

## **Disaster Planning for Archaeological Collections**

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### **Abstract:**

A recent spate of disasters on archaeological sites both in the US and overseas have highlighted the importance of developing, reviewing and finessing emergency plans for archaeological collections and sites. This paper will discuss the steps needed to create a disaster response and recovery plan. Particular attention will be paid to factors that are specific to the mid-Atlantic region.

Human nature is basically complacent. Despite the fact that we all acknowledge that disasters may occur, we have a tendency to believe that when they do, they will happen elsewhere. As a result, a number of museums and cultural institutions do not have emergency response plans that are well thought out and/ or up to date. The recent spate of disasters that have affected cultural material, from Jamestown to Baghdad, highlight the dangers of this mind-set and point to the need for better planning and for preventive action. These needs are especially crucial for archaeological collections since they are so often stored in less than ideal conditions and are generally tucked away in the basements and attics that are most likely to be affected by disasters.

By definition disasters involve large quantities of artifacts and/or serious damage (Orraca 1992:1). They arise from emergency situations requiring immediate action. Not all emergencies become disastrous if control is quickly and effectively exerted. However, emergencies do have a tendency to worsen rapidly and progressively and it is this runaway quality that makes them so dangerous. In the words of one expert "All disasters are emergencies that are out of control" (Hunter 1991:6).

In order to minimize the effects of a disaster one must anticipate and avoid emergencies, retain control when an emergency occurs and recover control as soon as possible if it is lost. These three actions correspond well to the three key steps of disaster planning:

- Identifying and defining threats
- Planning a response
- Preventing damage.

### **Identifying and defining Risks**

Perhaps the first and most important step in mitigating the potential effects of disasters is identifying what the specific risks are. These risks can normally be broken down into two categories: natural threats and man-made ones. Natural threats include fire, flooding from rain, rivers or the sea, high winds in the form of hurricanes, tornadoes and micro-bursts, earthquakes, landslides, volcanic eruptions and lightening strikes. Man-made threats include utility failures, explosions, chemical and fuel spills, transportation accidents, bombings, civil unrest, riots, hostage taking and warfare. Clearly, this is a lengthy list and many risks can be eliminated merely by reviewing the location of your facility. For example, archaeological labs in rural, tidewater Virginia may find it easy to eliminate the need to plan for earthquakes, landslides and civil unrest while those located elsewhere must consider them carefully. Additionally, although it may be impossible to

plan for every occasion without producing an unwieldy tome, good planning can be amended in the face of another situation. For example, plans to evacuate staff and visitors in the event of fire can be used with little modification to provide a bomb-threat evacuation plan, and a plan to deal with a roof damaged by high wind may be adapted to dealing with a leaky roof.

One potentially invaluable tool in identifying threats is to tour the area around the building. Consider what its geographic layout is. Is it near marshy land? Is it near a river or the sea? Are there natural or man made windbreaks? Is there a lot of underbrush/debris that might burn easily? Consider the building itself. What condition is it in? What protection does it offer? Do certain areas appear to be in better shape or more protected than others? How are the contents distributed? For example, are the files located near the drain that has a history of backing up? What protective systems are incorporated in the structure? Is there a sprinkler system, a fire alarm, or a security system? How often and how well are the building and its systems maintained?

Bear in mind that the source of threats may change. Although your building may not be within the 100-year flood plain new construction or the creation of a bridge further up river may change the flow of a river and promote flooding elsewhere along the flood chain. Additionally during a drought there may be a much higher fire risk than is normally associated with your area. Remember that most disasters are complex systems and that the greatest damage may not necessarily result from the primary source but rather from a secondary or even tertiary one. For example, in the case of a relatively minor fire the large amounts of highly pressurized water used to contain the blaze may cause more damage than the fire itself. Additionally, the high moisture levels remaining once the water is turned off can contribute to structural collapse—if ceilings or vaulting systems become sufficiently heavy—and can promote rapid and uncontrolled mold growth which may lead to the need to condemn the building and its contents. Finally, bear in mind that the two most common sources of disaster in museums and cultural institutions are fires resulting from renovation work and burst or broken water pipes.

While these questions and considerations may at first hand seem daunting, there are a number of resources that can be called upon to aid in the assessment of risks. The National Weather service can provide information on 25, 50 and 100-year flood levels as well as tornado statistics, hurricane potential and severe cold weather or flooding potential. Locally, your city or county's flood control board may be able to provide yet more specific information about flooding potential. Insurance companies are usually willing to provide walkthroughs and aid in the identification of threat levels and areas of weakness. Additionally, local fire departments are generally willing to conduct a comprehensive inspection, familiarize themselves with the layout of the building and discuss procedures for safeguarding collections in the event of fire.

### **Planning a Response**

Once the principle risks have been identified the next step is to assemble a team and begin planning a response. The key steps of this process are to:

- 1) Identify and assign responsibility—Select an emergency coordinator and at least one deputy, as one cannot guarantee that the emergency coordinator will be in town or available when a disaster occurs. Establish clearly who will communicate with authority, employees, other organizations and the media.
- 2) Educate the planning committee and the staff about the threats—review the risks already identified, discuss whether others may have been overlooked. Make sure that everyone understands the serious nature of this undertaking
- 3) Define the scope of the plan and establish goals and timetables—but bear in mind that as the plan evolves so will new attitudes. Collections may require modifications in how they are stored, exhibited and maintained; time will need to be allocated for this. Once the process of planning begins it acquires its own momentum.
- 4) Assess the collection and set priorities—Are there items that are more significant than others? Should they be evacuated first? What state is the artifact catalogue in? Is it possible to identify artifacts from it? What backups exist and how are they stored? Ideally an up-to-date backup should be stored off site at all times. Are there key documents that are necessary to the function of the organization or its reconstitution in the face of a disaster? How are they stored?
- 5) Identify potential hazards-- What are the risks to the collection and how do they differ from those to the building? Know where the control points within the building are. If possible reduce them to a minimum and make sure they are readily accessible so that it is easy to turn off gas, water (mains and sprinkler) and electricity.
- 6) Assess prevention and protection needs-- What materials might be necessary to salvage or safeguard the collection? Are there sufficient quantities of them on hand? Is there a place where the collection could be quickly and securely stored?
- 7) Consider fiscal implications—one of the reasons that administrators choose not to plan for disasters is the budgetary implication of such activities. However as the projected costs of the recovery at Jamestown have shown, this really is an area where an ounce of prevention is worth a pound of cure. Small tweaks can have major impacts
- 8) Write the plan –Do not be too hasty to get to the written aspect of the plan. The process of planning is as important as the written plan as it tends to bring out an institution's strengths and weaknesses.
- 9) Make improvements--to the environment, to storage, to the catalogue. I cannot over-stress the importance of establishing a regular maintenance program, if one does not already exist. Checking drains, inspecting roofs for leaks, inspecting the exterior of the building and dealing with problems quickly, can be of tremendous importance in deflecting disaster.

There is no single uniform emergency plan. There are elements that are applicable to any institution but the plan must reflect and meet the specific needs of its originating institution. Having said this, there are resources that are available. The Getty Institute has done a tremendous amount of work on emergency preparedness and is willing to share the information. They have also published a highly accessible and easily digestible book on the topic (Dorge and Jones 1999). It may be possible to obtain a copy of a fellow institution's plan to use as a starting point, however modifications will need to be made to meet your needs.

Additionally, consideration should be given to where to house the plan once it is completed. At least one copy should be stored off site in a secure area, in order to be accessible if the worst happens. Some institutions include the disaster plan in an “emergency wallet” that also includes copies of the building plans, telephone numbers of staff and next of kin details, insurance information, emergency numbers for the various utility departments, plumbers, electricians and general contractors and other local resources (such as conservators, volunteers and transport firms). It is also worth considering establishing emergency depots, possibly even offsite, to ensure that archival materials are available if necessary.

***Some Suggested Emergency materials to have on hand***

- Flashlight, batteries, screwdriver
- Absorbent rags, polyethylene sheet, tarpaulin, mop, mop handle
- Brushes, dust bunnies, acid free tissue
- Wet/dry vacuum & attachments
- Extension cords
- Camera, film and batteries
- Note book and pen for recording damage
- Building plan
- Hard hat, First aid kit, gloves, particle masks
- Strapping tape/ twill tape
- Acid-free or Nalge (spun bonded polyethylene fiber) paper tags and sharpies

Finally bear in mind that disasters can be very emotional and difficult times. Everyone reacts differently to them but it can be psychologically very difficult for curators, archaeologists, librarians, etc... to see the effects of the disaster on their collection. Moreover, large numbers of skilled hands may be needed to rapidly relocate collections. Developing mutual aid agreements with nearby institutions can help address this, as staff from other institutions may not have the same emotional ties to your artifacts. In the case of the Jamestown flood the ability of the organizers to call on APVA staff and staff from other NPS sites was invaluable. Members of most regional conservation groups, such as the Virginia Conservation Association and the Washington Conservation Guild, are willing to volunteer in the event of a disaster to help with salvage and triage. Contact details for these institutions as well as local archaeology firms and museums are useful to include in the emergency wallet as well. Remember however that in the case of a regional disaster traditional communication systems may be impaired and you may need to rely on alternative methods. After Hurricane Hugo a museum in Charleston requested aid from Colonial Williamsburg via a system of ham radio operators (Reilly, 2004).

**Preventing Damage**

The success of any emergency response plan depends on thorough planning and regular practice. In the words of one conservator, “An emergency response plan that is not practiced is like a smoke detector without a battery!” (Podany 1991:53) Disaster planning should be viewed as a loop with feedback from each practice and near miss informing all

future efforts. At Colonial Williamsburg, we seem to be called upon to put our Hurricane preparedness plan into practice at least once a year. When the storm is 72 hours away the Foundation's emergency response plan is emailed to all employees to ensure that they have a chance to review it. Landscape assesses trees, plantings and fences, and deals with potential risks. If it looks as if the storm will pass within a 50-mile radius of Williamsburg within 24 hours, teams of conservators and curators go out and begin securing the collections in all exhibit buildings. Maintenance begins securing shutters and hanging signs. After the storm has passed and before the foundation reopens to the public, the teams reconvene to assess damage and to put the buildings back together. The final step of the process is to call a meeting of all the conservators and curators and review any damage or problems. Each year small changes are identified and made to the emergency plan. After Hurricane Isabel it was decided that disposable cameras should be included in the response buckets in case it was necessary to photograph damage.

Another way to practice a response is to schedule mock drills annually or semi-annually. Have fun with them, create fake fires at exits, and "hide" individuals in dark rooms or restrooms. It has been noted in the past that when faced with emergency situations people often act instinctively or follow the patterns they have been taught to—thus someone may walk past an unobstructed emergency exit because they are used to exiting the building by another door (Johnston 1991). The more uncertainty is instilled into trial runs the greater the chances that when a disaster occurs people will act intelligently and as a result minimize the potential for damage. Additionally, the more often disasters are practiced the speedier response times will be, the higher the quality of the response will be, the lower stress levels will be and the greater the productivity and safety of the staff will be.

Of course, if one has a real disaster the lessons learned from it will inform all other responses. The only thing that is better than learning from our own mistakes is learning from those of others. This is much less painful. Volunteering in Charleston in the wake of Hurricane Hugo and in the Jamestown recovery efforts taught the collections and conservation staff at Colonial Williamsburg a number of important lessons about the vulnerability of our own collections and workability of our disaster response plans.

### **Implementing a response**

Should the worst occur, prior to any recovery effort one must establish the nature and degree of damage. Once the assessment has been made, specific plans and priorities for salvage should be developed. Remember that there is often a natural tendency to spend too much time on a single object or group of objects and that overcautious or inadequate appraisals can result in complete loss as well as unnecessary confusion. Assume that the order of the day will be triage although it may be possible to come to a quick agreement about the order of priority for the salvage efforts. It may be necessary to photograph things prior to moving them so that proof exists for insurance purposes and so that heavily damaged artifacts or items can be reconstructed. Make sure that a camera is available and that it has film in it or is adequately charged.

Although the survival of cultural material will be foremost in everyone's mind remember to consider personal safety. Listen to emergency responders and respect their advice about the safety of the building. Do not attempt to be a superhero. Protect yourself and others from injury. Consider the less obvious hazards such as broken glass, contaminated water and particulate inhalation (whether it be in the form of soot, dust or mold) and back strain from lifting heavy objects or wet boxes as well as the obvious ones such as danger from falling items, live wires and unstable structures. Be mindful that in emergency situations stress, disorientation and exhaustion can lead to carelessness and take frequent breaks.

Finally, it is natural for emergencies to occur and common for them to progress towards disaster. It is equally natural that archaeologists, who seek knowledge from the past, should prepare for them.

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**Additional Bibliographic Resources:**

"Cultural Resource Protection and Emergency Preparedness" Cultural Resource Management vol 24 (8) Available online at: <http://crm.cr.nps.gov/>

"Disaster Management" Cultural Resource Management vol 23 (6) Available online at: <http://crm.cr.nps.gov/>

