Records Emergency Planning and Response Webinar

Session 4

Instructor Guide
Final, July 2010
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Session 4—Administration Page

Duration 130 minutes

The following is a suggested time plan for this session. We encourage the instructor to adapt it as needed.

The blank “Start Time” column is provided as a worksheet on which you can create a schedule for your specific session. Using the scheduled start time of your session and the suggested durations provided in Table 1, calculate the start time of each topic and enter it in the “Start Time” column. Also record the start times in the blank Start Time fields provided throughout this document, at the beginning of the topics. This will help you keep track of your progress and help you to check whether or not you’re on schedule.

Table 1: Suggested Time Plan

<table>
<thead>
<tr>
<th>Topic</th>
<th>Duration</th>
<th>Start Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Session 4 Introduction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Session 4 Welcome and Overview</td>
<td>5 minutes</td>
<td></td>
</tr>
<tr>
<td><strong>Take-Home Activity Debrief</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Session 3 Activity: Develop Your REAP—Decision Maker, Site Assessment, Goals and Timetables, or Action Team</td>
<td>20 minutes</td>
<td></td>
</tr>
<tr>
<td><strong>Module 2—Records Emergency Response and Recovery (cont’d.)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Introduction and Objectives</td>
<td>5 minutes</td>
<td></td>
</tr>
<tr>
<td>• Lesson 4: Recovery Procedures</td>
<td>40 minutes</td>
<td></td>
</tr>
<tr>
<td><strong>Course Summary</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Course Review</td>
<td>10 minutes</td>
<td></td>
</tr>
<tr>
<td>• Next Steps</td>
<td>15 minutes</td>
<td></td>
</tr>
<tr>
<td>• Course Evaluations and Course Certificates</td>
<td>5 minutes</td>
<td></td>
</tr>
<tr>
<td>• Records Emergency Planning and Response Post-Test</td>
<td>30 minutes</td>
<td></td>
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<tr>
<td><strong>Total Duration</strong></td>
<td>130 minutes</td>
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</tbody>
</table>
Scope Statement

Session 4 focuses on recovering damaged records and National Archives and Records Administration’s (NARA’s) study of drying techniques on various records media. It includes:

- Session 4 Introduction
- Take-Home Activity Debrief
- Module 2—Records Emergency Response and Recovery (cont’d.)
  - Lesson 4: Recovery Procedures
- Course Summary

Session 4 Introduction

The Session 4 Introduction provides a quick review of the material covered in prior sessions and a preview of the material to be covered in Session 4.

Take-Home Activity Debrief

The Take-Home Activity debrief provides participants with the opportunity to share the results of their homework assignment with the class, receive feedback from the instructors, and discuss any issues or questions they may have about the activity.

Module 2 (cont’d.)

Lesson 4 of Module 2 focuses on recovery procedures, including drying techniques for water-damaged records. It also covers the findings from NARA’s comparison of drying techniques.

NOTE: Module 2 is split among Sessions 3 and 4:

- Lessons 1, 2, and 3 are presented in Session 3.
- Lesson 4 is presented in Session 4.
Course Summary

The Course Summary reviews the key points covered in the Records Emergency Planning and Response Webinar. In addition, participants complete the Course Evaluation, take the Records Emergency Planning and Response Post-Test, and learn how to obtain Certificates of Completion.

Session Objectives

Module 2—Records Emergency Response and Recovery

NOTE: As noted above, Module 2 is presented across three sessions. The objectives addressed in this session are shown in bold.

Terminal Learning Objective:

- Participants will be able to assess a situation and then develop and implement a response for records affected by an emergency, using their REAP as a guide.

Enabling Objectives:

- Assess damage to records after an emergency.
- Define the Assessment Team roles and responsibilities.
- Develop a response plan for records damaged in an emergency.
- Describe the health and safety issues that should be addressed during a response.
- Determine when and how to work with private vendors.
- Discuss response procedures for records in all media.

Instructor to Participant Ratio

2:30—We suggest that at least two instructors lead each webinar, and that there be no more than 30 participants.
Methods

This session uses the following instructional methods:

- Instructor presentation
- Polling questions
- Group discussion

Practical Exercise

Session 4 does not contain a practical exercise.

Sources of Course Content

- NARA’s course, Records Emergency Planning and Response (April 2008)

Instructional Materials

- Session 4 Instructor Guide (for instructors)
- Session 4 Participant Guide (for participants)
- Session 4 Slides
- Handout(s):
  - Handout 3.1—Sample Pack-Out Tracking Log
  - Handout 3.5—Develop Your REAP—Decision Maker, Site Assessment, Goals and Timetables, or Action Team Activity
  - Handout 4.1—Response and Recovery Procedures
  - Handout 4.2—Sample Records Emergency After-Action Report
  - Handout 4.3—Sample Post-Event Report
  - Handout 4.4—Common Drying Methods
• Reference(s):
  – **Reference 01**—Resource Center, References, Reading List
  – **Reference 02**—Key Terms for the IPER Courses
  – **Reference 03**—Participant Webinar Reference Guide
  – **Reference 04**—iLinc Quick Reference for IPER Instructors (instructors only)
  – **Reference 05**—Webinar Troubleshooting Guide (instructors only)

• Polling question(s):
  – **PQ 4.1**—Which drying technique dries the records using a very strong vacuum to lower the pressure while the temperature is held below freezing?

• Prepared Powerboard file(s):
  – **PB 4.1**—Session 4 Review

• Evaluation(s):
  – Course Evaluation
  – Records Emergency Planning and Response Post-Test

**Equipment**

• Required equipment:
  – Internet-enabled computer
  – Telephone (Each instructor should have his or her own telephone. If you want to use the telephone hands-free, you should use a headset instead of a speakerphone to reduce background noise that will distract the participants.)

• Optional equipment:
  – A second Internet-enabled computer, logged into the webinar as a participant, so you can see what the participants see.
[This page intentionally left blank.]
Session 4 Introduction

Instructor Notes

Session 4 Welcome and Overview

(Duration: 5 minutes)

START TIME: ____________

Log in to iLinc 30 minutes prior to the start of the webinar session to make sure there are no technical issues.

Launch the Session 4 slides file in iLinc.

Show slide 4-1.

Required materials for Session 4:

- Session 4 Participant Guide
- Session 4 handouts:
  - Handout 4.1—Response and Recovery Procedures
  - Handout 4.2—Sample Records Emergency After-Action Report
Records Emergency Planning
and Response Webinar
Session 4

Session 4 Introduction

- **Handout 4.3**—Sample Post-Event Report
- **Handout 4.4**—Common Drying Methods

- **Materials from prior sessions:**
  - **Handout 3.1**—Sample Pack-Out Tracking Log
  - Your completed handout from the Session 3 Take-Home Activity: **Handout 3.5**—Develop Your REAP—Decision Maker, Site Assessment, Goals and Timetables, or Action Team

- **Course Reference(s):**
  - **Reference 01**—Resource Center, References, Reading List

**REMINDE R S T O I N S TR U C T O R :**

- Before class begins, **be sure to check** (1) the IPER Resource Center for special announcements to Instructors about the course and (2) the Frequently Asked Questions (FAQs) to see if there are any newly posted items that may be relevant to your course or participants.

- When you are not speaking to the participants, **remember to have** your phone on mute.

- When you are speaking to the participants, **remember to reduce or eliminate** background noises, such as pages being turned, co-workers talking, etc.

- If you are recording this session, **remember** that discussions conducted via iLinc’s Chat tool are captured in the session recording. When using the Chat tool, **make sure to maintain** a professional dialog that is appropriate for everyone to view.
• When using iLinc's WebSync function, participants cannot see any actions you perform (such as moving your cursor or scrolling); therefore, when you interact with a web page or document, you will need to provide instructions to the participants on what to do ("scroll down," "select this," etc.) so their view will match your view.

Continue to show slide 4-1 until all participants have joined the session (or until it’s time to start the webinar).

[instructor 1] Welcome participants as they enter the webinar.

• Tell them that the webinar will begin shortly.

Five minutes prior to the start of the session, check the Attendee panel in iLinc and compare it to the class roster to see if all of the participants have entered the webinar.

If all of the participants have entered:

• Say: Hi, everybody. This is <your name>. I know it’s a couple of minutes early, but since everybody’s here, I’d like to get started, if that’s OK with everyone.

• Begin the session (see the “Begin the Session” Instructor Note below).
If all of the participants have not yet entered:

- **Say:** Hi, everybody. This is *<your name>*. We are waiting for a few more people to join us, and then we’ll get started.

- **Monitor** the Attendee panel until all participants have entered the session or until the start time is reached.

- **Begin the session** (see the “Begin the Session” Instructor Note below).

**BEGIN THE SESSION:**

- **Start** the iLinc recorder.

- **Say:**

  - Welcome to Session 4 of the *Records Emergency Planning and Response Webinar*.

  - To refresh your memory, I’m *<your name>* and teaching with me today is *<name of Instructor 2>*.

  - Before we get started, I’d like to remind everyone to mute your phone and not to put your phone on hold during the webinar. If you need to take another call or a break during the session, please, hang up and call back to rejoin.
Remind participants that they should have the Session 4 course materials ready (either printed or open on their computers) so they can access them when needed.

- Remind participants that a link to the materials appeared in the Reminder Email.

Say: We don’t recommend that you print the materials now, but if you do, please make certain your phone is on mute.

Remind participants that recordings of the sessions are available on the Intergovernmental Preparedness for Essential Records (IPER) Resource Center, and if they missed the prior session, they can view a recorded version at: http://www.statearchivists.org/resource-center

Transition: Let’s do a quick review of what we covered in our past sessions and take a look at what we’re going to discuss today.
Show slide 4-2.

**Say:**

- In Session 1, we learned how to prepare a Records Emergency Action Plan, or REAP.

- In Session 2, we focused on creating and properly maintaining a REAP to ensure that it remains useful.

- Last week, in Session 3, we examined putting your REAP into action and assessing the damage to records after an emergency. We also examined how to develop your response plan and how to implement your response.
• We took a look at the Response Team and addressed the elements that should be included in a response plan, including staffing requirements, the Emergency Operations Center, supplies, and response priorities.

• Then we moved on to implementing the response and took a look at personal safety and the initial action steps you can take within the first 48 hours to help mitigate the damage to the records.

Go over what will be covered in Session 4:

• **Say:** Today, we will focus on the recovery and staging areas, and procedures for handling and recovering damaged records. We will also take a specific look at recovering water-damaged records, and examine NARA’s study of drying techniques on various records media.

• **Say:** The session is comprised of the following:
  - **Read** the Session 4 Overview, as provided on the slide.

**Say:** Today’s session is 2 hours and 10 minutes in duration. A short break will be provided about mid-way through the session.
Take-Home Activity Debrief

Session 3 Activity: Develop Your REAP—Decision Maker, Site Assessment, Goals and Timetables, or Action Team

(Duration: 20 minutes)

START TIME: ________________

Show slide 4-3.

Tell participants to go to Handout 3.5 (from the Session 3 materials) and locate the Decision Maker, Site Assessment, Goals and Timetables, or Action Team Worksheet on page 2.

Remind participants that this is the worksheet they should have completed for the activity and emailed to you by the previous day.
Ask participants to raise their hands (or use the “Public” tab of the Chat tool) if they had any difficulties completing the Take-Home Activity.

- If anyone had a problem, make sure to resolve it before continuing.

Debrief the activity by conducting a group discussion.

- Say: The goal of this activity was to continue working on your REAP; you were asked to select and complete one of four tasks:
  - Task 1—Identify and talk to the decision maker.
  - Task 2—Conduct a site assessment.
  - Task 3—Develop the goals and timetables for your REAP.
  - Task 4—Establish your REAP Action Team.

Say: For those of you who performed Task 1, who would like to share your experience? Raise your hand.

- Call on participants who have their hands raised.
  - Remind participants to take their phones off mute before speaking.
• **Tell** participants to share the following:
  - Whom they met with
  - How the conversation went and what was discussed
  - Whether they found any information to be particularly persuasive
  - Whether or not they got approval to move forward on developing their REAP

• **Provide feedback** on participant responses as appropriate.

• OPTIONAL: If no participants volunteer, you may opt to share a response from one of the homework sheets submitted by the participants.

*Say:* For those of you who performed Task 2, who would like to share your findings from your site analysis? Raise your hand.

• **Call on** participants who have their hands raised.
  - **Remind** participants to take their phones off mute before speaking.

• **Tell** participants to share the following:
  - A brief overview of the records in their holdings
  - A brief explanation of where the records are stored
  - Any potential risks to the records

• **Provide feedback** on participant responses as appropriate.
• OPTIONAL: If no participants volunteer, you may opt to share a response from one of the homework sheets submitted by the participants.

Say:

• We had suggested that folks who have experienced resistance from management about developing a REAP complete this task. There was actually a reason for this.

• Concrete information or evidence, specific to a situation, can be useful in overcoming resistance, as it hits close to home and changes what was a hypothetical possibility into an actual risk.

• Some decision makers need this information to be able to see what can affect their agency.

• So, by performing the site assessment and determining the actual risks to your records, you may now have the information needed to convince your decision makers to move forward with a REAP.

Say: For those of you who performed Task 3, who would like to share their goals and timetables? Raise your hand.

• Call on participants who have their hands raised.
  – Remind participants to take their phones off mute before speaking.
• **Tell** participants to share the following:
  – A brief overview of their REAP goals and timetables.

• **Provide feedback** on participant responses as appropriate.

• OPTIONAL: If no participants volunteer, you may opt to share a response from one of the homework sheets submitted by the participants.

**Say:** For those of you who performed Task 4, who would like to share your experience of establishing your REAP action team? Raise your hand.

• **Call on** participants who have their hands raised.
  – **Remind** participants to take their phones off mute before speaking.

• **Tell** participants to share the following:
  – The individuals they selected for their Action Team and what their responsibilities are
  – The rationale for their selections
  – A brief description of their experience of recruiting team members

• **Provide feedback** on participant responses as appropriate.
• OPTIONAL: If no participants volunteer, you may opt to share a response from one of the homework sheets submitted by the participants.

Ask for and resolve any questions.

NOTE TO INSTRUCTOR:

• You may opt to have participants submit the work they’ve done on their REAPs for your review. If you do opt to do this, tell participants about this now, including how they should submit their work to you.

Remind participants why it is important to do the homework, as assigned. The activities are designed to:

• Apply what was discussed in a particular session
• Build on each other
• Take you through the initial steps of creating your REAP

Transition: Let’s pick up with Lesson 4 of Module 2.
Module 2—
Records Emergency Response and Recovery
Module 2 Introduction and Objectives

Module 2 Introduction

(Duration: 5 minutes)

START TIME: ______________

Show slide 4-4.

Introduce the module:

• Remind participants that Module 2 contains four lessons presented over two sessions. In today’s session, we’ll complete Lesson 4.

• Say:
  – In Lesson 4, we will address setting up the recovery and staging areas, and pack-out guidelines.
  – We’ll go over procedures for handling specific types of damage and tips for handling specific types of damaged records.
We’ll also take a look at implementing the contractor response and completing after-action and post-event reports.

Finally, we’ll go over several common drying methods and examine NARA’s study of drying techniques for paper-based records.

In the study, NARA analyzed the effectiveness of several drying techniques, including air drying, vacuum drying, and freeze drying.

We’ll take a look at the results of the study, as well as several lessons learned.

Transition: Let’s quickly revisit the objectives for Module 2.

Module 2 Objectives

Show slide 4-5.
Review the module objectives.

Point out that we covered most of these objectives in Session 3 and the objectives we'll be covering today are shown in bold.

At the conclusion of this module, you will be able to:

- Assess damage to records after an emergency
- Define the Assessment Team roles and responsibilities
- Develop a response plan for records damaged in an emergency
- Describe the health, safety, security, and privacy issues that should be addressed during a response
- Determine when and how to work with private vendors
- Discuss response procedures for records in all media

Transition: Let’s get started with Lesson 4 and setting up the recovery and staging areas.
[This page intentionally left blank.]
Lesson 4: Recovery Procedures

(Duration: 40 minutes)

**START TIME:** ______________

**Show** slide 4-6.

Introduce the lesson.

- **Say:** This lesson will address the procedures necessary to effectively recover records damaged by an emergency.

Transition: Let’s get started with setting up the recovery and staging areas.
Set Up the Recovery and/or Staging Areas

Show slide 4-7.

Review setting up a recovery area.

Recovery Area

If you are going to recover records on site, you will need a recovery area. Recovery areas should be large enough to accommodate several tables, be well-lit with good air circulation, and have access to clean running water. You may also need a computer, fans, plastic sheeting, shelves, drying materials, and dehumidifiers.

In addition, recovery areas should be environmentally controlled, as mold may develop in 48–72 hours if the temperature and humidity are high. Ideally, the temperature should be below 65° F, with the relative humidity less than 50 percent. Monitor the climate within the recovery area and make the relative humidity levels consistent.

Cover shelves with plastic sheeting and tables with sheeting or a water-absorbent material such as clean newspaper from rolls. Set up fans so they are circulating the air but not blowing directly on the records. Keep wet records away from supports made of metal, which will rust.
Staging Area

*Show* slide 4-8.

*Review* setting up a staging area.

If you are not going to recover records on site, but instead will be shipping them off site or to a contractor for recovery, you will need a staging area where you can box or re-box records, record them in a tracking system, and prepare them for shipment.

Select a site that is large, with plenty of room for tables, supplies, and shelves; for boxing and loading records; for tracking them; for staff moving about, etc. The ideal site will be accessible to trucks unloading supplies and loading boxes of records and other materials.

*Say:* During the response to Hurricane Katrina, staging areas had to be located outdoors. However, the National Guard secured the area by patrolling it, and access was restricted to authorized personnel.

*Review* the requirements for recovery and staging areas.

**Requirements for Recovery and Staging Areas**

As mentioned earlier, both the recovery and staging areas should have good lighting, good air circulation, and access to clean running water.

Both areas must also be securable with locks. Make sure the area will remain secured at the appropriate level for the records being handled.

Do not begin moving records until the staging and/or recovery area is prepared.
**Show** slide 4-9.

**Freezing Records On Site**

- Freezing records is a good option if you cannot treat all wet records within 48 hours.
- Freezer choices range from trailer to chest.
- Think about alternate resources—store freezers, local universities, colleges, food banks, etc.

**Discuss** freezing records.

**Point out** that additional information on freezing records will be discussed in the next session.

**Freezing Records On Site**

Freezing records is a good option if you cannot treat all the wet records within 48 hours. You can try to locate large freezers on site—for example, those in a cafeteria—or rent freezer trucks or freezers. You can also use small household chests or upright freezers.

Also think about alternate resources—store freezers, local universities, colleges, food banks, etc.

**What If You Don't Have Room for a Staging or Recovery Area?**

**Show** slide 4-10.

**What If You Don't Have Room for a Staging or Recovery Area?**

- Locate appropriate facilities elsewhere, including:
  - Public buildings, such as armories or schools
  - Buildings with private meeting facilities
  - Church activity buildings
  - Commercial property for rent or lease
  - Rental trailers or tents

**Review** what to do if you don’t have room for a staging or recovery area.

If the emergency is large-scale, or you do not have access to suitable areas on site, you will have to locate appropriate facilities elsewhere. Look for sites nearby that meet your criteria. These may include:
- Public buildings, such as armories or schools
- Buildings with private meeting facilities
- Church activity buildings
- Commercial property for rent or lease
- Rental trailers or tents

Transition: Let’s examine pack-out guidelines.

Pack-Out Guidelines

Show slide 4-11.

Pack-out is the process in which damaged records are identified, labeled, and moved off site.
- Do not begin until your staging and/or recovery area is prepared.
- Determine removal priorities—removed first are:
  - The wettest or most damaged records
  - Any records needed for immediate use
  - Essential records that cannot be duplicated and stored off site
- Try to handle records as little as possible.

Define pack-out.

Review the guidelines for pack-out.

Do not begin moving records until your staging and/or recovery area is prepared. You must also decide whether you are going to try to recover the records on site or ship them to a contractor. You may decide to recover some on site, such as damp paper records, while sending records in other media, such as photographs, microforms, tapes, and hard drives, off site for special handling.
Determine removal priorities from your assessment. Usually the wettest or most damaged records are removed first, along with any records that are needed for immediate use or essential records that cannot be duplicated and stored off site.

Try to handle the records as little as possible and make sure they are well supported.

**Packing-Out Boxes**

*Show* slide 4-12.

![Packing-Out Boxes](slide4-12)

- If the records are in boxes that are structurally sound:
  - Form a human chain.
- If the records are in large and heavy drawers, or if their containers are not structurally sound:
  - Use book trucks, dollies, or carts.

You must also decide how to remove the records physically from the area where the damage occurred.

If the records are in boxes that are structurally sound, the fastest and most efficient way to remove them is usually by forming a human chain. This is especially effective in removing materials from cramped quarters.

However, if the records are in large and heavy drawers, or if their containers are not structurally sound, you should use book trucks, dollies, or carts. Removal equipment should be made of metal. If you must use wooden carts, cover them well with heavy plastic sheeting before placing records or containers on them. For maps and flat files, remove drawers to protect and transfer the materials to the recovery or staging area. Materials may be frozen right in the drawers.
If the records are in boxes that are not structurally sound and could collapse during the move, you must transfer them to other receptacles before removal. Options include:

- Clean, dry cardboard or plastic boxes
- Plastic milk crates lined with garbage bags or Rescubes
- Book carts, hand carts, or dollies
- Plastic garbage bags (one box per bag)

**Identification for Tracking**

For tracking purposes, each box or drawer of records removed must be identified by a unique number or code. Make sure all containers are labeled on two sides, using waterproof permanent markers. If you cannot write directly on the receptacle, place the panel from the box or a sheet of paper with identifying information in the container along
with the records. Record the necessary information on the moved records electronically if computers or laptop computers are available, or on hardcopy forms, if they are not.

Discuss entering data into the tracking system.

If you are using paper to record the tracking information, you should assign someone as soon as possible to enter the data into the tracking system designed and set up when your response was being developed. Use a design that is flexible, as you may need to add or change fields as the emergency unfolds. At a minimum, you should collect information on:

- Contents
- Original location
- Type(s) of damage
- Box number
- Response priority
- Destination during recovery
- All actions performed, and by whom
- Decisions made, and by whom

Remind participants that an example of a pack-out tracking form appears in Handout 3.1—Sample Pack-Out Tracking Log.

(Refer again to Handout 3.1—Sample Pack-Out Tracking Log for an example of a pack-out tracking form.)

Stacking Pallets for Transport

Show slide 4-15.

Stacking Pallets for Transport

- Records sent off site are typically shipped in freezer trucks on pallets that have been shrink-wrapped.
- There are several systems for stacking pallets for transport.
- Before moving wet records, repack materials in boxes or containers strong enough to hold their weight.
Records that are sent off site are typically shipped in freezer trucks on pallets that have been shrink-wrapped. There are several systems for stacking pallets for transport. One system involves stacking the boxes in an alternating pattern (like bricks). This allows each level to stabilize the one below it, and uses the strength of the box walls to support the weight of the uppermost boxes. Usually, you can stack the pallets three levels high before the weight becomes too great for the lowest level. You can place a sheet of cardboard between levels to help to stabilize them.

If you are putting pallets in a freezer truck, make sure that there is enough space for air to circulate. Otherwise, the records will not freeze and mold will develop.

Never move wet records in large batches or pile them on top of each other, because the weight damages them. Before moving wet records, always repack materials in boxes or containers strong enough to hold their weight.

If reboxing, pack the materials loosely, but so they do not slump; they will swell as they absorb water. Remove them from shelves and drawers in a horizontal sequence. After you have removed the wettest records, the remainder can be moved in an orderly fashion.

**Take Breaks!**

*Show* slide 4-16.

- Rotate staff regularly.
- Make sure that they take breaks, and that refreshments are available.
- Observe safety and health precautions.
- Make sure that staff has the proper equipment.
Explain the importance of taking breaks. The boxes that people are moving can weigh up to 40–60 pounds apiece and may be in awkward locations like bottom shelves, so breaks are important to avoid exhaustion and stress.

During pack-out and recovery, rotate staff regularly to avoid exhaustion and stress. Make sure that they take breaks, and that refreshments are available. Always observe safety and health precautions for workers, and make sure that they have the proper equipment.

Transition: Now let’s move on to special procedures for specific types of damage.

Special Procedures for Specific Types of Damage

Introduce the idea that specific types of damage require special procedures.

Explain that you’re going to discuss three examples of damaged records and the recommended handling procedures, but that participants should consult their conservation professional for more information on how to handle damaged records.

Be aware that specific types of damage require specialized treatment. The following are just three examples of the types of damaged records you may encounter. Consult the conservation professionals you identified in your REAP regarding incidents that may occur in your area, producing a need for special treatment of damaged records.
**Point out** that additional examples are provided in Handout 4.1—Response and Recovery Procedures, which you will be going over shortly.

**Review** the procedures for fire-damaged records.

**Review** the procedures for muddy records.

**Review** the procedures for contaminated records.

---

**Fire-Damaged Records**

If a fire has occurred, the records may be both wet and brittle. You can provide support by placing pieces of paper toweling or clean newsprint under charred materials before they are moved.

**Muddy Records**

Do not attempt more than a minimal cleaning of wet records that are also muddy, unless you have available a large quantity of clean running water and you have the time. Attempting to remove mud from wet paper records may force dirt farther into the paper if a rubbing action is used. Mud may be easier to remove when dry. You may be able to rinse some tightly wound tapes, as only the edges will be exposed to additional water.

It may be possible to rinse mud off boxes or enclosures to make the drying process faster.

**Contaminated Records**

Sometimes records are flooded by water containing raw sewage, covered with asbestos from crumbling ceilings, or otherwise contaminated with materials that make them unsafe to handle without special precautions. If records are contaminated, or you suspect that they may be, make sure that all staff members use proper protective equipment and clean-up procedures. It is often best to leave this to trained operators under your supervision.

A contractor who specializes in treatment of contaminated materials should always be consulted, as these records require special handling and treatment.

---

**Transition:** In some cases, it may be better to keep records wet.
Should Records Be Kept Wet and Recovered by a Specialized Contractor?

Show slide 4-18.

Some materials should be kept wet until they can be recovered by a contractor who specializes in the recovery of those materials. Some examples include microfilm, motion picture film, and hard drives from computers.

With film-based media in particular—because there are so many photographic processes—unless you are sufficiently knowledgeable about photographic process identification, it is important to receive expert advice from a photographic conservator as soon as possible before determining how to proceed with the response.

If you determine that the photographic process is stable enough:

- Place wet microfilm or motion picture film in plastic bags to keep it from drying before it can be handled by an experienced conservator or specialized contractor.
- With guidance from a conservator, you may be able to wash off mud or dirt under cold, clean, running water, and then seal the items in bags.

Some photographic processes and other media should never be exposed to water. Take special care to keep them dry if they are important to the agency. Boxes with water-proof coating would be best for storing these records.
Refer participants to the Minnesota Historical Society as a resource on the special needs of special-format records.

Tell participants that this resource is provided on the IPER Resource Center.

Transition: You should take specific steps when dealing with mold.

Steps for Handling Mold

Show slide 4-19.

Steps for Handling Mold—Small Outbreaks

- Quarantine moldy records from unaffected records.
- Dry and clean the area where the moldy records were found.
- Mold cannot be removed from wet or damp records.

Small Outbreaks

Quarantine moldy records from unaffected records. You will need to dry them in a location that vents to the outside. The area where the moldy records were found will need to be thoroughly dried and cleaned to ensure that mold does not germinate elsewhere.

Mold cannot be removed from wet or damp collections. Items must be completely dry before any attempt is made to remove mold. If using fans to dry the records, make sure the

There are many good resources on the special needs of special-format records, including photographs. One such resource, from the Minnesota Historical Society, discusses assessing all types of materials. This resource is provided on the IPER Resource Center.
fans are not blowing directly on the materials or you will spread the mold spores. Point the fans at the ceiling.

You will have to clean the records once the mold has dried. You may use a HEPA-filtered vacuum and micro-hose kit, but this is very labor-intensive and should be carried out in a fume hood to avoid exposing others to the particulates produced by the vacuuming. This works better than brushing records clean and keeps the mold spores from returning to the air. Vacuum through a screen if the item is fragile.

Say:

- It is often best to seal the records in heavy-duty plastic bags and place them in sturdy boxes to deliver to a contractor experienced in decontaminating, sanitizing, and recovering moldy records.
- While the plastic bags may accelerate mold growth in the affected materials, they effectively separate them from other records and make them safer to handle.

Show slide 4-20.

**Steps for Handling Mold—Larger Outbreaks**

- Quarantine and freeze the records.
- The preferred method of drying is vacuum freeze drying.
- If the outbreak is too large, call a contractor that specializes in mold remediation.

**Larger Outbreaks**

Quarantine and freeze the records. Placing the moldy items in an environment with a temperature below freezing will halt growth but will not kill spores.
The preferred method of drying is vacuum freeze drying, so as not to spread the dry mold spores.

If the outbreak is too large for local staff to handle, call a contractor that specializes in mold remediation. Vacuum freeze drying is an effective method for eliminating most molds and may be considered for records that have special value or are irreplaceable.

**Cleaning the Location Where Moldy Records Were Found**

*Show* slide 4-21.

Cleaning the Location Where Moldy Records Were Found

- First, clean the area with a HEPA-filtered vacuum.
- Then, clean all surfaces with an anti-fungal or anti-bacterial solution, including bleach.
- Assess, monitor, and perhaps replace ducts.

*Review* the steps for cleaning the location where moldy records were found.

Begin by cleaning the area with a HEPA-filtered vacuum. Then clean all surfaces—shelves, floors, walls, ceilings, and windows—with an anti-fungal or anti-bacterial solution, including bleach.

You will also need to assess ducts for air circulation and air conditioning, and monitor them for the presence of mold. If molds persist, then you may need to clean or replace the ducts.

**Transition:** Now let’s look at paper-based records that require special handling during an incident.
Paper-Based Records that Require Special Handling

Show slide 4-22.

- Large or oversized paper
- Coated papers
- Encapsulated and shrink-wrapped records
- Loose paper or paper held together with fasteners

Review the special handling for paper-based records.

Explain that spun-bond polyester fabric is similar to the interfacing used in collars to give them body.

Large or Oversized Paper (Maps, Architectural or Engineering Drawings)

- Large or oversized paper records often require two people to handle and transport them safely, and will require a secondary support (the original drawer, a tray, or spun-bond polyester).
- If the record is rolled or folded, make sure there is enough space on the table to accommodate the record when it is unrolled or unfolded.
- Rolled and folded paper can be vacuum freeze dried successfully.

Coated Papers

- Coated paper such as magazines or journals stick together, or “block,” and must be dried immediately to prevent damage. (Coated paper is usually glossy and is frequently used for color and photographic illustrations.) You must not allow coated paper surfaces to be in contact with one another during drying. Architectural linen can also block because it is coated with starch, which acts as an adhesive when wet.

Review the special handling for coated paper records.

Explain that interleaving is placement of absorbent material between leaves of paper to hasten drying. Interleaving material should be thin, absorbent, ink-free, and acid-free.
• If the pages are stuck together, or blocked, an attempt can be made to recover them by placing the record in a freezer and vacuum freeze drying.

• If the pages are not stuck or blocked, gently place pre-cut pieces of spun-bond polyester fabric between the pages.
  – Allow air to circulate, and wait until the record is completely dry to remove interleaving material (the absorbent material placed between leaves of paper to hasten drying; interleaving material should be thin, absorbent, ink-free, and acid-free).

**Review** the special handling for encapsulated and shrink-wrapped records.

**Encapsulated and Shrink-Wrapped Records**

Although exterior housings such as encapsulation and shrink-wrap do slow the intrusion of water, encapsulated or shrink-wrapped records are not protected from water damage. If the records do become wet, it is possible to vacuum freeze dry the encapsulated record successfully.

**Explain** that if the records inside an encapsulation do become wet, it is possible to vacuum freeze dry them successfully with the encapsulation on the record. This is a very promising way to recover encapsulated and shrink-wrapped records.

If you are planning to air dry the records, the exterior housing must be removed:

• Using scissors, cut through the encapsulation bond or weld on all sides of the record. If the plastic sheet is clean, it can be re-used to support the wet record while it is carried to the drying site.
Review the steps to take when handling loose pages or paper held together with fasteners.

- Read each bullet in the text on the right completely.

Loose Paper or Paper Held Together with Fasteners

Follow these steps when handling loose pages or paper held together with fasteners:

- Remove outer paper or paperboard folders and/or record jackets. If they contain valuable identification information, place the folders near their contents to dry.

- In some cases, it may not be prudent or possible to remove fasteners, but when it is possible, removing them will hasten drying and prevent corrosive rust from forming on the records.

- To prevent tearing when moving older and fragile paper, use supports such as sheets of polyester film, nylon screening, or spun-bond polyester. Modern printer papers contain fillers that give the paper wet-strength even when it is wet or saturated with water. It is important to recognize the difference between more modern and older papers, and to act according to the paper’s need for support.

- Arrange paper records individually, if possible, or in small stacks of 1–5 records each. Turn records over frequently to increase exposure to the air.

- Do not rebox records until they are completely dry.

Bound Volumes

Show slide 4-23.

Bound Volumes

- Stand upright:
  - Small, bound volumes with rigid covers that are partially wet
- Lay flat:
  - Volumes with soft covers
  - Lay flat and open:
    - Large and heavy volumes
Review the special handling for bound volumes.

Explain that it's preferable to freeze and vacuum freeze dry bound volumes quickly, but they can also be air dried successfully.

It is preferable to freeze and vacuum freeze dry bound volumes quickly, because this will help minimize the danger of paper distortion and warping of bindings.

Bound volumes can also be air dried successfully, but will require attention to ensure that the spine area of the book is completely dry before returning the book to a location without air circulation and with high humidity; book spines and covers are highly susceptible to mold.

**Small Bound Volumes**

Small bound volumes with rigid covers that are only partially wet can be dried by standing them upright:

- Place the book upright and hold it open with blotter pieces to allow increased air circulation and to expose the tightly bound spine to air.
- If the book covers are sturdy enough, fan the pages open and interleave with small pieces of pre-cut blotter paper placed close to the spine.
- Place fanned volumes in front of a fan with the fan aimed at the ceiling. This will speed drying.
- Invert books to even the stress on the binding, rotating books upside-down to right-side-up while drying.
- Remove the blotters when the book is dry.

**Large or Ledger Bound Volumes**

You may need to dry large or ledger bound volumes flat and open if their weight does not allow them to stand upright and open. This includes bound volumes with soft covers that are not sturdy enough to stand upright.

- If the pages are damp but not totally wet, fan them open.
- Otherwise, interleave pages with blotter paper, clean newsprint, or spun-bond polyester to wick moisture away from the paper.
- Turn the pages frequently and change the absorbent paper.
- Spun-bond polyester does not absorb water, and does not need to be changed if it is clean. It can be re-used.
Transition: The following slides illustrate several points about paper-based records requiring special handling.

Show slide 4-24.

Say: Encapsulation or shrink-wrap does not provide a moisture barrier. This encapsulated item was sealed in 4-mil polyester film using an ultrasonic welder.

Show slide 4-25.

Say: As you can see, water still managed to get in.
Show slide 4-26.

Say: Notice that in this case, the item is not only wet, but is actively growing mold.

Show slide 4-27.

Point out the rust caused by the metal fasteners.

Show slide 4-28.
Explain that it may be necessary to dry bound volumes flat and open if the following conditions obtain:

- Their weight does not allow them to stand upright and open.
- Their soft covers are not sturdy enough to stand upright.

Say:

- Let’s see what you learned about handling damaged paper-based records.
- Answer the question shown in the content area of the iLinc window.

Launch polling question in iLinc:

- **PQ 3.4**—True or false? Although encapsulation and shrink-wrap slow the intrusion of water, they do not protect records from water damage.

Tell participants to answer the question by selecting the appropriate response from the choices displayed in the Polling tab.

Wait a few moments until most or all participants have answered, and then share results with the participants via iLinc.
• *Provide* the correct answer:
  – True

When done, *close the Polling tab* for everybody by selecting “Close All” when prompted.

**Transition:** Now let’s look at how to handle special media records affected by an incident.

**Handling of Special Media Records**

*Show* slide 4-29.

Review the handling of special media records, starting with photographs.

**Photographs**

Photographs, both negatives and prints, involve such a wide variety of material types and such a long history of technological innovation that it is difficult to give general advice on the recovery of photographic materials. If the photographs in your office are valuable to your agency, it is best to have the advice of a conservator or expert, because they have the requisite knowledge of photographic history and preservation.
• Just like coated paper, photographs will stick together, or “block,” and therefore must be dried immediately to prevent damage.
  – Do not allow their surfaces to come in contact with one another during drying.

• If the photos are stuck together or blocked, do not try to separate them. Contact a conservator for advice.

• Photographs can usually be vacuum freeze dried successfully. Do not vacuum freeze dry glass plate and cased photographs.

• When air drying, you must dry photographs under restraint or they will curl and distort.
  – Photographs are made up of more than one layer, and each layer dries at a different speed. This causes them to curl as they dry, which is why you need to apply pressure to keep them flat.
  – It is very difficult to correct this problem.

• If air drying:
  – If the surface is not cracked or flaking, and the photographs have soot or mud on the surface, you may be able to rinse them in a tray of cool, clear water while they are still wet.
  – Dry photographs image side up on clean blotters for at least one hour.
  – If the emulsion or surface of the photograph is sticky or tacky to the touch, you will need to interleave it with sheets of spun-bond polyester to prevent disturbance of the surface during drying.
  – Place the polyester and photographs between blotters to create a stack.
  – Put a flat sheet of Plexiglas™ or other heavy-weight flat material on top of the stack.
  – Suitable weights include telephone books or bricks wrapped in plastic to add additional pressure.
**Show** slide 4-30.

![Slide 4-30](image)

**Handling of Special Media Records (cont'd.)

Photographs being dried in blotter packs—the optimum method of recovery.

Photo courtesy of NARA

**Say:**

- This slide shows water-damaged photographs being dried in blotter packs—the optimum method of recovery.
- In a blotter pack, the photographs are placed face down between layers of smooth polyester webbing, and then blotter paper.
- The polyester webbing is essential to prevent the photographs from sticking to the blotter paper.

**Show** slide 4-31.

![Slide 4-31](image)

**Handling of Special Media Records (cont'd.)

Multiple layers of sandwiched photographs are placed on top of each other, saving valuable work space.

Photo courtesy of NARA

**Say:** Multiple layers of sandwiched photographs are placed on top of each other, saving valuable work space.
Show slide 4-32.

The entire pack is then covered with Plexiglas™ for even pressure, and weights are added to minimize distortion.

This is essentially a one-step process in which you can dry the prints safely, usually resulting in relatively flat prints with no discernible surface change.

Show slide 4-33.

Here in comparing these cases, we can see the effectiveness of drying photos under restraint, such as the Plexiglas shown in the previous slides. The photos on the top left were dried in blotter packs, while
the photos on the top right were air dried on clips and the photos on the bottom were air dried on a table.

**CDs and DVDs**

*Show* slide 4-34.

Review the handling of CDs and DVDs.

All types of disks are composed of several layers. Of these, the metal reflective layer is probably the most important and the most vulnerable to physical damage. Normally, this layer is covered by a very thin protective coating.

The metal reflective layer is usually unaffected by water unless it has been soaking for a week or longer.

If time and resources permit, immediate response can save the information on the disks.

- Remove the disk from its case or cartridge. Cases that are not damaged can be cleaned thoroughly with water or soap and water and re-used. Damaged ones should be discarded.
- Rinse the disk in clean room-temperature tap water and then in distilled water.
- If any residue remains, using distilled water, gently wipe the disk surface with a wet, soft cotton tissue—not paper towels, as they are too abrasive.
- Wipe in a radial direction from the center out, not a circular direction, to remove the water. Follow this wiping with another rinse in clean, distilled water.
After rinsing, gently blot up any excess water with a soft, lint-free tissue to prevent water spots during drying.

The best chance of avoiding damage is to limit the time a disk is wet. Therefore, it is best to recover disks immediately. If immediate recovery is impossible, rinse the disks in distilled water and store them in their cases in cool, clean water until they can be recovered. If you need to transport the disks, they can be sealed in zip-lock bags immersed in cool or cold water in a portable cooler.

**Computer Hard Drives**

*Show* slide 4-35.

Review the handling of computer hard drives.

Electronic information carriers such as computer hard drives and electronic media also require immediate attention to ensure recovery.

Computer hard drives have a large number of components, some of which are metal and susceptible to rust and oxidation; others are composed of soft plastics and materials susceptible to mold.

- Remove hard drives from computers.
- Send hard drives to a contractor as soon as possible for recovery.
- Keep hard drives wet, sealed in plastic, and do not let them dry out.
Magnetic Tapes

Show slide 4-36.

Review the handling of magnetic tapes.

Say: Several contractors who recover special media are provided on the IPER Resource Center.

Tapes are constructed of layers of water-resistant materials. Although water will not cause these layers to swell and break up (as would the layers in a photograph), tapes can still be damaged. Both the tape and the binder layer may be susceptible to degradation when exposed to water. A fully wound tape is less susceptible to water damage than a loosely wound tape.

- Magnetic tape recovery should be a high priority if the tapes are valuable to your agency.
- Do not play or rewind a tape that is wet.
- You should consider sending the magnetic tapes to a contractor who specializes in recovery of magnetic tape.
- Initial response steps, if air drying:
  - Drain any excess water out of the cassette or off the reel of tape. The cassette gate, if present, may be flipped open to allow water to drain.
  - If the tape is wet with seawater or contaminated water, rinse the tightly wound tape with cool, clean water.
  - For reel-to-reel tapes, wipe the wound surfaces with a wet or soft, damp, lint-free cloth.
Transition: Let’s go over some additional tips and advice on handling damaged records.

Additional Tips on Handling Damaged Records

- For cassette tapes, shake as much excess moisture out of the cassette housing as possible and stand the tape vertically with the empty hub on the bottom for air drying.
- Allow the tape to acclimatize to the new environment for at least two days before any further treatment.

- Some water-soluble inks will bleed.
- Air dry records indoors if possible. Sunlight and heat may dry certain materials too quickly—particularly bound volumes or artifacts made of wood—causing splitting, warping, and buckling. Changing weather, such as wind, can send documents flying and volumes falling.
- Documents, books, photographs, and special media are extremely fragile when wet. They tear easily and require caution when being handled. Always consider providing a secondary support to prevent more physical damage.
When mud or soot is present, with guidance you may be able to rinse off some of the particulate in cool, clean water, but do not scrub the surface.

Many plastics will swell and soften when they are wet. Sensitive surfaces, including wet photographs or electronic media such as CDs or DVDs, must be handled with care to avoid scratching the surface.

While exterior housings such as folders, encapsulation, or shrink-wrapping may slow the seepage of water into the records, they will not prevent water damage and must be removed to allow air drying.

(Refer to Handout 4.1—Response and Recovery Procedures for the preceding recovery and response procedures presented in a quick-reference format that can be used as a job aid and incorporated into your REAP.)

Explain that the DVD that accompanies the Heritage Preservation’s Field Guide to Emergency Response includes demonstrations on handling damaged records, including records damaged by water, mold, corrosion, pests, and other threats safely, refer to:

Tell participants that the URL is provided in their Participant Guides and in Reference 01—Resource Center, References, Reading List.

Transition: Next let’s look at implementing the contractor response.

Implement Contractor Response

Show slide 4-38.

• Consult the list of contractors in your REAP.
• Make sure that the procedures for activating the contract or Memorandum of Understanding (MOU) are part of your REAP.

Review implementing contractor response.

If, because of the scale, nature, or impact of the incident, or because the affected records require special treatment, you determine that a contractor’s services are required, consult the list of contractors you compiled as part of your REAP.

Remember to make sure that the procedures for activating the contract or Memorandum of Understanding (MOU) are part of your REAP and that you know how and from whom to obtain any authorizations needed. You should work with your contract, purchasing, or procurement staff.

Remember to review the list and contact information provided in the REAP annually to ensure that they remain current.
**Say:** Make sure that you contact at least three or four contractors for each category of service that you might require, and understand the kinds of services they provide.

---

**Oversight of Contractor On Site**

*Show* slide 4-39.

When you and your contractor(s) have decided how you will proceed, your job is not finished. You or your backup must remain on site to make sure that the work is carried out properly and with due diligence, and to make any decisions required. For example, you may need to approve the use of additional equipment, housing materials, or add-ons to the contract if additional damage is discovered.

You must ensure the following:

- Records are removed in the proper order.
- Records are properly handled and housed.
- Records are not handled by a subcontractor without informing the client.
- Records are systematically tracked.
- Records are correctly labeled.
- Appropriate supplies and equipment are used.
- Records are properly prepared for shipment and are physically secure.
- Transportation equipment used to ship records is clean, in proper working order, and holds only records from your agency.
- All other conditions of the contract are met.

**Oversight of Contractor Off Site**

*Show* slide 4-40.

<table>
<thead>
<tr>
<th>Oversight of Contractor Off Site</th>
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<tbody>
<tr>
<td>• Maintain good lines of communication.</td>
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<tr>
<td>• Plan to visit the contractor’s facility early in the process of recovery.</td>
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<tr>
<td>• Oversight of the contractor continues throughout the recovery.</td>
</tr>
<tr>
<td>• Ensure that contract specifications are being followed.</td>
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</tbody>
</table>

*Explain* the oversight of a contractor off site.

Maintaining good lines of communication with the recovery contractor is critical. You are now partners in the recovery. You should plan to visit the contractor’s facility early in the process of recovery to ensure that procedures have been communicated properly and that any issues that have arisen during the recovery steps are resolved appropriately.

Oversight of the contractor continues throughout the recovery to ensure the following:

- Your records are not mingled with those of another agency.
- Records continue to be properly labeled and tracked.
- Appropriate recovery methods and equipment are used.
- Records are maintained in their original order.
- Records are secure.
Transition: To capture the details of the incident and your response, it’s important that you complete after-action and post-event reports.

Complete After-Action and Post-Event Reports

Show slide 4-41.

After an emergency event has been fully resolved, it’s important that you complete after-action and post-event reports to capture the details of the incident and of your response.

The after-action report helps you assess your response and the REAP, while the post-event report summarizes and documents the incident, response, and recovery.

Therefore, not only do these reports provide a documented history of the event, they also provide data that can be used to assess your REAP and develop lessons learned and best practices. You can then use this information to determine and implement mitigation steps to avoid another similar event.
Open two documents from the “Course Handouts and References” WebSync file in iLinc.

- Document names:
  - Handout 4.2—Sample Records Emergency After-Action Report
  - Handout 4.3—Sample Post-Event Report

- Tell participants to go to the following handouts for sample templates of after-event reports:
  - Handout 4.2—Sample Records Emergency After-Action Report
  - Handout 4.3—Sample Post-Event Report

- Display and review each handout, one at a time.
  - Review the handouts by going over the information captured in each template.

When done, close the documents for everybody by selecting “Close All” when prompted.

Transition: Let’s move on and take a look at the importance of keeping up-to-date on recovery techniques.
**Staying Up-to-Date With Recovery Techniques**

Show slide 4-42.

**Explain** the importance of staying up-to-date on recovery techniques.

**Explain** that staying up-to-date allows you to:

- Provide clear instructions and specifications to the contractor
- Manage and oversee the contractor’s work
- Make the best value of limited resources
- Maintain an effective REAP

Recovery knowledge and techniques continue to evolve as they are developed and tested. The international preservation community, institutions, and practitioners continue to share their experiences as they work to recover damaged historic, cultural, and documentary resources. They have commercial partners who are constantly developing, testing, and sharing experiences and working toward better methods to dry large quantities of records and other paper-based bound and unbound materials.

If, during your assessment, you determine that it is necessary to contract out all or a portion of the recovery effort, it is important for you to know the terminology and understand the techniques that contractors offer, in order to be able to provide clear instructions and specifications to contractors and to manage and oversee the work they perform.

Being an informed consumer about the recovery services purchased will help make the best value of limited resources and yield the most satisfying results from recovery from a water-related incident.
In addition, as part of your annual review, you should update the response and recovery information in your REAP to reflect any changes in the field. A REAP containing an outdated response or recovery technique is not an effective REAP.

Keeping informed on recovery techniques, through trade publications, white papers, and studies such as the one done by NARA, will help you stay on top of new developments and will help you stay knowledgeable about what works and what doesn’t.

**Explain** that studies such as NARA’s will help you stay on top of new developments in recovery techniques.

**Transition:** Let’s examine the most common drying techniques. It is recommended that you incorporate this information into your REAP for reference in the event of an emergency.

**Say:**

- As we’ve mentioned, water damage is the most common form of damage to records. Whether it’s flooding, fire hoses, rain, sprinkler systems, or leaky pipes, odds are that a records emergency will involve water.

- Therefore, it’s important to be aware of the most effective methods for drying water-damaged records.

- For the remainder of this lesson, we’ll review several common drying techniques; then we’ll discuss the findings from NARA’s study of drying techniques.
• We are providing information about recovery techniques not to make you experts, but to help you make better decisions about your options.

Overview of Common Drying Methods

Show slide 4-43.

<table>
<thead>
<tr>
<th>Overview of Common Drying Methods</th>
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</thead>
<tbody>
<tr>
<td>• Air drying</td>
</tr>
<tr>
<td>• Air drying with added heat (desiccant or dehumidification drying)</td>
</tr>
<tr>
<td>• Vacuum freeze drying</td>
</tr>
<tr>
<td>• Vacuum thermal drying</td>
</tr>
<tr>
<td>• Thermal vacuum freeze drying</td>
</tr>
<tr>
<td>• Freeze drying</td>
</tr>
</tbody>
</table>

Say:

• The following information is a brief introduction to the most common drying methods.

• I hope that by seeing the list on the slide, you realize how confusing it can be if you don’t understand the pros and cons of different drying methods before you need them.

• It is important to understand the differences among, and advantages and disadvantages of, the various techniques to ensure that your agency’s records are receiving the most cost-effective recovery—one that provides the results needed for the preservation of the information and the records.

NOTE: This section provides a brief overview of the techniques most commonly used for drying records. For additional information on each of these methods, refer to Handout 4.4—Common Drying Methods.
• Additional information on each of these methods is provided in Handout 4.4—Common Drying Methods.

Much of the following information comes from a presentation by Kathy Ludwig at the NARA Preservation Conference in 2002; the presentation was based on research carried out in the Conservation Laboratory at NARA.

Additional information comes from the article by Betty Walsh, “Salvage at a Glance Revisited,” combined with NARA’s “Comparison of Drying Techniques: Understanding the Differences Between Vacuum Freeze Drying, Conventional Freezing, and Other Drying Methods,” and information from the Florida state website.

All three of these references are in Reference 01 and on the IPER Resource Center.

**Review** the technique of air drying.

**Explain** that absorbent paper (also called blotter) includes blank newsprint, paper towels, or white blotter paper placed in contact with wet paper to absorb the water quickly and speed the drying process.

**Review** the technique of air drying with added heat.

**Air Drying**

Air drying involves drying records at room temperature. Typically materials are spread out on, or interleaved with, absorbent papers. In some instances, materials may be dried under restraint in a stack of weighted blotters.

Air drying is a tried and true method most familiar to many, has been proven through long experience, and provides the greatest control over the drying process.

**Air Drying with Added Heat (Desiccant or Dehumidification Drying)**

Materials are dried by pumping cycles of moist air out of a chamber or space and introducing dried (desiccated or dehumidified) air with relative humidity (or moisture content) lower than 15 percent. One potential problem with this is that air temperatures are usually in the range of 80° F–100° F, which can over-dry paper records, resulting in distortion, increased volume, and reboxing problems.
The literature often cites this method as giving excellent results for damp collections, and it allows access to the materials during the drying process, if that is required.

**Vacuum Freeze Drying**

Vacuum freeze drying is almost always recommended for most incidents involving records in boxes, where the quantities are large and the records are of varying degrees of wetness. The records will generally be frozen first for transport to the facility and then held in storage in a freezer until the drying process is carried out.

Contractors dry the materials using a very strong vacuum to lower the pressure while holding the temperature below freezing. Cycles of controlled heat may be used on the shelving. This process sublimates the frozen water—that is, the water passes from the frozen state to the vaporous state without passing through the liquid phase. The items remain frozen throughout the drying process.

Vacuum freeze drying is most commonly performed off site at a contractor’s facility and occasionally on site in a mobile vacuum-freeze-drying chamber. Only a few national vendors have vacuum-freeze-drying capabilities, so your records will likely be out of state for several weeks during drying.

**Vacuum Thermal Drying**

Vacuum thermal drying is similar to vacuum freeze drying in the kind of chamber used, but different in that cycles of warm to hot air are used. Vacuum thermal drying is a cost-effective option for temporary records or archival materials of low intrinsic value. The procedure distorts paper considerably, causes coated records to block, and exacerbates the feathering and bleeding of soluble inks. The drying time is usually less than that for vacuum freeze.
drying, but drying time also depends on how wet the materials are initially.

Most vacuum drying facilities no longer use this method because of the problems described.

**Review** the technique of **Thermal Vacuum Freeze Drying**

Thermal Vacuum Freeze Drying

The technique of thermal vacuum freeze drying is similar to vacuum freeze drying in that a vacuum is used with controlled heat to vaporize the water, but this method also has a patented procedure to compress the materials into shape. It is more expensive per cubic foot than vacuum freeze drying.

**Review** the technique of **Freeze Drying**

Freeze Drying

Freeze drying is a very slow technique. Records are packed in permeable containers and kept in a cold storage vault for months. Over time, moisture sublimates out of the records, in the same way that food gets freezer burn. This slow process will dry damp and partially wet records, but the records are inaccessible for a long time. In addition, the energy used to keep the records frozen is very expensive, and the freezer storage may result in monthly costs that are ultimately as expensive as vacuum freeze drying.

**Say:**

- Let’s see what you learned about the techniques for drying paper-based records.
- Answer the question shown in the content area of the iLinc window.
Launch polling question in iLinc:

- **PQ 4.1**—Which drying technique dries the records using a very strong vacuum to lower the pressure while holding the temperature below freezing?

- **Tell** participants to answer the question by selecting the appropriate response from the choices displayed in the Polling tab.

- **Wait** a few moments until most or all participants have answered; then **share** results with the participants via iLinc.

- **Provide** the correct answer:
  - Vacuum freeze drying, the preferred method for drying paper-based materials

When done, **close** the Polling tab for everybody by selecting “Close All” when prompted.

Transition: Now that we’re familiar with the drying techniques, let’s take a look at NARA’s study.
Show slide 4-44.

Introduce NARA’s “Efficacy of Various Drying Methods” study.

In the NARA study “Efficacy of Various Drying Methods,” NARA preservation staff in the Conservation Laboratory compared four drying techniques on various records media including paper, photographs, and records that were encapsulated. The drying techniques assessed were:

- Air drying
- Desiccant drying
- Vacuum freeze drying
- Vacuum thermal drying

Go over the results of the study.

The Results of the Comparison

The results of NARA’s study showed that each method had its advantages and disadvantages, but overall, the best results came from vacuum freeze drying all paper-based records, including those damaged by smoke, soot, or mold.

Explain that the complete report of the study is available on NARA’s website.

• Point out that the URL to this web page is provided in the Participant Guide and in Reference 01—Resource Center, References, Reading List.

The complete report on the comparison study is available on NARA’s website, at: http://www.archives.gov/preservation/conservation/drying-methods-01.html
Lessons Learned

Show slide 4-45.

Tips for Air Drying

- Drying times differ.
- Air drying discourages mold growth.
- Point fans at ceiling; keep them on 24 hours a day.
- Remove records from containers; spread on surfaces to dry.
- Ensure that original container and order of records are maintained.
- Spread out records in stacks.
- Tend to records as they dry.

In addition to determining the best overall drying technique, and identifying the pros and cons of each technique, the study also resulted in several lessons learned.

Review the lessons learned and tips for air drying.

Remind participants that, depending on heat and humidity, mold begins to develop within 48 to 72 hours.

Point out that the contents of one Federal Records Center (FRC) box require about three standard utility tables of drying surface.

Tips for Air Drying

- Drying time will depend on the wetness of records, the relative humidity in the room, the type of record material, and the amount of exposed surface for drying. Optimizing all of these variables will take thought and patience.

- To discourage mold growth, the temperature should be below 65° F, and the relative humidity (RH) should be as low as possible (at least below 50 percent, or drying will be too slow and the risks of mold growth will become very high).

- Point fans at the ceiling and keep them on 24 hours a day to keep the air circulating.

- Records must be removed from containers and spread on surfaces to dry in the air. The process requires vast surface areas covered with absorbent papers.

- It’s important to ensure that the original container and order of records are identified, labeled, associated, and maintained throughout the drying process.

- Records should be spread out in stacks no more than one-quarter to one-half inch thick.
As records dry, the absorbent paper underneath must be changed frequently, and the papers must be turned over.

**Tips for Air Drying Special Media**

Show slide 4-46.

- Remove encapsulations or L-sleeves of plastic.
- Separate and/or interleave coated paper records.
- Fan open pages of bound volumes; either stand volumes up or lay them flat.
- Use interleaving sheets in proportion to the thickness of the volume.
- Remove rusting metal fasteners.

Quickly review the lessons learned and tips for air drying special media.

- Records in encapsulations or L-sleeves of plastic must be removed to dry.
- Records on coated paper must be separated and/or interleaved to dry in order to prevent sticking or blocking.
- Bound volumes, depending on the sturdiness of the covers, must either be standing with pages fanned open or lying flat with pages fanned open.
- For interleaving bound volumes, the total number of interleaving sheets should be no more than one-third the thickness of the volume, to limit damage to the binding.
- You may need to remove metal fasteners if they have begun to rust or corrode.
Tips for Working with Contractors for Vacuum Freeze Drying

Show slide 4-47.

Review the lessons learned and tips for working with contractors for vacuum freeze drying.

If an emergency incident is larger than your current staff or space can handle, or the situation is too dangerous to staff or to the records involved, you may choose to select an outside contractor to undertake some or all of your recovery.

Make sure that you understand the technology, the terminology, and all of the steps in the process.

Unless you work carefully with the contractors to specify in the Task Order or Deliverables what the requirements are, the results may not be what you expect. Determine up front if there is a minimum fee for small jobs and if there are cost breaks for large services. Other matters to discuss include:

- Whether records may be reboxed; the need to preserve the original order
- Whether the contractor may open boxes and/or remove records; ensure that intellectual control is preserved
- How you would like records grouped and/or re-associated if the fastener, folder, or adhesive attachment cannot be preserved and retained with the records
- Procedures to ensure that records will not be lost
• Shipping or transportation procedures to ensure that records are not further distorted; length of time required to freeze the records in the trailer during shipping

• How additional charges will be authorized if they occur (e.g., special handling fees, boxing fees, etc.)
  – One record storage box is not one cubic foot, but 1.2 cubic feet in terms of storage and space in a vacuum-freeze-drying chamber. This will be reflected in your charges and should be clear in the estimate you receive.

**Say:** Determine up front if there is a minimum fee for small jobs and if there are cost breaks for large services.

**Say:** Want to learn more about recovering damaged records? There are several training opportunities available. Information about these opportunities is available in the IPER Resource Center.

**Remind** participants that Reference 01—Resource Center, References, Reading List provides information on the IPER Resource Center.

**Say:** Let’s take a moment to visit the Resource Center and look at the training on recovering damaged records that is available in your state.
Launch web page in iLinc:

- Web page: IPER Resource Center
  - URL: http://www.statearchivists.org/resource-center
- Access the page for your state.
- Point out the training on recovering damaged records that is available at the national or regional levels and, if it exists, for your region and/or state.

When done, close the web page for everybody by selecting “Close All” when prompted.

Transition: Let’s take a 5-minute break, and when we return we’ll review what we covered in the Records Emergency Planning and Response Webinar. Then we’ll take a look at our next steps, complete the Course Evaluations, and finally we’ll complete the post-test.

Tell the participants that class will resume in 5 minutes, at <time when class will resume>. 
Pause the iLinc recorder.

When 5 minutes have passed, reconvene the class.

Restart the iLinc recorder.
Course Summary

Course Review

(Duration: 10 minutes)

START TIME: ____________

Show slide 4-48.

Review the key points covered in the course, as provided on the slide.

Say: In this course, we focused on planning for and responding to a records emergency.

NOTE TO INSTRUCTOR:

• The Course Review can be conducted as a Q&A session or as an instructor presentation. Instructions are provided below for each approach.
Q&A instructions:

If time allows, facilitate the review by turning some or all of the bullet points into questions.

- For example:
  - **Ask**: Who can tell me the difference between a REAP and a disaster plan? Answer via the Chat tool “Public” tab.

**Open** a prepared Powerboard in iLinc:

- **PB 4.1**—Course Review
- **Review** the key points covered in this course, as provided on the Powerboard.
- **Turn** the bullet points into questions, as appropriate.
- As participants answer the questions, **type** the correct answers on the Powerboard, under the appropriate bullet.
- **Use** the notes from the instructor presentation section (below) to help formulate your questions and as a source for correct answers.

When you are done with the review, **close** the Powerboard for everybody by selecting “Close All” when prompted.

- **Do not save** the Powerboard.
Instructor presentation review instructions:

**Review** the key points covered in the course, as provided on the slide.

**Elaborate** on the bullet points as follows:

- What a REAP is and how to prepare for creating a REAP

**Say:**

- In Session 1, we were introduced to the REAP.
- We learned that a REAP is a written, approved, implemented, and periodically tested plan that includes the information and actions needed to respond to and recover from a records emergency.
- We learned that the REAP is not a disaster plan itself, but only an element of a disaster plan—the portion that includes records.
- We discussed the benefits of a REAP, including fast, appropriate, and effective response and rapid resumption of operations.
- Finally, we examined how to prepare for developing a REAP, including setting goals and timetables, assessing the fiscal implications, and creating your REAP teams.

- How to develop a REAP

In the *Records Emergency Planning and Response Webinar*, you learned:

- What a REAP is and how to prepare for creating a REAP

- How to develop a REAP
Say:
- In Session 2, we focused on developing a REAP.
- We learned the characteristics of a REAP (comprehensiveness, simplicity, and flexibility), and we learned the components of a REAP, including the policy statement, the Communication Plan, the supplies list, roles and responsibilities, and procedures for preparedness, response, and recovery actions.
- We also learned the five steps for maintaining a REAP: distribute, promote, train, test and review, and update.

  • How to put your REAP into action

Say:
- In Session 3, we moved on to putting your REAP into action during an emergency and focused on the initial step of assessing the damage to records.
- We learned to assess the nature and severity of the damage, and we reviewed the Assessment Team’s roles and responsibilities.

  • How to put your REAP into action and:
    - Assess the damage to records
    - Develop a response plan
    - Implement a response plan
We reviewed tips for performing the damage assessment, including entering the damaged area safely and using our five senses to stay safe.

We also examined documenting the damage to records and the importance of taking photographs and/or video of the scene.

In addition, we focused on developing your response plan and implementing your response.

We started with the first step of developing a response: transferring authority from the Assessment Team to the Response Team.

We then addressed the items that need to be part of your response plan, including staffing, response priorities, supplies, and contractor response.

After that, we moved on to implementing the response and looked at issues including personal health and safety and security and privacy.

We also examined the initial action steps that should be performed within the first 48 hours.

• Recovery procedures

• Recovery procedures
Say:

- In this session, Session 4, we looked at setting up the recovery and staging areas, and pack-out guidelines.

- We then reviewed the procedures for handling specific types of damage and damaged records.

- We also examined the after-action and post-event reports that should be used to capture the details of an incident and of your response.

- We then took a look at various methods for drying water-damaged records and reviewed NARA’s study of drying methods, which determined that overall, vacuum freeze drying is the best method for drying all paper-based records.

Ask: Before moving on, are there any questions about what we’ve covered?

Resolve any outstanding questions.

Transition: It’s extremely important that you continue to develop your REAP after this course is over.
Next Steps

(Duration: 15 minutes)

START TIME: __________

Show slide 4-49.

Say: I’d like for you to take 5 minutes and brainstorm about your next steps for developing your REAP.

- What will you do in the next two weeks?
- What will you do in the next month?

Record your thoughts on the Next Steps Worksheet, provided on page PG 4-53 of your Participant Guide.

Say: Be prepared to share your next steps with the class.

Say: You’ve got 5 minutes to brainstorm on your next steps. Please begin.
[This page intentionally left blank.]
Next Steps Worksheet

What next steps will you take to develop, enhance, revise, or update your REAP?

In the next two weeks?

In the next month?
[This page intentionally left blank.]
When **5 minutes** have passed, resume the class.

Lead a group discussion.

Ask: Who would like to share their next steps? Raise your hand.

- **Call on** participants who have their hands raised and ask them to share their experience.
  - **Remind** participants to take their phones off mute before speaking.

Provide feedback to participant responses as appropriate.

- **See** the list of expected answers below.

**Expected answers include:**

- Set timelines and determine REAP goals and activities
- Conduct a site assessment
- Identify and prioritize risks and eliminate or mitigate as many as possible
- Develop a Phone Tree
- Talk to top management and get their buy-in
- Establish the Action Team with a directive from top management
• Meet with departments to review records inventories and schedules and to prioritize records (including locations of priority 1 and 2 records)

• Train staff in risk assessment

• Protect essential records

If no participants volunteer, **share** the expected answers to generate conversation.

**Continue** the group discussion until several participants have shared their next steps.

**Say:** We hope that you’ll use what you’ve learned during this course to develop a REAP and use your REAP effectively to protect, mitigate damage to, and recover records in an emergency.

**NOTE TO INSTRUCTOR:**

• If you are opting to run a state-based discussion forum, then remind the participants now about the forum and how they can use it to maintain interaction with their instructors and classmates even after the course has ended.

• Also remind them of how to access it.
Say: If you haven’t already done so, you’ll want to take the other IPER course, Essential Records Webinar, to learn more about protecting your essential records—the specific records needed to respond to and recover from an emergency.

- Provide the date and time of the next available offering of the Essential Records Webinar in your state if one is scheduled.

____________________

- If you do not have one scheduled soon or if all slots are full, tell participants that they can take the course on their own using the self-directed CD or online version (as soon as those are available).

Explain that the Essential Records Webinar is a four-session webinar, just like this course, that focuses on improving the care of your essential records and incorporating them into your agency’s Continuity of Operations (COOP) Plan.

Refer participants again to the IPER Resource Center to learn more about the Essential Records Webinar and to register for the course.

• URL:
  http://www.statearchivists.org/resource-center
• **Type** the URL in the Chat tool, using the “Public” tab.

**Say:** We hope that you’ll continue to explore the IPER Resource Center and refer your colleagues to it.

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**Transition:** Let’s move on to the Course Evaluations and Certificates.

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**Course Evaluations and Course Certificates**

*PG 4-55*

*(Duration: 5 minutes)*

**START TIME:** ______________

**Show** slide 4-50.

**Say:** Because we value your opinion, we ask you to complete the Course Evaluation form. This form will help us continue to improve our content and presentation.
Say: You’ll have 5 minutes to complete the evaluation.

Explain that the evaluations must be completed for participants to receive their Certificates of Completion.

Say:

- I want to remind you that you can request your Certificate of Completion through your participant dashboard on the IPER Resource Center after you complete the course. You will need to fill out a form on which you will confirm you have done the following:
  - Attended all sessions of the course (or viewed a recording for those you missed)
  - Completed all homework assignments (whether or not you turned them in to the instructors)
  - Completed the course evaluation
  - Completed the pre- and post-tests
- The form can be accessed by selecting the link provided on your participant dashboard.

Provide the URL to the Certificates:

- URL: [http://www.statearchivists.org/resource-center](http://www.statearchivists.org/resource-center)

Type the URL in the Chat tool, using the “Public” tab.
Set up the Feedback tool in iLinc.

- Select the “Assignment status” answer set.

Tell participants to select “Completed” in the Feedback area when they have completed the evaluation.

Launch the evaluation in iLinc.

Pause the iLinc recorder.

When 5 minutes have passed, make sure all participants have completed the evaluation; then close the evaluation.

Reconvene the class.

Restart the iLinc recorder.

Transition: Let’s take care of our final piece of business: the Records Emergency Planning and Response Post-Test.
Records Emergency Planning and Response Post-Test

(Duration: 30 minutes)

START TIME: _____________

Show slide 4-51.

Introduce the Records Emergency Planning and Response Post-Test.

• Say:
  – The Records Emergency Planning and Response Post-Test is conducted to assess what you learned from this course about responding to a records emergency. The results of the post-test will be compared with the results of the Pre-Test to determine the effectiveness of this training course.
– As with the Pre-Test, we will not share your Post-Test grades with other participants or anyone else outside the project. Reports to FEMA will include composite scores for the entire class, but will not identify individual participants’ scores.

– On your Participant Dashboard in the IPER Resource Center, there is a link to the Post-Test Answer Sheet. When the test is over, I will provide the password that allows you to access the answer sheet.

**NOTE TO INSTRUCTOR:**

The following “Says” are extremely important to convey to participants.

**Say:**

- Remember, when you are taking the test, you will need to select “Next” to advance to the next question, and you will need to select “Submit” when you’ve finished the last question.

- Also remember not to switch to another content tab (i.e., don’t leave the Test tab) before completing the test, because if you do, you will not be able to return to test.

- Select “Completed” in the Feedback area when you have completed the test.
• Please do not talk during the test. If you need to communicate with an instructor during the test, please do so via the Chat tool.

• You will have 30 minutes to complete the test.

• Class will resume in 30 minutes at <time when class will resume>.

• Please start the test now.

Set up the Feedback tool in iLinc.

Select the “Assignment status” answer set.

Type the following reminder in the Chat tool, using the “Public” tab:

• Remember to select “Completed” in the Feedback tool when you’ve finished taking the test.

Pause the iLinc recorder.

Launch TestLinc in iLinc:

• Test: Records Emergency Planning and Response Webinar Post-Test
When 30 minutes have passed, and if all participants have completed the Post-Test (based on the input from the Feedback tool), close TestLinc and resume the class.

- NOTE: If, after 30 minutes, people are still taking the Post-Test, allow a few extra minutes beyond the allotted 30 minutes. If, after the extra time, there are still people taking the test, move forward with the class, and allow them to continue taking the test.

Provide the password to the Post-Test Answer sheet:

- Password: REPR_test1123

- Tell it to the participants and type it into the Chat tool, using the “Public” tab:

NOTE TO INSTRUCTOR:

- It's OK to provide the password if some participants are still taking the test.

Restart the iLinc recorder.
Show slide 4-52.

Thank you participants for their participation.

Ask for and resolve any outstanding questions.

Say: Please don’t hesitate to contact us, should you have any questions about the content we covered today or about the course in general. Our names and contact information appear in the Chat tool.

Type your names and contact information in the Chat tool, using the “Public” tab.

Say: The folks at IPER want to keep in touch. So, in six months they’ll be sending out follow-up surveys to those of you who have participated in both IPER courses to see how you’re doing with creating your REAP. We ask that you please take the time to complete the survey, as your input is invaluable.
Remind participants that they can access course materials, as well as contact instructors and IPER staff, through their own Participant Dashboard on the IPER Resource Center.

Say: That wraps up the Records Emergency Planning and Response Webinar. As we said, please don’t hesitate to contact us should you have any questions. We’ve enjoyed working with you on this webinar and wish you well on your records emergency planning and response endeavors!

• NOTE: If any participants are still taking the Post-Test, tell them that you will keep the session open for an additional 10 minutes, to allow them to complete the test.

NOTES TO INSTRUCTOR:

• You may, for any reason, conduct a follow-up session with this class (to review a topic, touch base on progress, etc.). If you elect to do so, please contact IPER staff to arrange the session.

• If you do choose to conduct a follow-up session, inform the participants about it at this time. Be sure to provide the date, time, and purpose of the session.

Stop the iLinc recorder.
End the webinar session.

- **Remember** to dismiss all the participants in iLinc.