
- analysing the speed of onset of the disaster (sudden versus gradual)
- determining the amount of forewarning associated with the disaster
- estimating the duration of the disaster, and
- effectiveness of existing prevention measures.

3.3 Treating risks

After an informed analysis, measures can be put in place to treat gaps and reduce the impact of identified risks.

Treatment for risks may involve:

- site monitoring programs
- choosing a new storage building at a low risk site
- modifying an existing building to ensure risks are removed or minimised, for example upgrading fire suppression systems and security systems
- installing fireproof safes for priority records
- modifying operations, for example, not storing records on the floor, or changing security and access arrangements
- implementing procedures for severe weather warnings including additional site monitoring activities before and after severe weather events (e.g. storms, cyclones, dust storms)
- creation and maintenance of disaster bins and disaster stores
- rehousing records into more suitable packaging, e.g. archival boxes, Mylar sleeves
- digitisation or copying programs for State archives and business critical records
- transfer of State archives to the State Archives Collection
- developing and implementing a counter disaster plan for physical records.

Implementation of the [Standard on records management](#) and [Standard on physical storage of State records](#) will reduce risk and lessen the impact of a disaster.

3.3.1 Site monitoring activities

Routine building monitoring and maintenance programs play a key role in disaster prevention. For example, clearing leaves from gutters regularly will help prevent blockages in gutters and reduce fire risk.

When severe weather is scheduled, additional site monitoring and maintenance activities should take place before and after. Prior to severe weather, it is important to ensure that downpipes, gutters, and emergency systems are fully functional.

Additional monitoring should also take place within 24 hours after severe or wet weather incidents to ensure that any damage to records and/or the building is quickly identified.

This would involve checking a sample of records and their packaging at each storage area within the site(s) and a visual inspection of the building and surrounding area to identify any maintenance issues.

Wet records must be dealt with promptly, including managing humidity and ensuring that the records are dried within 48 hours to prevent mould growth.

3.3.2 Disaster bins

Ready access to supplies can significantly reduce the impact of a disaster (particularly small scale disasters) by enabling a quick response.

Basic supplies can be made available through the creation and maintenance of a disaster response bin (usually a wheelie garbage bin). Each storage area should have a disaster bin containing supplies, such as absorbent paper, gloves, and torches, to meet immediate needs following a disaster.

See **Disaster response bin (PDF)** for list of recommended supplies.

Disaster response bins should be easily identifiable and located strategically around the storage facility. Consider the layout and accessibility of your site when choosing the setup of your bins and their locations. If you have a lot of stairs to negotiate, perhaps smaller caches on each level are better suited than large wheelie bins.

Locations of disaster bins should be noted on site maps accompanying the Plan.

Bins should be checked periodically to ensure that all items are available and functional.

3.3.3 Disaster stores

Public offices might also choose to keep reserve supplies and larger necessities such as packing crates, fans and dehumidifiers in a disaster store. This is normally a lockable area onsite or nearby in a shared facility.

See **Disaster store (PDF)** for equipment and supply suggestions.

A disaster store may not be necessary if arrangements are made with nearby suppliers or equipment hirers.

3.4 Accepting risks

Preventative measures protect and reduce the impact of disasters, however not all risks can be practically treated or completely avoided.

The public office needs to determine an acceptable level of risk, and acknowledge the risk through disaster reaction and recovery strategies, inclusion on the public office's risk register, and appropriate insurance coverage.

3.5 Risk register

Your organisation's wider response to risk management should include a risk register, a document listing all the risks that have been identified and assessed through all risk management processes across the organisation (e.g. inaccessible office locations, influenza pandemic, network failure etc.).

Risks affecting records should be added to your public office's risk register to inform stakeholders of the associated level of risk, mitigation measures in place (i.e. counter disaster reaction and recovery plan), as well as flag the risk for periodic monitoring and review.

3.6 Insurance coverage

Records, like other organisational asset need to be sufficiently insured for salvage and recovery, and restoration in the event of a disaster. Records are often irreplaceable and contain information vital to meeting business needs, accountability requirements, and community expectations.

Disaster recovery can be expensive, costs to take into account include:

- salvage and repair of items
- freezing of records
- employing disaster recovery companies
- supplies (e.g. new boxes, hiring of vehicles)
- restoring the site (e.g. structural repairs, cleaning/drying carpets and walls, replacing shelving)
- temporary alternate sites for air drying and for storage of records
- business interruptions, and
- staff overtime and hiring of temporary staff.

3.6.1 Relationships with insurers

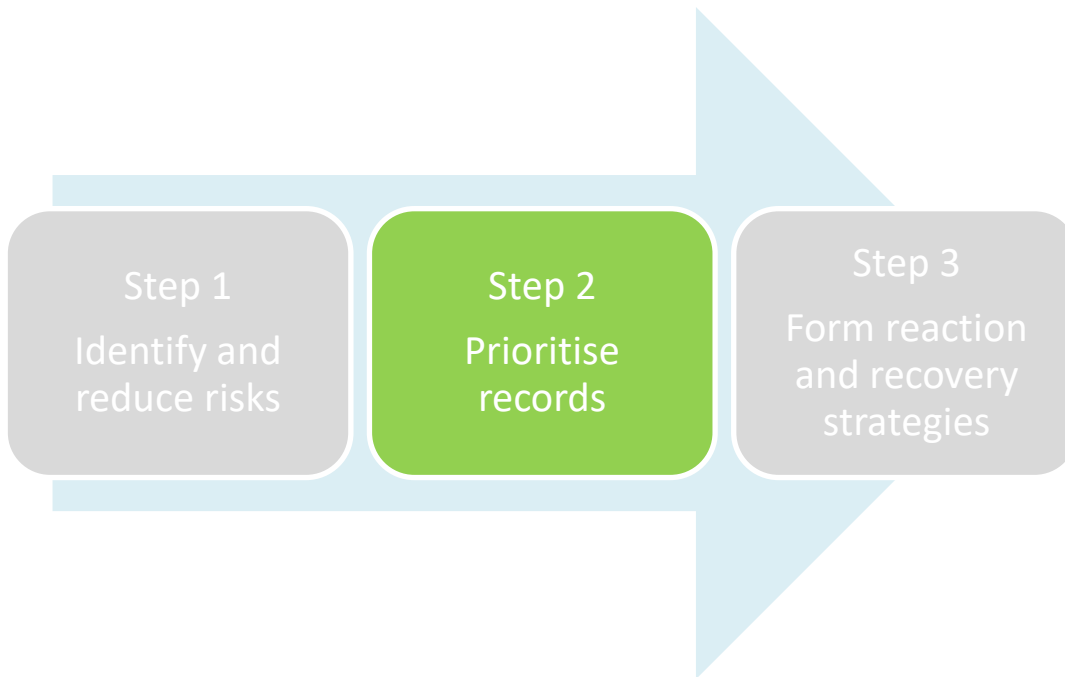
Insurers need to be made aware of the **Protocol for assessors** which outlines 'do's and don'ts' for records recovery. Some techniques such as chemical fumigation, gamma irradiation, and freeze drying of photographic and film collections **must never** be used on State records. (Refer to **Protocol for assessors – available on NSW State Archives and Records website**).

Establishing a relationship with your insurer and/or the person within your public office that manages insurance is essential. During a large-scale disaster, control and decision-making is often transferred to the insurer, or the chosen remediation service provider. When establishing contracts for response and recovery, decision-making responsibilities should be determined.

3.7 Monitoring and review of risks

Monitoring and review of risk management programs should be on-going and should cover seasonal, short and long term risks. Scheduled assessments of the effectiveness of risk reduction measures help to ensure changing circumstances do not alter risk priorities. As risks are reviewed the risk register should also be updated.

4 Step 2. Prioritise records for salvage



The need to establish priorities is critical for disaster response as the opportunity to successfully salvage and recover records rapidly decreases after the first 48 hours.

Only a small portion of records support critical business or have continuing value. These records should be given the highest priority for salvage and recovery. Information on the retention requirements of records will assist salvage efforts.

Priority lists need to clearly outline which records to protect and salvage first and document their storage locations. A rating of low, medium or high priority would ideally be applied to all records not just those on the priority list.

High priority records can be protected through:

- Storage protections such as use of fire-proof vaults or archival packaging material
- Digitisation or copying to create back-up versions of the documents
- Transfer of records identified as State archives the State Archives Collection.

4.1 What to prioritise?

Priority records including [high value and high risk records](#) are identified through functional analysis, recordkeeping requirements, and implementation of [retention and disposal authorities](#).

Priority records will include:

- State archives
- records with long retention periods
- highly sensitive or security classified records
- records critical to business continuity and restoring operations, such as contracts, legal documents, policies, financial and employee records, and
- recordkeeping control documents e.g. registers, catalogues, and indexes.

The following records are not priorities for recovery:

- time-expired records due for destruction
- short term temporary records
- published material where copies exist in other collections
- duplicated records, and
- records that have been digitised or copied where the original paper-based record has no discrete value or may be disposed of under GA45.

Access restrictions and security requirements applied to records should also be considered and where appropriate noted on the list.

4.2 Sentence records before a disaster strikes

The [Standard on records management](#) outlines the needs for regular application of retention and disposal authorisation. Timely sentencing of records reduces unnecessary holdings and avoids public offices undertaking needless recovery efforts, saving time and money.

4.3 CASE STUDY 'UNSENTENCED' RECORDS DAMAGED IN STORM

A public office based in a regional centre was involved in a records disaster after being hit by a massive storm. The public office has multiple sites and records storage areas within the region and beyond.

The storm event impacted many homes and businesses in the local area with power supply and road access also affected. Hence, a lowered level of community assistance was available, and several staff members were also caught up in the event.

Naturally the public office's top priorities were to re-establish business operations and focus on delivering front line services to assist with community recovery. Records were not at the top of the priority list.

The records management unit's immediate focus was to check the primary storage areas and to ensure recordkeeping systems were operational; these were fortunately unaffected by the event.

With all the chaos approximately three days passed until a staff member thought to check on records stored on smaller sites. To their horror they found a mould infestation within one of the records storage buildings.

Gutters had overflowed during the storm and water had leaked into the building. The wet records left unnoticed in humid conditions had grown mould, and there was an extensive mould infestation in the storage area. Given mould had already begun to grow it was too late to 'simply' dry the items. If recovery was required it was now a big salvage and recovery operation.

Records had not been sentenced prior to being placed into storage. Therefore, records could not be prioritised for recovery or authorised for destruction. To make matters worse the public office did not have a retention and disposal authority.

All records had to be dried, treated and recovered. This was a costly exercise. The public office had to commission a recovery services vendor to treat the mould. Meanwhile, internal resources needed to be re-allocated to prioritise the development of a retention and disposal authority.

Once the records were recovered, sentencing determined that most records were temporary, time-expired and due for destruction, meaning the recovery efforts were largely wasted. Records could have been destroyed before or immediately after the disaster, if retention requirements were determined prior to the disaster occurring and avoiding much unnecessary effort and expense.

The silver lining here was that the public office had appropriate insurance coverage, if not they would have suffered significant financial loss.

4.3.1 Retention requirements

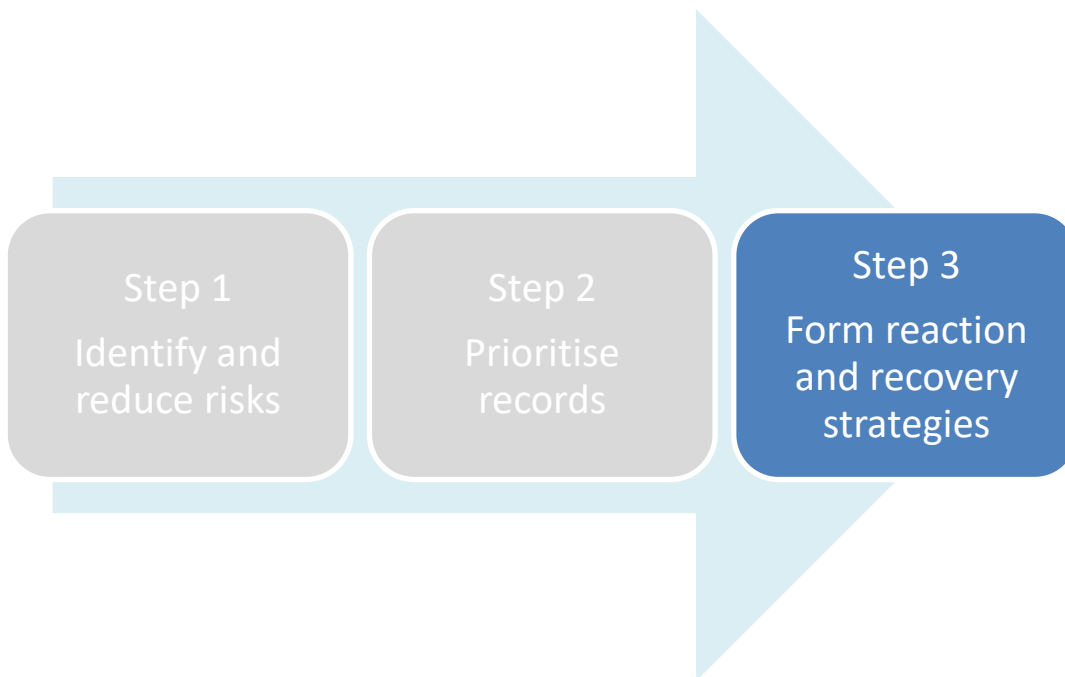
Knowing your retention requirements before placing records into storage will greatly reduce recovery efforts should your public office be caught up in a disaster.

Do the following:

- know the activities and transactions performed by your organisation and the resulting records created
- ensure all activities and resulting records are covered by [Retention and disposal authorities](#)
- sentence your records periodically
- ensure records of your sentencing determinations can be made assessable during a disaster (i.e. know which records have been sentenced and be able to easily identify those records which are critical to ongoing business or required as State archives)
- create an inventory of records series/ retention periods, and rank by importance (TIP: refer to risk register and retention and disposal authorities)
- identify State archives and records relating to business critical areas and document their storage locations
- destroy time-expired records
- make sure you monitor your storage areas before and after severe weather events.

The above factors are outlined in further detail within the [Standard on records management](#) and [Standard on physical storage of State records](#).

5 Step 3. Develop response strategies



A reaction and recovery plan strategy outlines basic procedures and provides guidance to follow prior to a potential disaster and in the aftermath.

When developing strategies consider:

- impact on the wider community
- scenarios which are both highly probable and have high impact
- scalability of the disaster, and
- additional resources required for salvage and recovery.

When developing procedures consider:

- procedures for the identification and reporting of a disaster situation
- functions and chain of command for salvage and recovery teams
- priority records and their locations
- how to triage priorities
- handling of damaged materials
- equipment and materials available
- testing requirements, and staff training.

Resources for formulating detailed reaction strategies will be best spent on scenarios which are both highly probable and have high impact. Consider the resources available to your organisation to ensure your plan is realistically actionable. Scalability concerns, like the need to procure additional resources or external assistance should also be flagged where appropriate.

Remember, the impact a disaster has on the wider community can affect your organisation's ability to respond, e.g. if a wet weather event such as heavy rain and flooding has affected the local area, many organisations and members of the community are also likely to be affected and this may reduce your organisation's capacity to respond to the disaster.

5.1 Formulating procedures

Staff will be under pressure in a disaster situation therefore procedures must be clear and easy to follow.

Reaction procedures should be accompanied by supporting documents, including insurance policies, formal agreements, contact details of stakeholders and staff, and lists of potential assistance providers.

Remember, some information will need to be held separate to the procedures due to the information it contains on security arrangements and high priority records.

Relates to:	Procedures need to outline:	Supporting documents may include:
Chain of command	<p>chain of command in the event of a disaster (this will vary from the usual organisational hierarchy) including who is (or could act as) the disaster co-ordinator</p> <p>the disaster co-ordinator's has the responsibility to declare a disaster situation and initiate response procedures</p>	<p>contact details of the disaster response coordinator and team (contact tree)</p> <p>contact details of Work Health and Safety co-ordinator</p>
Disaster Alerts	how to respond to pre-warnings and alerts issued by Emergency Services prior to an actual event occurring (e.g. storm warnings or bush fire alerts)	contact details of nearby emergency services
Initial reactions	<p>how to assess the condition of the site and ensure that it is safe to enter (you may need to coordinate with Emergency Services depending on the type and severity of the disaster)</p> <p>situations in which a disaster is to be declared and the relevant authorities to contact</p> <p>how to make best use of disaster bin contents</p>	<p>building plans showing storage areas, locations of disaster bins, exits, extinguishers, alarms, master switches</p> <p>location details for master keys</p> <p>NOTE: the above information should be kept secure and separate from the disaster plan. Access to this type of information should be limited to disaster co-ordinators.</p>
Insurance information	<p>when to advise the insurance company of an incident</p> <p>recovery techniques that are not be used on State records or State archives</p>	<p>contact details of insurance agent</p> <p>Protocol for insurance assessors (produced by NSW State Archives and Records)</p>
Notification to NSW State Archives and Records	when to advise NSW State Archives and Records if there is damage or loss to records as a result of a natural disaster, storm, flooding, fire, contamination or technology disruption	contact details for NSW State Archives and Records

Emergency arrangements	<p>work health and safety requirements and instructions</p> <p>how or where to procure an alternative site</p> <p>what to do about site security and access</p>	<p>contact details of WH&S co-ordinator</p> <p>details of potential alternative sites and any documented agreements</p>
Human resources	<p>when and how to bring in staff for assistance</p> <p>how to co-ordinate salvage teams</p> <p>how to manage staff overtime (e.g. legal & WH&S requirements)</p> <p>how to procure temporary staff</p> <p>how to manage volunteers</p>	<p>contact details of HR co-ordinator</p> <p>policies and procedures relating to labour hire</p> <p>policies and procedures relating to management of volunteers</p>
Communications	<p>how to distribute internal communications</p> <p>how to distribute external communications</p> <p>how to manage media enquires</p>	<p>communications and/or media policy</p>
Priority records	<p>how to identify and locate priority records</p> <p>how to triage priorities</p>	<p>appraisal statement</p> <p>retention and disposal authorities</p> <p>building plans showing storage areas and the location of high priority records (restricted access to this documentation)</p> <p>inventory list of priority records and their storage locations (restricted access to this documentation)</p>
Record assessment	<p>how to document damage to records</p> <p>how to handle damaged records</p> <p>how to deal with access restrictions or security measures applied to records</p>	<p>records assessment template</p>
Damaged records	<p>how to authorise disposal of time-expired records</p> <p>basic recovery advice for burnt, soiled, damaged, or wet records</p> <p>recovery techniques that SHOULD NOT be used on State records</p>	<p>applicable retention and disposal authorities</p> <p>contact details for NSW State Archives and Records</p> <p>copy of NSW State Archives guidance for records recovery</p>

	how to deal with records beyond recovery instructions for rehabilitating records back into storage	Protocol for insurance assessors (produced by NSW State Archives and Records)
Additional resources	expertise, equipment and alternative sites potentially needed emergency procurement processes	lists of available equipment and expertise list of vendors and suppliers who can provide additional equipment and/or services contact details of records disaster recovery specialists and conservators (lists should note their areas of expertise)

Additional actions or further information may be needed to tailor the plan to your specific requirements or a particular disaster scenario.

It may also be appropriate to include decision trees within your response plan (e.g. if electricity is available then..., if electricity is not available then...).

5.2 Responding to disaster alerts

When severe weather is forecast (e.g. high fire danger rating, storm warnings) additional site monitoring and maintenance activities should take place before and after.

Prior to severe weather it is important to ensure that pipes, gutters and other emergency systems are fully functional. Check that **disaster bins** are in the correct locations and fully equipped.

Additional monitoring should also take place in the **first 24 hours after** severe or wet weather to ensure that no damage has occurred to records and/or the building. This would involve checking a sample of records and their package, at each storage area within the site(s).

5.3 Declaring a disaster

Guidance outlining situations in which a disaster is to be declared and the relevant authorities to contact needs to be included in the plan. It is the disaster co-ordinator's responsibility to declare a disaster situation and initiate response procedures.

Remember, if a disaster affects records, and there has been damage or loss to records, your organisation must notify NSW State Archives and Records.

If mould is identified and is affecting records, NSW State Archives and Records must be notified and the problem must be treated promptly.

5.4 Site assessment

Procedures for assessing the extent of site damage after a disaster should be incorporated into plans. In larger scale disasters this may include gaining the approval of emergency services personnel, WorkCover officials, and/or professional tradespersons.

5.5 Site security

Securing the site and any alternative sites used for recovery is important. Failure to secure a damaged site leaves it vulnerable to unauthorised access, theft and vandalism and puts the organisation at risk of suffering further loss.

Disaster and recovery sites can increase security by:

- creating a list of authorised leaders and personnel
- issuing identification badges to authorised personnel
- organising a sign in and out sheet (this can record time worked as well)
- locking doors and boarding up windows in unmonitored areas
- installing signs designating restricted areas
- hiring security patrols
- seeking police assistance

5.6 Salvage teams

In a large scale disaster it may be appropriate to have multiple teams performing concurrent disaster recovery operations. Response strategies can include guidance, suggested duties, and basic procedures for team operations and formulation a workflow.

Basic example of multi-team workflow:

Team	Task
↓ Clean up team	Clears obstacles in storage areas
↓ Salvage team	Retrieves items from storage, notes locations and basic identifying information
↓ Evaluation team	Establishes retention requirements, prioritises records for recovery, documents damaged items
↓ Packing team	Prepares items for transit and/or freeze drying
↓ Air drying team	Recovers wet records

Records can move through the workflow whilst activities take place con-currently. Once recovered a process can then be formulated for rehabilitating items to storage.

5.7 Sourcing additional resources, supplies and expertise

Planning also includes identifying suppliers and services which may be able to provide assistance in the event of a disaster and compiling a contact list for reference when required.

This list may include:

- equipment providers or hiring companies
- vehicle hire companies
- suppliers of boxes and other archival materials
- commercial records recovery services
- conservators (note area of expertise)

- trades persons
- labour hire companies

It may be appropriate to form agreements with other organisations for example, loan of work space, temporary storage space or staff in the event of a disaster.

5.8 Dealing with damaged records

Planning includes developing procedures for dealing with specific types of damaged records. For example wet records must be dried within 48 hours to avoid the risk of mould growth, badly burnt records are fragile and need to be handled gently, and records contaminated by chemicals or sewerage pose health risks and should not be handled.

Remember that personnel must wear Personal Protective Equipment (PPE) if dealing with mouldy, dirty or contaminated records. This will include masks with either a P1 or P2 filter, plastic gloves, apron, and eye goggles.

Reporting of damaged records to NSW State Archives and Records is a requirement of the [Standard on the physical storage of State records](#) and should be clearly outlined within written procedures.

If records are:

- damaged or there has been loss of records, or
- not covered by retention and disposal authorities, or
- identified as State archives

then you must make contact **as soon as possible** to discuss the affected records. Phone (02) 8257 2900 or email govrec@records.nsw.gov.au.

It is important not to assume records are unsalvageable or rush to dispose of damaged records, NSW State Archives and Records can provide further advice on how to deal with damaged records.

Procedure for dealing with damaged records should include:

- contacting NSW State Archives and Records
- how to authorise disposal of time-expired records
- basic recovery advice for burnt, soiled, or wet records
- recovery techniques that are NOT be used on State records
- how to deal with records beyond recovery
- instructions for rehabilitating records to storage

The information contained in the reaction and recovery sections of this document provide guidance on how to record damage to records, how to authorise disposal of time-expired records, as well as advice for handling damaged records and recovery techniques, which be used to inform disaster response and recovery procedures.

Refer to [reaction and recovery](#).

6 Implementation, distribution, monitoring of plan

Once you have conducted a risk assessment, prioritised records, and developed reaction and recovery strategies, you have the data and resources needed to compile your counter disaster plan.

Responsibility should be assigned for the implementation and ongoing maintenance of the plan, including distribution, testing and training.

The completed plan must be endorsed by your [Chief Executive Officer](#) and/or [Senior Responsible Officer](#) as they are responsible for compliance with the [State Records Act 1998](#).

6.1 Implementation

For the plan to be implemented successfully, public offices will need to:

- involve relevant staff in the process of implementing the plan
- assign responsibility for the implementation and ongoing maintenance of the plan
- ensure that identified priority records are appropriately protected, and
- regularly practice and test the plan through training exercises.

6.2 Distribution and safe keeping

A counter disaster plan is a [high risk document](#) due to the information it contains. It must be securely stored, but also readily accessible to authorised people in the event of a disaster.

Hard copies should be distributed to members of the counter disaster team with the requirement that they are stored securely, in case systems are also impacted by the disaster. Digital copies must be stored securely with appropriate access provisions.

To facilitate plan maintenance, it is important to monitor and track each hard copy of the plan. A distribution log (or electronic metadata) can be used as a record and control all copies of the counter disaster plan issued to various officers. Each authorised copy of the plan should contain a version identification number and the recipient should be recorded on the distribution log.

Each officer with a copy of the plan is responsible for the security and control of the document in accordance with organisational policies.

6.3 Testing

The counter disaster plan should be tested periodically to maintain awareness and ensure relevance. The objectives of testing include:

- revealing any flaws in the plan
- gaining feedback on any problems while implementing the plan
- training the disaster management team, and
- assessing mobilisation, assembly, and deployment of the disaster response team.

Reviews should be conducted after testing and after emergency situations to consider successes and failures, and how implementation procedures might be adjusted to work more effectively. Changes to the plan should be documented to show the history of plan development.

Public offices may also consider having their plan externally audited by a disaster management service provider.

6.4 Training

Disaster simulation allows participants to become acquainted with the counter disaster plan, their designated roles and task requirements.

Teams responsible for leading disaster responses should receive scenario training and do walk-throughs of disaster response procedures.

Disaster management training courses are commercially available. See the [Australian Institute for the Conservation of Cultural Material \(AICCM\)](#) for further information.

6.5 Maintenance

Plans must be maintained to accommodate change in order to remain effective. The need to review plans may arise from changes to operating conditions or external circumstances, such as:

- building locations or structural alterations
- priority records (i.e. new or removed functions, activities or risk requirements)
- equipment or systems
- personnel responsibilities (e.g. staff movements)
- procedures, or
- standards or best practice.

6.6 Responsibilities

Plan maintenance responsibilities should be clearly assigned and defined within the plan. Responsibilities may be divided among the counter disaster planning team members, branch/section heads, senior management, and internal auditors. It is also desirable to embed responsibilities into role descriptions.

7 Responding to a disaster

Disaster reaction and response involves activating your [counter reaction and recovery disaster plan](#) to stabilise a disaster situation and enable recovery operations. Refer to your plan for response actions, procedures, advice, and contact information.

7.1 Activate plan

While some disaster situations will mean that the fire brigade, police, hazardous material team etc. have been notified and are involved with the organisation, there could be other disaster situations where the coordinator of the response and recovery effort will need to decide whether it is prudent to notify the emergency services.

To activate the plan the coordinator needs to:

- notify all members of the disaster response team (or delegate this duty to someone reliable), and
- brief the response team on the proposed response to the disaster as outlined in the disaster preparedness plan.

Remember, human life always comes first!

Recovery efforts should NOT begin until the site is deemed safe by emergency services and the CEO or Disaster Co-ordinator. Staff will need to listen and adhere to the advice of emergency services personnel and Workplace Health and Safety co-ordinators.

If structural Damage has occurred emergency tradespersons may be needed to address the damage or put temporary provisions in place to make the site accessible for salvage. A list of contacts should exist in your Counter disaster plan.

Refer to AS 3745 – 2010/Amended 2018: Planning for emergencies in facilities.

7.2 Key response actions

If required, public offices should set up a central area at the site or an alternate site, to be used by the Co-ordinator and team to make and relay decisions. An appropriate area may also be needed established for records recovery.

Key actions in disaster response:

- Assemble the disaster response team
- Brief the response team on the proposed response to the disaster as outlined in the disaster preparedness plan
- Assess the condition of the site and ensure that it is safe to enter
- Enter the site equipped with floorplans and inventory/locations of high priority records
- Where possible, restore temperature and humidity controls
- Broadly assess the extent and type of damage and records affected
- Contact your insurer (check the **Protocol for assessors**)
- Contact relevant authorities/stakeholders (e.g. parent institution, NSW State Archives and Records, other personnel)
- Source human resources (e.g. existing and/or additional staff, volunteers or contractors)

- Photograph and document the disaster; you will need records for your insurance claims, reporting to management, and to NSW State Archives and Records.
- Prioritise records for recovery based on your records assessment
- Develop a plan for recovery, seeking expert opinion from conservators. If the scope of the disaster is beyond your resources consider commercial assistance.
- Prepare work areas, this could mean temporarily establishing an alternative site
- Establish work flows
- Gather equipment and resources
- Stabilise damaged records
- Discard duplicate and time expired records and document the process
- Protect or move unaffected records from the disaster site

Take some time to plan and coordinate recovery actions as this will enable recovery operations to be more efficient.

7.3 Assess damage to records

7.3.1 Determine what records are affected

- What records are affected by the disaster? (*tip: refer to the lists which accompany your plan for information*)
- What physical format are the records (e.g. paper, photographs, maps and plans, video, tape)?
- Document your findings by taking notes and photographs

7.3.2 Determine the extent of the damage

- What damage has been done to the records?
- What are the quantities?
- Can the damage be repaired?
- Are the boxes wet, but the contents dry?
- Are records wet, damp, only a little wet, or soaked?
- Take notes as you go to ensure findings are documented

7.3.3 Identify recovery priorities

- Use your organisation's high priority recovery list to determine which records you need to recover first and to locate these records within the storage area and facility.

Some areas with the facility may not be immediately accessible or safe, and you may not be able to access or retrieve records until you have been advised it is safe to enter the site.

7.4 Evaluate records

Once records been assessed for damage, you will then need to make decisions about what to do with the records. Are they ephemeral, are they time-expired and can be destroyed, or are they required to be salvaged and recovered?

You will need to make these decisions about the records using authorised retention and disposal authorities and in consultation with your Records Manager and Business units. Importantly, you will also need to follow your organisation's disposal authorisation processes. Decisions and actions should be documented to provide an audit trail.

A person must not abandon or dispose of a State record unless in accordance with the [State Records Act 1998](#). You must contact NSW State Archives and Records before you make arrangements for the disposal of records damaged in the disaster.

7.4.1 Copies, publications and ephemeral records

If the affected records are identified in organisational policy as ephemeral and can be disposed under Normal Administrative Practice, then you may not need to recover the records and the records can be destroyed.

HOWEVER, care must be taken to ensure that only records able to be disposed of under Normal Administrative Practice are destroyed.

7.4.2 Time-expired records

If the affected records are covered by current authorised retention and disposal authorities, have been retained for the minimum retention period, and are no longer required for administrative, legal, financial, audit or business needs, then your organisation may decide to dispose of the records rather than recover them.

REMEMBER to document the disposal of records and follow your organisation's disposal authorisation processes.

7.4.3 Records needed for business purposes or State archives

Reporting of damaged records to NSW State Archives and Records is a requirement of the [Standard on the physical storage of State records](#).

If the affected records are:

- still required for ongoing business
- have not met the minimum retention periods in the retention and disposal authority
- not covered by retention and disposal authorities, or
- identified as State archives

then you must make contact as soon as possible to discuss the effected records.

It is important not to assume records are unsalvageable or rush to dispose of damaged records without written consent!

NSW State Archives and Records can:

- provide further advice on how to salvage the damaged records
- clarify retention and disposal requirements, and

- if appropriate grant emergency authorisation to destroy damage records
- Remember, you must contact NSW State Archives and Records to advise that there has been damage to records or loss of records, and that this must occur before you make any arrangements for the disposal of records damaged in the disaster.

The recovery of records damaged in a disaster should be carried out under the supervision of a Conservator and in consultation with NSW State Archives and Records.

To contact NSW State Archives and Records, telephone (02) 8257 2900 or email govrec@records.nsw.gov.au.

7.5 Determine if you need assistance

Identify and determine if you need to call in assistance for the recovery. This will depend on:

- nature and severity of disaster
- quantity of records affected by the disaster
- extent of the damage to records (is it minimal impact on a few records or severe damage to many records? If large quantities of records have been affected by water, it may be necessary to freeze the records until they can be dealt with)
- is mould growing on the records? Has over 48 hours passed since the disaster occurred?
- are the resources for recovery available? can they be readily sourced? has the disaster store been impacted by the event?
- does the organisation have the expertise and resources? Are staff trained in recovery techniques and can you use internal resources for the recovery process?
- is there enough physical space for recovery? (wet records will likely take at least 3 times more space than when dried).

In making the decision to use the services of a disaster recovery specialist, you will need to liaise with management and your insurer. See our [Protocol for assessors for disasters at NSW Government organisations which involve records](#). You should also consult with NSW State Archives and Records regarding any treatments or repairs that are required.

7.6 Considerations for recovery

The following describes the process of determining the damage to records and the requirements and methods for recovery.

7.6.1 Deal with wet records in the first 48 hours

Water damage is the most common result of disasters, and mould growth is always a high risk in disasters involving water. Flooded areas and wet records must be dried out quickly.

Dry out the space. If this is not possible, remove the wet records to a dry area quickly.

7.6.2 Processes that should NEVER be used on state records and state archives during disaster salvage

- Decontamination with any chemical fumigant. Fumigants include ethylene oxide, hydrogen peroxide gas (e.g. bleach), methyl bromide, or any proprietary fumigant.
- Decontamination using gamma irradiation.
- Freeze drying of photographic or film collections and plastics (e.g. plastic architectural plans).

Insurers need to be made aware of the Protocol for assessors which outlines 'do's and don'ts' for record recovery.

Remember to consult with NSW State Archives and Records regarding any treatments or repairs that are required.

7.6.3 Processes that pose risks to State archives

All processes except air drying pose some risk to records and should only be undertaken by highly trained staff and reputable companies.

Freeze drying can cause damage to some formats, e.g. photographic materials, and should only be used where the size of the disaster precludes air drying.

7.6.4 Quality assurance measures

The recovery company will need to put measures in place to ensure records have been adequately treated:

- Moisture content readings should be taken of records following salvage and treatment to establish whether records have been dried adequately – they should fall into the normal range for dry paper
- Where mould growth has been observed or is suspected, records should be tested to establish whether mould growth is abnormal compared with the baseline levels at the affected site.

7.7 Documenting decisions and actions

Remember, all major decisions and actions should be documented to provide an audit trail. The capture of photographs or video footage can assist the documentation process and support insurance claims.

A recordkeeper can be appointed to co-ordinate tasks such as documenting the disaster site, areas of damage, and damaged records. This person can also manage the register of records moved off site or into recovery.

Evaluation staff should document the records and their state of repair, including all unsalvageable records.

It's important that your plan includes details about the essential information to capture. A template could be included as part of the plan.

8 After a disaster: Recovery

8.1 Establishing recovery operations

Decide on a location for your recovery operations, this might be an alternative office, temporary off-site facility, or a safe section within the affected building. The location used to recover records must:

- be secure and not affected by the disaster
- have appropriate space to spread records out (preferably on benches and tables, not the floor)
- be accessible if you are using trolleys to move records, and
- have power and a phone, and if required, network access.

Organise necessary equipment and resources for recovery (e.g. fans, dehumidifiers, trolleys, water absorption pads, blotting paper or perforated paper towels, rubber gloves and dust masks). You will also need items located in your **disaster store**.

Start moving records to the recovery operations location for treatment.

Remember to note original locations to help with identification, particularly where damage has obscured labels (e.g. dirt or smudged ink).

8.2 Salvage and retrieval

8.2.1 Handling and movement

Extra care should be taken when handling damaged records as wet or burnt records are extremely fragile and susceptible to further damage.

Gloves should be worn and material should be handled as little as possible. If records are wet or brittle, card, blotting paper or spun bonded polyester (e.g. reemay bought from fabric stores) can be placed underneath to provide additional support. Plastic crates or trays (e.g. bread crates) can also be used to provide additional support where trolleys are unable to fit down aisles.

When moving files, teams should move them as bundles, trying to retain the original order as much as possible.

Volumes and bundles can be passed by human chain to trolleys and taken to the evaluation team.

Generally, as a safety measure, material should be taken from top shelves first. An exception to this rule is if the damage is from fire and the worst charring is noticed on the higher shelves (the least damaged materials from the highest areas should be salvaged first).

8.2.2 Packing records for relocation

- boxes should not exceed the weight recommended by Work Health and Safety officials
- paper records can be packed in plastic crates and taken by trolleys out of the affected area (plastic crates, particularly perforated styles e.g. bread crates, that allow water to escape, are better for very wet records than cardboard boxes, which can sag and break with moisture and pressure)

- material should not be piled on top of each other or moved in large batches
- records with running inks should be wrapped individually to not contaminate other items
- document records movements to track location changes.

If you know freezing will be required consider methods of packing that will accommodate the process.

See [Appendix 2. Packing records in a recovery operation](#) for more information about packing records for transit or freezing.

8.2.3 Tips and tricks

- Human trains can be used to pass records out of tight spaces
- If the evaluation area is close by, the salvaged material can be placed on grids in an evaluation room, and records kept of the location of the grid and item
- Conveyer belts can speed up the retrieval of records and prevent WH&S issues, they are particularly useful on stairs
- Photograph records in their locations to support insurance claims

9 Dealing with affected records

9.1 Water damaged records

Wet records must be dealt with within the first 48 hours. If the disaster was a flood, it is likely that the records could have been affected by dirty water.

Wet records should only be handled by trained personnel wearing Personal Protective Equipment (PPE). Requirements for recovery will vary depending on the formats of the damaged records.

Methods for dealing with wet records include:

Airdrying - can be attempted if it is within 48 hours of the disaster and if material is not soaked. Otherwise, mould will start to grow, and items that are suitable should be frozen where possible. Airdrying may result in some distortion of items and should not be used for items with soluble inks.

Freezing - is the best method for stabilising and restoring large quantities of paper records, or for records that are already starting to grow mould.

NOTE: Freezing can damage some formats – expert advice should be sought. Identifying records that cannot be frozen ahead of time will ensure better decision making on the day

DO NOT freeze: vellum, photographs, glass plate negatives, electronic media such as diskettes, videos, cassettes or vinyl records.

See [Appendix 1. Wet Records: Stabilising and drying methods](#) and [Appendix 2. Packing records in a recovery operation](#)

9.2 Fire damaged records [heat affected or charred records]

Burnt records should only be handled by trained personnel wearing Personal Protective Equipment (PPE).

The recovery of burnt records presents a range of problems. The effects of fire include:

- heat
- soot
- burnt edges
- melted coverings such as plastics, and
- possible water damage.

Fire affected records are especially fragile and need to be handled carefully. If charring damage is only present around page edges (containing no information) it might be possible to trim the damage edges and rebind the document.

Usually where there is fire damage there is also water damage from the extinguishment of the fire. Burnt and wet materials can be frozen, to enable more time for planned recovering.

Any restoration other than basic cleaning and rehousing should be left to an experienced Conservator.

The National Film and Sound Archive of Australia website (www.nfsa.gov.au) gives first aid advice for fire damaged film audio-visual materials.

9.3 Soiled and contaminated records

Seek Work Health and Safety advice before proceeding. Specialised biohazard teams may need to be called in

Records contaminated by chemicals, sewerage, or flood waters should only be handled by trained personnel wearing Personal Protective Equipment (PPE).

NSW State Archives and Records can provide advice specific to your situation.

9.4 Torn or fragmented records

Torn or fragmented records should only be repaired by Conservators. You will need to collect the fragments (e.g. in archives envelopes, polypropylene sleeves, re-sealable bags, or boxes) and label the containers for identification.

In some cases, it might also be possible to place the pieces together to create a digitised copy.

9.5 Need Advice?

If you need further on how to deal with affected records contact NSW State Archives and Records. Our Recordkeeping and Conservation staff can help.

To contact NSW State Archives and Records, telephone (02) 8257 2900 or email govrec@records.nsw.gov.au or (02) 9673 1788 or email transfer@records.nsw.gov.au.

9.6 Useful Links and Resources

The Australian institute for the conservation of cultural material (AICCM) recovery advice includes simple to follow tips and DIY videos (<https://aiccm.org.au/disaster>)

Blue Shield Australia provides a list of useful resources (<http://blueshielddaustralia.org.au/resources/>)

The National Film and Sound Archive of Australia provides first aid advice for fire damaged film audio-visual materials (www.nfsa.gov.au).

State Library NSW provides advice for 'Drying a wet book' (<https://www.sl.nsw.gov.au/research-and-collections/building-our-collections/caring-libraris-collections/drying-wet-book>)

The National Archives UK's 'How to deal with wet documents' provides advice for air drying wet records. (<http://www.nationalarchives.gov.uk/documents/information-management/wet-documents.pdf>)

NSW State Archives and Records, *Conservation Tip No. 5 Removing mould from records and archives* (<https://www.records.nsw.gov.au/archives/collections-and-research/guides-and-indexes/conservation-tip-05-removing-mould>)

The Powerhouse Museum publication 'All is not lost: the collection recovery book' provides a comprehensive and practical guide to item recovery by material type. (Available for purchase from <https://maas.museum/product/all-is-not-lost-the-collection-recovery-book/>)

10 Rehabilitation and monitoring

10.1 Rehabilitation

Before rehabilitating the records back to storage:

- ensure that the building is secure and fit for purpose
- clean shelving and surfaces well enough to remove any mould spores
 - Be aware that the remediation of mould contamination is a specialised area - it may require the expertise of external service providers***
 - if your disaster involved water it is also advisable to clean walls and ceilings to prevent mould growth.
 - if there has been a fire it is advisable to clean air-conditioning ducts
- stabilise the environment by bringing the building's temperature and relative humidity within acceptable limits, and being able to maintain those conditions (humidity is the key factor, as mould will grow even in low temperatures where the relative humidity is above 65%), and
- replace used supplies in disaster store and disaster bins.

Records can then be moved back into storage. Swelling of items might mean that they take up more space than before, these records should not be compressed by force, you will need to find additional space.

Remember to document the new locations to ensure the locations of priority records are known in case of a future disaster.

10.2 Monitoring

Additional monitoring is required after a disaster. Affected areas and records should be checked regularly for signs of continuing problems.

Moisture takes considerable time to evaporate. Records might appear dry on the surface but still have a significant moisture content. Therefore, water damaged records (containers and contents) need to be checked often to ensure that mould growth, rust and corrosion does not become an issue.

If water was involved it is recommended that additional monitoring takes place over the next 12 months to ensure that all moisture has escaped the building (concrete in particular can withhold water for up to a year). After such time regular monitoring activities can be resumed.

11 Post disaster

11.1 Wrap up:

Public offices should ensure that they acknowledge staff for their efforts in disaster management. In some cases where trauma has been suffered they may require ongoing counselling and support.

A debriefing session should be conducted with staff and volunteers involved to compare the counter disaster plan to what actually happened. This helps ensure that confusing or impractical procedures are clarified in future response plans. The discussion results should be documented for inclusion in the final report.

11.2 Review and Report

A review of the disaster should be undertaken to assess the impact to the Public Office and to inform future response strategies and counter disaster plans.

Should a disaster of any great magnitude occur, management level staff members should seek to inquire about:

- how the disaster occurred
- how the recovery operated proceeded
- the appropriateness and success of the recovery operation
- the measure of interruption to business functions, and
- consequences of the disaster situation and recovery operation.

Investigations into disaster situations may lead to changes in procedures.

The review should be summarised into a report evaluating:

- response and recovery actions taken
- performance of external recovery services
- financial impact
- impact to business and services
- loss of records
- damage to records, and
- damage to building / facility.

This information will inform the development of future response strategies and counter disaster plans.

11.3 Records about the disaster

The Records management program needs to ensure they have all documentation of the event and assess the impact the disaster has had on Public Office. This includes:

- records created through the disaster (e.g. invoices, reports, key decisions)
- documentation covering the disposal of lost and damaged records
- the impact of loss on business and accountability requirements
- ability to fully access information within recovered (or alternative) records
- disaster report

12 Conclusion

Don't fall into the trap of thinking 'disasters will not happen to my organisation'.

Disasters are a real threat to all public offices and without proper counter disaster strategies, they can be devastating in both operational and financial terms. Implementing good counter disaster strategies will allow your organisation to meet legal and statutory requirements, and to safeguard valuable records and information resources.

13 Acknowledgements

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Appendix 1. Wet records: Stabilising and drying methods

There are a number of stabilising and drying methods that can be used in the recovery phase of disaster management. It is important to remember that different types of materials, and different types of damage, can require different recovery treatment options and techniques.

Below are general tips on stabilising and drying water damaged paper-based materials. **HOWEVER, advice should be sought from a trained conservator before proceeding.**



Airdrying within the first 48 hours is suitable for drying small quantities of damp and partially wet records. It can be used, on a triage basis, to dry records in a major disaster when services are not available.



Freeze drying is preferred for large quantities and wet records. It is the best way to dry coated papers and bound volumes with soluble inks.



Vacuum drying will dry large quantities of wet records but will cause more distortion to bindings than if they were freeze dried.

Table. Suitability of drying methods

Format / method	Air-drying	Freezing	Vacuum freeze drying
Volumes	Yes	Yes	Temporary records only not to be used on State Archives
Files	Yes	Yes	Temporary records only not to be used on State Archives
Card indexes	Yes	Yes	Temporary records only not to be used on State Archives
Maps and plans	Yes	Subject to material & physical size (not to be used on linens or thermal printed items)	No
Vellum and parchment	Yes	Yes	No
Photographic prints	Yes	Not recommended	No
Photographic negatives	Yes	No	No
Glass Plate negatives	Yes	No	No
Electronic media	Yes	No	No

Whichever method is chosen, dried materials should be monitored for potential mould growth after recovery.

Airdrying

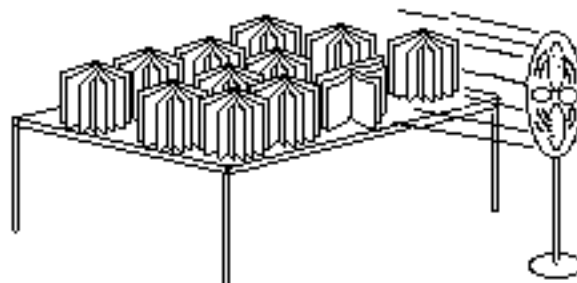
Airdrying can be attempted if it is within 48 hours of the disaster and if material is not soaked. Otherwise, mould will start to grow, and items that are suitable should be frozen where possible. Airdrying may result in some distortion of items and should not be used for items with soluble inks.

Airdrying requires a large space with good air circulation and temperatures below 21°C. Circulation should be encouraged by positioning fans and opening windows. If available, dehumidifiers can be used in the drying process to reduce relative humidity (ideally to 25-35%). Screening material such as window screens can provide an excellent compact drying surface which allows for air circulation (although metal mesh will rust in contact with moisture).

Airdrying techniques are dependent on the physical format of the record. For example, paper files should be spread out, laid flat, and interleaved with blotting paper, while volumes should be stood upside-down, opened, and fanned out with absorbent paper placed at between pages at regular intervals.

Volumes

- Closed volumes can be cleaned before drying, by washing off dirt or mud on covers and edges using clean running water and a sponge.
- Books and volumes which can stand upright can be placed on paper toweling with their covers slightly open and their pages lightly fanned. A gentle breeze from a fan can assist the drying process. Do not use heat as it will encourage mould.
- Priority volumes can be dried by placing plastic sheeting on the floor, standing volumes upright with pages fanned (if their spines will support them), and then forming wind tunnels around them from cardboard or plastic sheeting. Cool air from fans can then be directed down the tunnels.
- Interleaving can be used for wet volumes that cannot support their own weight. Loose sheets of paper towel or blotting paper can be placed at 1 centimeter intervals through the volumes. Do not allow interleaving materials to exceed a third of the thickness of the volume or the spine will be damaged (the exception is with coated papers where each page must be interleaved). Replace interleaving materials when wet.
- If adhesives are sticking to the interleaving sheets, a release material such as nylon gauze should be used as a barrier between them.



Drying bound volumes by standing upright (reproduced with permission of National Archives of Australia)

Pamphlets

- Pamphlets and loose pages can be hung on lines or improvised drying racks providing you have enough space and assistance.



Hanging small items (reproduced with permission of National Archives of Australia)

Files

- Files should be removed from boxes carefully and laid flat. Bundles can be interleaved and pressed under a light weight or pages turned regularly, ensuring that the original order is maintained for each bundle. Cool air can be directed to the pages, but ensure that it is directed upward rather than directly on the pages. Replace the interleaved sheets when they become wet. Glossy papers should be fully separated and interleaved or frozen.
- For saturated files, metal binders should be replaced with plastic tubing or plastic coated wire and pages fanned with some interleaving.

Maps and plans

- Maps and plans can be interleaved with blotting paper stacked up to 10 high and pressed dry under glass, Perspex or thick board and weighted evenly.

Card indexes

- Card indexes should be removed from drawers, stack on sides loosely and supported at each end.

Vellum and parchment

- Vellum and parchment items are very fragile and susceptible to damage when wet. They should be fully supported at all times when being moved. Consult a Conservator before proceeding with any treatments. If nobody can be contacted interleave and freeze.

Photographic prints

One of the major threats to photographic prints is the development of mould. If treated rapidly, photographic prints may be air dried.

Freezing or vacuum thermal drying is not recommended. Photographs can become mottled and/or stick together.

To air dry: have good air circulation and avoid touching the photo surface as it is fragile and easily damaged.

- remove photographs from mounts or separate from each other to prevent the emulsion sticking, save accompanying information
- if covered in mud or dirt and are still wet, rinse gently in a bucket of cold clean water
- do not touch or blot surfaces, allow excess water to drain off by tilting
- place emulsion side up on blotters, lint free cloths or racks
- to speed drying, hang on a line with non-abrasive clips on non-image areas, ensuring there is no overlap. Small indentations will occur.
- when part dry, interleave with baking paper in small stacks (approximately 5 photos only)
- to avoid cockling, when nearly dry, re-interleave with baking paper and place under light weights for a few days. Check throughout.
- colour photograph emulsion is more sensitive than black & white. If wet and the colours are stable, they can be rinsed in cold water. However a protective coating may be removed. Copy as soon as possible.
- digital prints are prone to water damage as many of the inks are water soluble. They require careful handling. If you have the original digital file it would be better to copy rather than salvage.

Photographic negatives

Again the major threat is the development of mould.

Glass plates, daguerreotypes, ambrotypes, tintypes should never be frozen or immersed. Air dry emulsion side up.

To air dry:

- remove negatives from envelopes
- gently rinse in a bucket of cold water
- hang to dry or tilt lie with emulsion side up on blotter, to allow excess water to drain off.

The National Film and Sound Archive of Australia website gives first aid advice for water damaged film, which is also applicable for negatives. They also suggest freezing by placing the film in plastic bags after rinsing, removing as much air as possible. If unable to access a freezer or to air dry, they suggest placing the film in a bucket of cool water, changing the water daily until conservation can be arranged.

Glass plate negatives

Glass plate negatives should **NOT** be immersed in water. They should never be frozen or freeze dried. Air dry them immediately by laying flat onto blotter with the emulsion side up (duller side) or upright in a dish rack. Avoid touching the emulsion side.

Magnetic media

If magnetic media (disks, audio, video) is damaged, teams should **never** try to make copies of it immediately because it might damage the hardware. If exposed to heat, an expert can advise of the chances of preserving the information.

Floppy disks and diskettes

If floppy disks are wet, they should be placed upright in cold distilled water until recovery is possible. Do not dry or attempt to freeze them. If full backup copies exist, then damaged media can be destroyed and replaced. If they need to be salvaged:

- Remove from water immediately
- Remove from jacket
- Rinse off dirt with clean distilled water. Do not soak
- Drip dry vertically in a disk drain or rack.
- Clean with a soft lintless cloth, move perpendicular to grooves, not in a circular motion. Do not use hairdryers.
- Place cleaned compact disk in clean jackets.
- Replace if mould or condensation is present or if there are deep scratches. Check playability and readability.

Magnetic tapes

- **DO NOT** freeze because the moisture in the tapes will cause permanent damage when frozen. Do not use magnetised tools/scissors
- **DO NOT** use hot or warm air to dry as it will cause the tape to adhere.

Treatment of magnetic tapes will depend on the extent of water penetration. The casing usually keeps tapes clean and dry. If full backup copies exist, then damaged media can be destroyed and replaced.

Wet tape

- Disassemble the case and remove the tape.
- Rinse dirty tapes, still wound on reels in lukewarm water.
- Support vertically on blotting paper to air dry.
- Reassemble and copy.

Compact disks

If full backup copies exist, then damaged media can be destroyed and replaced.

- Remove from water immediately
- Remove from jacket
- Rinse off dirt with clean distilled water. Do not soak
- Drip dry vertically in a disk drain or rack.
- Clean with a soft lintless cloth, move perpendicular to grooves, not in a circular motion. Do not use hairdryers.
- Place cleaned compact disk in clean jackets.
- Replace if mould or condensation is present or if there are deep scratches. Check playability and readability.

Microforms

If backup copies exist, damaged media can be destroyed and replaced. Silver halide microfilm should be kept underwater and not allowed to dry out. It should be sent to a processing laboratory within 72 hours. Vesicular and diazo film should be separated and air dried:

- Extract water affected records and dry separately.
- Peg aperture cards up for drying.
- Unroll microfilms and air dry with the emulsion side up or send to film laboratory.
- Rewind film and store in dry containers.

If microforms cannot be dried immediately, they should be immersed in clean, cold water for no more than 2 to 3 days and taken to a laboratory. Duplication is recommended where possible.

Freezing

For stabilising and restoring large quantities of records, or records that are already starting to grow mould, freezing is the most effective method. If there are only small quantities of records and mould has not begun to appear, then air-drying, should be employed.

Freezing is a useful alternative for some records as:

- it stops the growth of mould and mildew (while the object is still frozen)
- it may stop bindings from warping, depending on the method of drying
- it stabilises water soluble materials such as inks and dyes, and
- it gives your organisation time to plan for recovery and restore buildings and equipment ready for the material.

However, conservators do not advise the freezing of vellum, photographs, glass plate negatives, electronic media such as diskettes, videos, cassettes or vinyl records.

As soon as the record quantities requiring freezing are decided, companies with appropriate freeze facilities (listed in the counter disaster plan) should be contacted and arrangements made for transport. You can:

- **Blast freeze** commercial blast freezers are ideal as they drop the temperature quickly and have a large capacity.
- **Freeze in refrigerated chamber** this could be slow but there are benefits to reducing temperature even before freezing point is reached.
- **Use a home freezer unit to freeze small quantities quickly** ensure that it reaches a temperature of -10C and do not open until ready to remove the material (otherwise it will cause a freeze-thaw cycle).

Once the material is frozen and you have the time and resources to defrost and treat it, you need to look at drying options.

Freeze drying / Vacuum drying

Vacuum drying must be undertaken by Conservators. The process involves placing frozen items in a vacuum chamber, which allows the water to evaporate without melting. This is of a huge advantage for water sensitive inks as it minimises the risk of them running further. Likewise it is also good for glossy papers as it prevents them from sticking together. But if these situations have begun freeze drying will not reverse it.

Vacuum freeze drying is not recommended for photographic materials unless there is no alternative, as their surfaces may be damaged. Leather and vellum may not survive. Volumes that are vacuum freeze dried should be acclimatised for at least one month before opening to avoid cracking the bindings, and monitored for mould.

It is important to have an agreement with a freeze-drying facility before a disaster so that costs, packing requirements and items suitable for the procedure are understood.

Dry air purging or dehumidifying

Dry air purging can be used if records are not soaking. A building or site is sealed in plastic sheeting and dry air, at least 26°C and 15% relative humidity, is pumped in using desiccant or refrigeration equipment. The water vapour is then absorbed in the dry air. This method is rapid and has the advantage of being in situ, but is only useful when the whole site can be sealed off.

Appendix 2: Packing records in a recovery operation

There are two types of packing that may be needed in a recovery operation:

- pre-evaluation packing where records need to be packed and taken to a different treatment site, in other parts of the building or in a different building, and
- post evaluation packing where records are packed for freezing.

Boxes should not exceed the weight recommended by Occupational Health and Safety officers.

Material should not be piled on top of each other or moved in large batches. It should not be left packed for more than a few hours. If the journey to the freezing facility is long, refrigerated vans are desirable.

For pre-evaluation packing, records can be packed in plastic crates and taken by trolleys to the vehicle. Plastic crates (e.g. bread crates) are better for very wet records than cardboard boxes, which can sag and break with moisture and pressure.

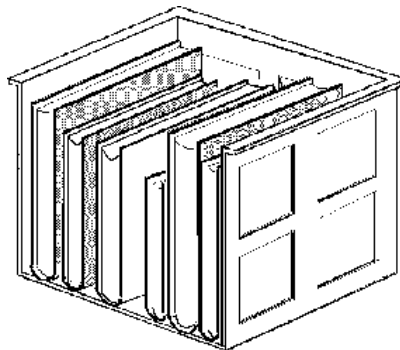
Absorbent/blotting paper can be placed under items to absorb excess water. All rare, intrinsically valuable and delicate material should be prepared separately from other materials so they can be located and identified for treatment by a conservator.

For post evaluation packing where there are small amounts of damaged materials, debris can be washed away under cold running water (if clean) by experienced people unless the material is fire damaged or contains soluble inks and dyes. Volumes, books or groups of papers should be held in two hands and dipped into containers of clean water or a hose should be gently applied providing the water is not contaminated. No materials should be scrubbed. In cases where there are vast amounts of material to pack, washing may not be viable.

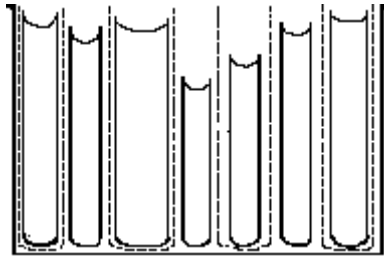
The following packing rules should apply:

Volumes

- Volumes should not be flattened, simply packed as they are.
- Very wet volumes should be packed separately and vertically with their spines down. Volumes of similar size should be packed together in a single layer and supported so that they do not bend. There should be a little space left in plastic crates to allow for their expansion when frozen.
- If it is likely that dyes from the covers of volumes will run, or if time allows, they should be individually wrapped or at minimum interleaved with freezer sheets. Use wax or freezer paper, not plastic or plastic coated paper.



Packing wet records in plastic crates. (Reproduced with permission of National Archives of Australia)



Preparing wet records for freezing. Reproduced with permission of National Archives of Australia

Documents, files and cards

- Wet files should be wrapped in batches that are not more than 10cm deep. Large items should be packed flat on the bottom so that they will not sag. If wet file covers are removed because of damage care should be taken to identify loose documents.
- Soaking wet bundles of wet paper that sustain damage should be packed into large plastic bags or packed on their side in boxes. Do not try and separate them as it is labour intensive.
- Scattered sheets should be placed together in relation to their location and the approximate location noted.
- Files and cards should be left where possible in the original boxes, unless the contents are dry and can be taken out and put in dry boxes without risk of damage.
- Burnt, scorched or dirty records should be supported on single sheets of uncoloured cardboard or heavy paper when transferring to crates.

Microfilm

- Microfilm should be left in storage cartons and secured with rubber bands to retain labels.

Maps and plans

- Large format items such as maps should be interleaved with blotting paper and polythene and placed on flat supports (may be several on each). Do not build up too much weight.

Remember when packing that you need to record information about the item and its location. If records are not in boxes or containers, or if the containers have no identification, label each box or bundle showing the location and identification if possible. Use a soft pencil and paper to write on labels which should be tied onto boxes or bundles. Do not use coloured paper, felt tipped or ballpoint pens or write on the records themselves. Crates should be numbered and the numbers added to documentation, and the removal and destination of boxes should be recorded.