Department of Defense Legacy Resource Management Program

PROJECT 06-319

Archaeological Collections Management Procedures

Kerry L. Sagebiel, Kelly L. Jenks, Teresita Majewski, and Lauren E. Jelinek

February 2010

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Tucson, Arizona

REPORT DOCUMENTATION PAGE		Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information . Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE February 2010	3. REPORT TYPE AND DATES COVERED Final Report, April 2006 to February 2010

4. TITLE AND SUBTITLE Archaeological Collections Management Procedures Department of Defense Legacy Resource Management Program, Project 06-319	5. FUNDING NUMBERS Contract No.: DACW09-03-D-0005, Task Order 0013
6. AUTHOR(S) Kerry L. Sagebiel, Kelly L. Jenks, Teresita Majewski, and Lauren E. Jelinek	

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Statistical Research, Inc., P.O. Box 31865, Tucson, AZ 85751-1865	8. PERFORMING ORGANIZATION REPORT NUMBER SRI Technical Report 07-41

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Corps of Engineers USACE ERDC-CERL Los Angeles District ATTN: CECER-CN-C (Michael Hargrave) 915 Wilshire Boulevard P.O. Box 9005 Los Angeles, CA 90017 Champaign, IL 61826-9005	10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION AVAILABILITY STATEMENT Approved for public release	12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*
Statistical Research, Inc. (SRI), with Legacy Resource Management Program funding, developed a guidance document for archaeological collections management and curation for Department of Defense (DoD) Service Installations. SRI reviewed collections management and curation policies and protocols within the DoD and those of select Federal agencies, non-Federal agencies, and professional societies. SRI researched specific aspects of archaeological collections management and curation, including in-field sampling, acquisition, processing, cataloging, conservation, curation, accessioning, culling, deaccessioning, ethics, research use, loans, and public access. The guidance document provides an overview of current collections management policies and procedures and presents the best practices in each area of curation. The policies and practices recommended are designed to minimize costs while maximizing the research, education, and cultural heritage value of Federal collections in accordance with 36 CFR 79 Curation of Federally-Owned and Administered Archaeological Collections.
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14. SUBJECT TERMS Collections management, sampling and acquisition, curation, accessioning, deaccessioning and culling, ethics, use of collections, processing, cataloging, and conservation	15. NUMBER OF PAGES 117
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT

Standard Form 298 (Rev. 2-89) (EG)

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Introduction

Part 79 of Title 36 of the Code of Federal Regulations (36 CFR 79), *Curation of Federally-Owned and Administered Archaeological Collections* (reproduced for the reader's reference in the Appendix to this report), and other Federal legislation mandate that collections resulting from archaeological projects on Federal property be curated and maintained in perpetuity. Currently, the Department of Defense (DoD) has two collections issues. One is that DoD collections are housed in a number of Federal and non-Federal repositories that use various curation protocols resulting in uneven quality of care. Second is the "curation crisis," developing nationwide as repositories run out of space. Therefore, it is recommended that the DoD develop standard methods and procedures for archaeological curation and collections management in order to provide cost-effective, quality care and maintenance of their collections, which reside in a variety of repositories. It is also recommended that the DoD to develop policies and procedures for judiciously accessioning, storing, and deaccessioning collections while maintaining their research integrity and education and heritage value.

This report is a guide to standard archaeological collections management and curation practices and procedures for DoD Service Installations. The curation topics covered include in-field sampling, acquisition, processing, cataloging, conservation, curation, accessioning, culling, deaccessioning, ethics, research use, loans, and public access. The treatment of both material remains and associated documents are considered in relation to each topic.

Six chapters follow this introduction: Chapter 2, Sampling and Acquisition; Chapter 3, Processing, Cataloging, and Conservation; Chapter 4, Curation and Accessioning; Chapter 5, Culling/Deaccessioning; Chapter 6, The Use of Archaeological Collections; and Chapter 7, Concluding Remarks. These topics parallel important issues raised in 36 CFR 79, and each chapter reviews the best practices recommended by various Federal, state, and local agencies, as well as by other entities. It is important to bring in all of these perspectives because it allows for the development of a more comprehensive approach to ameliorating the lack of standardization of collections management procedures and to addressing the curation crisis at all levels. This broad perspective is useful, because although DoD has been a leader in the Federal government in terms of championing the development of appropriate collections management policies

and procedures, there remain topics that merit further consideration, such as culling and deaccessioning of collections. These controversial topics are ongoing areas of discussion for archaeologists, and the NPS is currently preparing guidance to complement what little is said about the subjects in 36 CFR 79 (see p. 64251 of http://edocket.access.gpo.gov/2009/pdf/E9-28608.pdf).

The approach to archaeological collections management taken in this document is grounded in the principle that the archaeological profession has ethical responsibilities to the archaeological record and the artifacts and records that result from its investigation. The two primary American archaeological societies—the Society for American Archaeology (SAA) and the Society for Historical Archaeology (SHA)—have ethical statements that include consideration of collections, curation, and related topics. In this report, the author of each chapter touches on the issues of ethics and professional standards from the perspective of their particular topics. The SAA and SHA statements are included in the Appendix to this document. All URLs (Web addresses) given in this document were valid and correct as of February 8, 2010.

Sampling and Acquisition

Federal Laws

36 CFR 79 is the law that governs how collections recovered under the Antiquities Act (16 U.S.C. 431–433), the Reservoir Salvage Act (16 U.S.C. 469–469*c*), Section 110 (and in effect, Section 106)[1] of the National Historic Preservation Act (NHPA) (16 U.S.C. 470*h*-2), and the Archaeological Resources Protection Act (ARPA) (16 U.S.C. 470*aa–mm*) are curated. It covers both existing and new collections of prehistoric and historical-period material remains and associated records that are the result of cultural resources surveys, excavations, or other studies conducted in connection with a Federal action, assistance, license, or permit. These actions may include efforts to locate, evaluate, document, study, preserve, or recover a prehistoric or historical-period resource. The law itself does not give specifics about how cultural resources are to be sampled or acquired. However, it does invoke the Reservoir Salvage Act, the NHPA, and the ARPA, which give the Secretary of the Interior (SOI) the authority to enact regulations regarding curation and related matters. The SOI in turn has designated the National Park Service (NPS) as the lead agency for developing standards and guidelines for archaeology and historic preservation. *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines* [as Amended and Annotated] (September 29, 1983) has been updated by the NPS and published online (http://www.nps.gov/history/local-law/arch_stnds_0.htm). Some updates have been published in the Federal Register, and some have not.

Sampling and acquisition are addressed under the sections "Secretary of the Interior's Guidelines for Identification" and "Secretary of the Interior's Guidelines for Archeological Documentation." The guidelines recommend that identification activities be outlined in the research design during the planning process and that those activities be linked to the overall objectives of the research. Identification activities include both reconnaissance and intensive survey. Random, stratified, or systematic sample survey procedures may be used. Predictive modeling and remote-sensing techniques may also be used, but they both should be confirmed through field testing and redesigned and retested as necessary. During archaeological documentation, destructive techniques are to be avoided, if possible, and the property should be left undisturbed unless it will be destroyed in the near future. Any data that is collected should be recorded and preserved in such a way that future researchers can study it. In general, sampling and acquisition methods in the field should take into consideration site significance, the anticipated location on the site of significant data, cost effectiveness, time limitations, and possible adverse environmental conditions.

In addition to the SOI's standards, the NHPA (http://www.nps.gov/history/local-law/nhpa1966.htm) charges the director of each Federal agency (who can appoint and delegate responsibilities to a preservation officer) with the responsibility of developing, in consultation with the SOI, its own program of identification (Section 110[a][2]). Therefore, each agency can develop its own, more specific, standards and practices for sampling and acquiring cultural resources. Some of these are reviewed below.

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[1] The NPS is working to amend the authorities for 36 CFR 79 so that it clearly applies to all of the NHPA, not only Section 110 (S. Terry Childs, personal communication February 2, 2010).

Overview of Federal Agency Policies

Preserve in Place

Department of Defense

In accordance with the SOI's standards, most Federal agencies stress that cultural resources should be preserved in place if at all practicable. The Department of Defense Instruction (DODI) 4715.3: *Environmental Conservation Program* (Section 4.3.1; May 3, 1996) (http://www.dtic.mil/whs/directives/corres/pdf/471503p.pdf) states that "Cultural resources under the control of the Department of Defense shall be identified, protected, curated, and interpreted through a comprehensive program that complies with legally-mandated requirements and results in sound and responsible cultural resources stewardship." Most DoD policies do not specifically require preservation in place, but they do emphasize that adverse affects to cultural properties should be avoided as long as there is no conflict with the military mission.

Other Federal Agencies

As the lead agency, the NPS's own Management Policies (Chapter 5: *Cultural Resource Management*, Section 5.3.5.1: *Archeological Resources*, 2001) (http://www.nps.gov/refdesk/mp/chapter5.htm) emphasize the role of stewardship, "[c]ultural resources are preserved and protected, receive appropriate treatments (including maintenance), and are made available for public understanding and enjoyment." They also state that "[a]rcheological resources will be managed in situ, unless the removal of artifacts or physical disturbance is justified by research, consultation, preservation, protection, or interpretive requirements." In addition, the policies (Section 5.3.5.1.5: *Archeological Data Recovery)* state that:

> [a]rcheological data recovery is permitted if justified by research or interpretation needs. Significant archeological data that would otherwise be lost as a result of resource treatment projects or uncontrollable degradation or destruction will be recovered in accordance with appropriate research proposals and preserved in park museum collections. Data will be recovered to mitigate the loss of significant archeological data due to park development, but only after:

> - The redesign, relocation, and cancellation of the proposed development have all been considered and ruled out as infeasible through the planning process;

> - The park development has been approved; and

> - The project has provided for data recovery, cataloging, and the initial preservation of recovered collections.

Similarly, the Bureau of Reclamation (BOR) Manual (*Program Series Land Management and Development* [LND 02-01]: *Directives and Standards*; Section 3.A.[5]; March 13, 1998) (http://www.usbr.gov/recman/lnd/lnd02-01.pdf) states that "Reclamation policy is to preserve historic properties in place and therefore avoid adverse effects to the fullest extent possible. However, after evaluation of all factors in an undertaking, Reclamation may determine that public benefits of proceeding with the undertaking outweigh adverse effects to historic properties. When adverse effects cannot be avoided, Reclamation will seek measures to reduce and minimize them." The U.S. Forest Service (USFS) Manual, *Cultural Resources* (*Title 2300 – Recreation, Wilderness, and Related Resource Management*; Section 2361.21; June 21, 1990) (http://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsm?2300) also states that it will make every attempt to preserve cultural resources in place. If that is not possible, then "every reasonable effort should be made to conserve the values of the property through proper scientific removal, analysis, and reporting."

The value placed on preservation and conservation is also emphasized by several major professional societies. The Society for American Archaeology's (SAA) *Principles of Archaeological Ethics* (Lynott and Wylie 2000:11–12) Principle No. 1: *Stewardship* emphasizes that the in situ archaeological record is irreplaceable and that all archaeologists should work for its long-term conservation and protection. The Society for Historical Archaeology's (SHA) *Ethical Principles:* Principle 2 (http://www.sha.org/about/ethics.cfm) states that "[m]embers of the Society for Historical Archaeology have a duty to encourage and support the long-term preservation and effective management of archaeological sites and collections, from both terrestrial and underwater contexts, for the benefit of humanity." The Register of Professional Archaeologists' (RPA) *Code of Conduct* (Section I.1.1.b.) (http://www.rpanet.org/displaycommon.cfm?an=1&subarticlenbr=3) states that an archaeologist shall "actively support conservation of the archaeological resource base."

Identification Activities

Department of Defense

Many Federal agencies, including the DoD, have policies that outline the kinds or levels of activities that they use to identify and inventory cultural resources. Most agency policies list at least three different activities: archival research, reconnaissance, and intensive survey. Some DoD examples include the Chief of Naval Operations Instruction 5090.1C: *Environmental Readiness Program Manual* (Section 27-3.4; October 30, 2007) (http://doni.daps.dla.mil/allinstructions.aspx), which defines Phase 1 surveys as intensive pedestrian surface inspections that may be augmented by shovel testing where there is a high probability of archaeological remains (Section 23–3.3). Phase 2 is defined as a detailed survey of properties that may be eligible for listing in the National Register of Historic Places (Section 23–4.2.2). Marine Corps Order P5090.2A: *Environmental Compliance and Protection Manual* (Section 3.b; July 10, 1998) (http://www.usmc.mil/news/publications/Documents/MCO%20P5090.2A.pdf) defines Phase 1 survey as "an overview…to determine whether recorded resources are present and to delineate probable areas…for the existence of cultural resources" and Phase 2 as "intensive survey." The Air Force Instruction 32-7065: *Cultural Resources Management* (Section 3.1.1.8.4; June 1, 2004) (http://www.afpmb.org/military_entomology/usafento/files/afi32-7065.pdf) states that when adverse effects cannot be avoided, the data recovery standards followed are the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* and the *Guidelines for the Field Collection of Archaeological Materials and Standard Operating Procedures for Curation of Department of Defense Archaeological Collections* (Legacy Project No. 98-1714).

Other Federal Agencies

The Bureau of Land Management (BLM) (Manual 8110 Series: *Identifying Cultural Resources;* Sections .21A–C; December 3, 2004) (http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.71969.File.dat/8100.pdf) employs Existing Information Inventories (Class I), Probabilistic Field Surveys (Class II), and Intensive Field Surveys (Class III) to identify cultural resources. Class II surveys may involve predictive modeling, and modeling is generally encouraged for planning and management purposes (Section .22.E). Similarly, the BOR Manual (*Program Series Land Management and Development* [LND 02-01]: *Directives and Standards;* Section 3.A.[5]; March 13, 1998) (http://www.usbr.gov/recman/lnd/lnd02-01.pdf) lists archival and literature searches (Class I), intensive sample surveys (Class II), and intensive surveys of the entire study area (Class III) as identification and inventory activities. Class II and III surveys may include test excavations. The USFS Manual (*Title 2300 – Recreation, Wilderness, and Related Resource Management*; Section 2361.22b.1: *Cultural Resources*; June 21, 1990) (http://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsm?2300) lists the

Cultural Resources; June 21, 1990) (http://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsm?2300) lists the Overview (archival research and literature search), the Sample Survey (a "statistically controlled sampling of an area," used mostly for planning purposes), and the Complete Survey ("[a]n investigation of the entire project area that will result, to the extent practical, in the discovery of all locatable cultural resources") as identification and inventory methods.

Some agencies have policies that limit surveys. For example, the U.S. Fish and Wildlife Service (USFWS) Manual (Series 600 Land Use and Management; *Cultural Resources Management*; Part 614, FW1–FW5; Section 2.2.A.[2]; November 18, 1992) (http://www.fws.gov/policy/manuals/part.cfm?series =600&seriestitle=LAND%20USE%20AND%20MANAGEMENT%20SERIES) states that surveys may be deemed unnecessary if the land surface has been substantially disturbed or altered within the last 50 years, the area was previously surveyed, planned activities will not disturb the ground surface, or adjacent areas that are similar in environment and culture have yielded no significant cultural resources.

Collection Policies and Sampling

Department of Defense

Collection policies vary somewhat between Federal agencies, particularly at the reconnaissance and intensive survey levels. Some have quite strict "no-collection" policies, some allow collecting of diagnostic or endangered artifacts, and some allow collecting under certain field conditions. Many are quite broad, such as DoD Instruction 4715.3: *Environmental Conservation Program* (Section 6.1.4; May 3, 1996) (http://www.dtic.mil/whs/directives/corres/pdf/471503p.pdf), which states that "[e]ach DoD Component shall ensure that proven and scientific data collection methods and sampling techniques are used to develop and update natural and cultural resources inventories." Others are more specific, such as Air Force Instruction 32-7065: *Cultural Resources Management* (Section 2.1.2; June 1, 2004) (http://www.e-publishing .af.mil/shared/media/epubs/AFI32-7065.pdf), which outlines the level of archaeological sampling that installations must carry out, "[for] larger installations and ranges (*i.e.,* greater than 200,000 acres) appropriate sampling surveys will be conducted to predict the numbers, types, natures, and locations of archaeological resources on lands not surveyed." Sample survey methods are developed with the State Historic Preservation Office (SHPO) and the Major Command (MAJCOM) and are done on an annual basis on large installations. In addition, "[i]nstallation commanders will establish procedures in the installation ICRMP to minimize the amount of 'material remains' [as defined in 36 CFR 79.4(a)(1)] collected during archaeological inventory and site excavation that requires permanent curation (Section 4.6.3)." Similarly, Army Regulation 200-1: *Environmental Quality, Environmental Protection and Enhancement* (Section 6-4.e(5); December 13, 2007) (http://www.apd.army.mil/) directs installations to minimize the collection of archaeological material by describing remains in the field, particularly during survey. It also states that for mitigation collections, "[p]ermanent curation should be reserved for diagnostic artifacts and other significant and environmentally sensitive material that will add important information to site interpretation." The Department of the Army Pamphlet 200–4: *Cultural Resources Management* (Section 3–8d; October 1, 1998) (http://www.usapa.army.mil/pdffiles/p200_4.pdf) also discourages field collection, "[m]aterial found during initial inventories may be analyzed, recorded, and left in the field location." During mitigation, "some classes or types of artifacts may be analyzed and discarded or stored through alternate means. Permanent curation should be reserved for diagnostic and exotic artifacts and other significant and environmentally sensitive material . . . Soil samples should be processed prior to curation to reduce their storage volume."

Guidelines for the Field Collection of Archaeological Materials and Standard Operating Procedures for Curation of Department of Defense Archaeological Collections (Legacy Project No. 98-1714) (Griset and Kodack 1999) was developed by the U.S. Army Corps of Engineers' (USACE) Mandatory Center of Expertise for the Curation and Management of Archaeological Collections (MCX-CMAC). Chapter 5:

Lands," outlines the principles and guidelines for collecting archaeological materials during investigations on DoD lands. The primary objectives are to collect a representative sample that is limited to the scientific minimum needed to preserve the past for future generations. No-collecting policies during survey are discouraged because field identifications of artifacts cannot be later verified, samples are needed for certain types of analyses, no-collecting policies are usually ineffective as some biased sample is nearly always collected, and leaving cultural resources in the field without aggressive protection and monitoring measures is often insufficient to conserve them. Also, "[p]redictive modeling can be used as a planning, but not a compliance tool to estimate the type, distribution, and surface density of . . . archaeological resources . . . . However, any predictions must be verified by fieldwork . . ." It is recommended that the sample of artifacts collected should be identified in the research design (types and percentages) and include only those necessary for analysis, those that are temporally diagnostic, and those that are "in imminent danger from being lost due to erosion or illegal collecting or from damage from military training…" All noncollected artifacts should be recorded with drawings, measurements, and black-and-white photographs. During testing and excavation, a sample should be kept of redundant artifact and material types as outlined in the research design. Table 6 in *Guidelines* provides recommendations of minimum samples of material classes for collection.

Other Federal Agencies

The BLM (Manual 8110 Series: *Identifying Cultural Resources;* Sections .21A–C; December 3, 2004) (http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_man ual.Par.71969.File.dat/8100.pdf) policy does not allow its own personnel to make collections during field surveys, unless the ground surface is obscured and shovel testing must be done. There is a similar policy for BLM permits. The BLM Manual 8150 Series: *Permitting Uses of Cultural Resources* (Section 1.D.1) (http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_man ual.Par.18440.File.dat/8150.pdf) states "[a]s agreed in advance and specifically limited in the permit conditions, such permits may authorize collection of isolated archaeological materials, not in association with cultural properties, and limited subsurface testing (e.g. shovel testing) . . . " The USFWS Manual (Series 600 Land Use and Management; *Cultural Resources Management*; Part 614, FW1–FW5; Section 5.2.B; November 18, 1992) (http://www.fws.gov/policy/manuals/part.cfm?series=600&seriestitle=LAND %20USE%20AND%20MANAGEMENT%20SERIES) states that the collection of artifacts is strongly discouraged unless "it is judged that the artifact is in imminent danger of loss by erosion or unauthorized collection." Similarly, the USFS Manual: *Cultural Resources* (*Title 2300 – Recreation, Wilderness, and Related Resource Management*; Exhibit 1, 2361.29a; June 21, 1990) (http://www.fs.fed.us/cgi-bin/ Directives/get_dirs/fsm?2300) notes that its Memorandum of Understanding with the Advisory Council on Historic Preservation states that "[i]n emergencies, Forest officers may remove or cause removal of cultural properties to avoid imminent loss or destruction." *Environmental Guidelines for Development of Cultural Resources Management Plans—Update* (DOE G 450.1–3; September 22, 2004) (http://www .directives.doe.gov/pdfs/doe/doetext/neword/450/g4501-3.pdf) is a guide for field managers at individual Department of Energy (DOE) facilities or programs to help them develop their own cultural resource management plans (CRMP). Each facility or program CRMP should address collection policies and scope of collections (Section 3.4.6.). Specific sample and acquisition guidelines are not provided, but archaeological survey reports are to specify the size and sample of surveyed and unsurveyed areas, and discuss the effectiveness of survey coverage based on sampling intervals (Section 3.4.2.6.).

Overview of Current Standards and Guidelines for Archaeological Sampling and Acquisition of Collections

Federal agency and professional society standards and guidelines both emphasize that archaeological resources are scarce and nonrenewable and, therefore, should be left in place and protected to the extent possible. When a resource will be negatively affected by an imminent action, then it is imperative to record and recover as much data as possible for posterity. In some cases, it is acceptable to recover data from resources that are not in imminent danger of destruction. These reasons may include justifiable research needs, interpretive requirements, or as a result of consultation with descendent communities.

Most Federal and non-Federal agencies follow or model their collection policies and guidelines on those of the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* and related documents produced by the National Park Service. In other cases, they follow the policies of the pertinent SHPO or any pertinent Memoranda of Agreement (MOA) with the SHPO or Advisory Council on Historic Preservation (ACHP). Most agencies indicate how collections will be sampled and acquired in the research design phase of their projects. Most employ statistical sampling during initial surveys (e.g., Phase II surveys) and may use predictive models that are ground-truthed during survey. Collections generally are not made during surveys, although artifacts are often described, measured, photographed, and drawn in the field. Collections are often made of artifacts that are in imminent danger of destruction or illegal collecting activities. In some cases, diagnostic artifacts (those that provide cultural or temporal information) are collected. If shovel tests are necessary during survey because of ground cover, then any artifacts uncovered are collected.

The particular method and sampling strategy for collections made during testing and data-recovery excavations are not usually covered in Federal agency guidelines. Instead, those decisions are left to lower-level entities (e.g., military installations, individual forests, etc.) or are determined on a project-by-project basis. Usually Federal entities follow the state SHPO guidelines on collecting. In turn, because the NPS evaluates SHPOs every five years for 36 CFR Part 61.3 compliance, SHPOs tend to follow the SOI's Standards and Guidelines (Griset and Kodack 1999:25).

Wiant and Loveless (1998), as summarized in Griset and Kodack (1999:22), found that non-Federal agencies usually have one of two collecting policies. One is to collect a representative sample that can be used to characterize an assemblage and enable comparison with similar samples. The second is to limit the collection of large artifacts (e.g., ground stone, bricks) or very common artifacts (e.g., fire-cracked rock, flakes, white-bodied earthenware sherds). Federal collections may be limited in number or scope because of the policies of the facilities where they will be curated, which are often non-Federal. The type and quantity of collections made also varies by region, culture, and time period. For example, in areas of the country where prehistoric pottery is a common material class, eroded or undecorated body sherds may be classified by type, counted, weighed, and left in the field, whereas in other areas of the country, prehistoric sherds are rare and every single one will be collected. Therefore, it may be difficult for a Federal agency to dictate collecting policies on a nationwide basis. Finally, collecting strategies will vary according to cost considerations, time constraints, and site significance.

Archaeological collections from sources other than field projects are rarely addressed in Federal policies and guidelines. The NPS is one of the few agencies that address acquiring collections from nonfield sources. Chapter 5 of *Cultural Resource Management* (Section 5.3.5.5.4; *Acquisition, Management, and Disposition)* (http://www.nps.gov/refdesk/mp/chapter5.htm), states that

> [c]ollections and related documentation essential to achieving the purposes and objectives of parks will be acquired and maintained in accordance with approved scope of collection statements for each park. When museum objects, specimens, or archival documents become available and fall within a park's approved scope of collection statement, every reasonable effort will be made to acquire them, if they can be managed and made accessible according to Service standards . . .. Museum collections will be acquired . . . in confor-

mance with legal authorizations and current NPS procedures. The National Park Service will acquire only collections having legal and ethical pedigrees.

Recommended Practices for Collections Sampling and Acquisition

The USACE's Mandatory Center of Expertise for the Curation and Management of Archaeological Collections report *Guidelines for the Field Collection of Archaeological Materials and Standard Operating Procedures for Curation of Department of Defense Archaeological Collections* (Griset and Kodack 1999) provides some of the best recommendations for how to collect and sample archaeological materials. Most of what is presented here is based on that document, with some additional recommendations developed from other sources as indicated. Two other valuable resources are *Curating Archaeological Collections: From the Field to the Repository* (Sullivan and Childs 2003) and the associated National Park Service Archeology and Ethnography Program-hosted website *Managing Archeological Collections: Technical Assistance* (Childs and Corcoran 2000) (www.nps.gov/history/archeology/collections/).

Several very important preliminary and overlapping tasks should be completed by archaeologists (who meet the Secretary of the Interior's [SOI] standards) when conducting any investigation associated with a Federal undertaking as defined under the National Historic Preservation Act (NHPA) (Section 301 [7]). These tasks include scoping the project, developing a research design and budget, and planning any fieldwork. These tasks have important ramifications for collections and curation because they will determine the type and extent of material remains that will be encountered during the project. Scoping involves several things: defining the area of potential effect (APE), reviewing existing information about the APE (e.g., literature reviews, site file searches, archival research), determining how the APE will be affected (e.g., archaeological survey, computer simulation modeling), and consulting with interested and affected parties (stakeholders), including the State Historic Preservation Office (SHPO), tribes, and curation facilities (King 2004:95). Note that both ARPA and 36 CFR 79 require a signed agreement between the Federal agency and the repository prior to the issuance of a permit for fieldwork on Federal land (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/prior_01.htm).

Background Research

The background research portion of scoping is important (Griset and Kodack 1999:33):

- To identify potential archaeological resources.
- To assist in generating research questions and designs.
- To predict costs of fieldwork, analysis, and curation.
- To gather the population data needed to develop appropriate sampling protocols, so that the collected data and samples will be representative of the sites, features, artifacts, etc.

During the background research phase archaeologists should use existing literature, site files, archives, maps, interviews, and extant collections to (Griset and Kodack 1999:33; Neumann and Sanford 2001:63–81):

- Identify previous land uses.
- Identify geomorphological processes.
- Review previous archaeological work in the area and region.
- Identify any NRHP-eligible properties.
- Note gaps in the data.

- Predict the volume of materials likely to be encountered.

Once the background research is complete, then the research design and fieldwork planning for Phase I–III research can begin. The results of the background research; consultation with the SHPO, tribes, and other stakeholders; and consultation with material analysts and curators should be used to inform the research design and fieldwork plans. Taking curation into consideration is particularly important for developing a collecting strategy and for making an adequate budget that will cover all curatorial phases from field processing to long-term conservation and storage (see Budgeting for Curation below).

Phase I Survey

The archaeological survey portion of scoping is usually called a Phase I or Class I survey. It may also be called a reconnaissance, intensive, or inventory survey (Neumann and Sanford 2001:85). The purpose of the survey may be to identify all historical-period and archaeological resources in the APE, in which case the entire APE will be surveyed (full-coverage survey). However, only a sample of the APE may be surveyed due to budgetary or time constraints, historical reasons (e.g., the area has been previously surveyed), or practical reasons (e.g., access to the survey area is limited). In this case, a sampling technique, such as stratified random sampling, may be used. Remote sensing techniques, such as aerial photography or ground-penetrating radar (GPR), may also be used during either full-coverage or sample surveys. The choice of a full-coverage or a sample survey will be one factor in determining the amount of collections made, if collections are made at all. The Phase I research design, as well as the Phase I report, should state clearly whether collections were made, what the sampling strategy was, and where the collections will be housed.

Archaeologists often have to decide whether to make collections during Phase I surveys. Although they are usually not alone in making the decision, as consultation with the SHPO and tribes may play a role. There are valid reasons for doing no-collection surveys. One, any collections made have to be processed and curated, which may be prohibitively expensive. Two, the collections may have to be housed in an already burgeoning repository. Three, the research benefits may be limited, especially if the sample is likely to be small, biased, or compromised in some way, for instance if the surface of the APE has been heavily disturbed by plowing, bulldozing, erosion, or pothunting. And, four, the removal of artifacts may significantly impede relocation of the site and future interpretations of it. If no-collection surveys are done, then it is imperative to record significant artifacts by plotting, photographing or drawing, describing, and measuring them.

However, Griset and Kodack state (1999:32) several reasons why no-collection surveys should be avoided:

- Field identification of artifacts cannot be verified without costly return to the field.
- Future investigations, such as archaeometric tests, are not possible without costly return to the field to collect a sample.
- No-collection policies are rarely adhered to, which leaves a biased and skewed sample.
- A no-collection policy only works to conserve the archaeological record if it is followed up by intensive and aggressive monitoring practices, which are also costly.

Instead of no-collection policies, they recommend collecting based on practical, scientific, and replicable principles of statistical sampling (Griset and Kodack 1999:32). Statistical sampling should meet two principal objectives. One is collecting a sample that represents the population of artifacts (or features, sites, etc.) and that will allow accuracy and precision during analysis; and the second is collecting a scientific minimum necessary to meet mandates and preserve the past (1999:30). Statistical samples (1999:32):

- Reduce the curation load.

- Minimize negative impacts by reducing the quantity of testing and excavation needed to address compliance and research questions.
- Give statistical justification for NRHP and other statements of eligibility.
- Provide statistically unbiased information about the archaeological record.

During a survey employing a statistical sampling strategy for collecting, the following guidelines should be followed (Griset and Kodack 1999:34; Sullivan and Childs 2003:82, Table 6.1):

- Document the sampling strategy and the reasoning behind it.
- Only collect the material types and percentages called for by the sampling strategy.
- Collect diagnostics only as called for by the sampling strategy.
- Only collect additional artifacts if there is imminent danger of loss due to:
  - erosion
  - illegal collecting
  - military training
- Record all significant non-collected artifacts with descriptions, drawings, measurements, and black-and-white photographs and plot them on the site map.

Phase II Testing and Evaluation

Once the project has been scoped and Phase I completed, if historical-period or prehistoric resources were identified, then the next step is Phase II—testing and evaluation. The purpose of Phase II is to determine whether the resources are eligible for listing in the NRHP. Phase II testing involves placing test unit excavations either according to a sampling strategy, often a random stratified sample, or based on the location of suspected features. As with survey, every artifact encountered may be collected or only a sample may be collected. For example, samples may be made of bulky or redundant artifacts such as fire-cracked rock, bricks, unmodified shell, undecorated sherds, or large pieces of ground stone (Sullivan and Childs 2003:83). Reasons for sampling include budgetary and time constraints, lack of curation space, and lack of integrity of the deposit. If a sampling strategy is used, then the same guidelines used for statistical sampling during survey should be followed. Also, as in Phase I, the research design and the report should state clearly whether collections were made, what the sampling strategy was, what the justification for the sampling strategy was, and where the collections will be housed.

If NRHP-eligible properties are found during Phase II, then negotiations with the stakeholders continue and decisions are made about whether and how to proceed with the undertaking as well as how to mitigate any effects. The type and extent of possible collections should be one factor considered during the decision-making process. In order to negate or minimize the effects and, consequently, the curation load, the project may be canceled, relocated, or redesigned. Other possibilities include land exchanges or transfers to entities that will preserve it, burial of archaeological sites, or setting aside part of the land as open space (King 2004:165–166). If the impact cannot be avoided through these or similar means, then the fieldwork and research can be designed to appropriately minimize the curation load during Phase III—mitigation through data recovery.

Phase III Mitigation through Data Recovery

Phase III is mitigation through data recovery or archaeological excavation. The research design, fieldwork, and curation plans for Phase III should be developed based on the results of Phase I and II and further consultation with stakeholders, including tribes. As in Phase I and II, a sampling strategy is often used both to locate excavation units and to collect samples from them. Collection and curation issues should be influenced by and inform not only the sampling strategy, but also all aspects of the research de-

sign, including the theoretical focus, research questions, field and laboratory methods, analytical techniques, reporting, and dissemination of results (Sullivan and Childs 2003:82). Important curation-related considerations include whether there is adequate funding to process the resulting collection, conserve it, and curate it for the long term; and whether there is an appropriate repository for the collection that has agreed to house it in perpetuity (see Chapter 4 Curation and Accessioning for more information on choosing a repository) (Sullivan and Childs 2003:80–81). Therefore, when formulating the research design and collecting strategy for Phase III (and ideally for Phase I and II as well), the following steps should be taken (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Prior_03.htm; Griset and Kodack 1999:34; Sullivan and Childs 2003:81–83; 111–112):

- Consult curators at the designated repository in order to get input about how a collection may be used for future research, and if and how it will fit the collecting strategy of the designated repository.
- Consult with specialists to determine the material classes, artifact types, and range of variation needed to answer research questions.
- Determine the time periods or occupation levels of interest and diagnostic artifacts needed for research.
- Consult with specialists to determine the sampling strategy for redundant material classes and types, or any samples that do not fit the research design.
- Consult with specialists to determine the sampling strategy for non-cultural samples (e.g., soils).
- Make provisions for handling NAGPRA-related objects and associated records.
- Identify the types of associated records that will be generated, including electronic and digital media.
- Make provisions for revising the research design and collecting strategy.

Some of the collecting methods that should be used during Phase II testing and Phase III excavation include the following (Griset and Kodack 1999:35; Sullivan and Childs 2003:83–87)

- Use a screen size no larger than 1/4 inch, depending on the research design.
- Sample redundant material classes as called for in the research design. See Table 6 *Guidelines for Collecting Redundant Archaeological Materials While in the Field* (Griset and Kodack 1999:37) for collecting guidelines by artifact and material type.
- If called for in the research design, leave a predetermined sample of materials unprocessed for future studies (e.g., soil) (see Chapter 5 Culling and Deaccessioning for more information). (It should be noted that The "Department of Defense Guidelines for the Curation of Archaeological Soil Samples" states that, while it is appropriate to store and conserve small or modest amounts of soil from archaeological research projects, samples retained for long-term curation should be carefully selected and individually justified. Samples appropriate for retention may include ones from unusual, unique, or especially important strata or cultural features. The possibility that new techniques of analysis may be discovered in the future should not be used as a blanket justification for retaining large numbers of samples or large quantities of unremarkable soils [http://www.denix.osd.mil/ portal/page/portal/content/environment/CR/Curation/CollectionGuidance/DODSOILGUI DELINES_0.DOC]).
- Document the sampling strategy and the reasoning behind it.
- If culling and disposal are done in the field, make sure that the disposal area cannot be mistaken for an archaeological deposit and make note of it in the associated records.

Again, as in Phase I and II, the research design and the final report should state clearly what the sampling strategy was and where the collections will be curated. It is important to note that copies of reports from all three phases of archaeological work should be provided to the appropriate agency land managers as

well as to the repository. If reports are not provided, then future assessments of the property could be compromised.

Budgeting for Curation

Budgeting for curation should begin during the scoping or research design phases. It is important to remember that even if no material remains are recovered during a project, every project will produce associated records that will need to be curated. It should also be remembered that the records might include electronic or digital documents. At the least, every project has to budget for initial processing of material remains and associated documents (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Prior_02.htm).

The cost of curation will depend on several things: the amount and classes of material expected to be recovered, including the types of associated records; repository requirements for submission (e.g., entry or reviewing fees); fees for processing by the repository (one-time or long-term); fees for oversized or special objects; fees for objects needing specialized conservation; and long-term, periodic (e.g., 5-year, 20-year), or in perpetuity fees for curation and care. Fees may also be assessed using a number of formulas: by number of artifacts, boxes, or drawers; by the cubic foot (for artifacts); or by the linear foot (for associated records) (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Prior_02.htm).

It is clear that repositories across the nation are filling up at an unprecedented rate creating a "curation crisis." Many ideas are currently being considered to deal with the crisis. For instance, the Governor's Archaeology Advisory Commission (GAAC) Curation Subcommittee in Arizona has suggested that in order to manage collections growth, the archaeological community should develop standards for in-field analysis, use remote-sensing technologies, encourage use of extant collections, cull collections before accessioning them, employ more representative sampling, and find ways to avoid archaeological sites (Lyons et al. 2006:2). When sites cannot be avoided during ground disturbing activities, then a balance should be struck between collecting a representative sample for research and posterity and making responsible use of available repository space. The key is effective background research, consultation with material specialists and the designated repository, and the development of a sampling strategy that is outlined and justified in the research design. Provisions for altering the collecting strategy should be included in the research design and any deviation from it should be justified and recorded in the documentation of the project.

Processing, Cataloging, and Conservation

Federal Laws

36 CFR 79 Section 79.5(b)(5) states that new collections should not be deposited into a repository until "[t]he initial processing of the material remains (including appropriate cleaning, sorting, labeling, cataloging, stabilizing and packaging) has been completed, and associated records have been prepared and organized in accordance with the repository's processing and documentation procedures." 36 CFR 79 invokes the Reservoir Salvage Act (16 U.S.C. 469–469*c*), the National Historic Preservation Act (NHPA) (16 U.S.C. 470*h*-2), and the Archaeological Resources Protection Act (ARPA) (16 U.S.C. 470*aa–mm*), which give the Secretary of the Interior (SOI) the authority to enact regulations regarding curation and related matters. In addition, the NHPA (Section [110a][2]); http://www.nps.gov/history/local-law/nhpa1966 .htm) charges the director of each Federal agency (who can appoint and delegate responsibilities to a preservation officer) with the responsibility of developing, in consultation with the SOI, its own program of identification and evaluation. Therefore, as with sampling and acquisition of collections, each agency can develop its own, more specific, standards and practices for processing, cataloging, and conservation, some of which are reviewed below.

However, rather than develop their own internal policies and procedures, many agencies follow the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (http:// www.nps.gov/history/local-law/arch_stnds_0.htm) and the Departmental Manual (DM) Part 411 *Museum Property Handbook* (March 19, 1997) (http://www.doi.gov/museum/policy/pdf/mphi-1.pdf). The latter establishes and outlines policies and standards that are detailed in *Volume I, Preservation and Protection of Museum Property* and *Volume II, Documentation of Museum Property*. Another common resource is *The NPS Museum Handbook* (http://www.nps.gov/history/museum/publications/handbook.html), which has three volumes: *Part I: Museum Collections, Part II: Museum Records,* and *Part III: Museum Collections Use.*

Department of Defense

Department of Defense Instruction (DODI) 4715.3 *Environmental Conservation Program* (May 3, 1996) (http://www.dtic.mil/whs/directives/corres/pdf/471503p.pdf) states that initial curation of archaeological materials will be in compliance with 32 CFR 22 and 229 and 36 CFR 78 and 79. Most of the DoD Service branches reiterate that 36 CFR 79 is the basis for their curation policies and also direct cultural resource managers to follow or consult the *Museum Property Handbook*. However, many DoD collections are housed in non-Federal curation facilities and, in those cases, the service branch will comply with the individual repository's processing, cataloging, and conservation policies and procedures.

The U.S. Army Corps of Engineers (USACE) continues to work on policies and procedures for the curation of its in-house collections (although many of its collections are housed in non-Federal repositories). USACE Engineering Pamphlet (EP) 1130-2-540 *Project Operations – Environmental Stewardship Operations and Maintenance Guidance and Procedures* (updated July 31, 2005) (http://140.194.76 .129/publications/eng-pamphlets/ep1130-2-540/toc.htm) supplements Engineering Regulation 1130-2-540. Section 6-5, titled "Guidance–Collection Management," has two pertinent parts–Part d. is "Standards

for Processing and Placing Collections Into Collections Management Centers" and Part e. is "Standards for Collections Management Centers." These outline standards for material remains and associated records that are basically shortened versions of those in *Guidelines for the Field Collection of Archaeological Materials and Standard Operating Procedures for Curation of Department of Defense Archaeological Collections* (Legacy Project No. 98-1714) (Griset and Kodack 1999) developed by the USACE Mandatory Center of Expertise for the Curation and Management of Archaeological Collections (MCX-CMAC). Air Force Instruction (AFI) 32-7065 Cultural Resources Management Program (Sections 3.1.1.8.4.3., 4.6.1., and A2.4.2.1.6; June 1, 2004) (http://www.e-publishing.af.mil/shared/media/epubs/AFI32-7065.pdf) also directs Air Force installations to follow the *Guidelines for the Field Collection of Archaeological Materials and Standard Operating Procedures for Curation of Department of Defense Archaeological Collections* (Legacy Project No. 98-1714) (Griset and Kodack 1999).

The Navy also requires that Commanding Generals and Officers "Provide for storage and professional curation of archaeological collections, including samples and associated records that might accrue in carrying out legal compliance actions" and references 36 CFR 800, 36 CFR 79, and 32 CFR 229 for further guidance (OPNAVINST 5090.1C: *Environmental Readiness Program Manual*; Section 27-6.5(l); October 30, 2007; http://www.navy.mil/oceans/5090_1C_Manual.pdf and Marine Corps Order P5090.2A: *Environmental Compliance and Protection Manual*; Chapter 8, 8301.11; July 10, 1998; http://www.usmc .mil/news/publications/Documents/MCO%20P5090.2A.pdf).

Other Federal Agencies

As with most DoD service branches, many other Federal agencies state that 36 CFR 79 is the basis for their curation policies and also direct cultural resource managers to follow or consult the *Museum Property Handbook* (e.g., Bureau of Reclamation (BOR) Manual, *Program Series Land Management and Development* [LND 02-01]: *Directives and Standards* [March 13, 1998] [http://www.usbr.gov/recman /lnd/lnd02-01.pdf]; U.S. Fish and Wildlife Service (USFWS) Manual, Series 600 Land Use and Management, *Cultural Resources Management* [Part 614, FW1–FW5, Section 4.3A; November 18, 1992] [http://www.fws.gov/policy/manuals/part.cfm?series=600&seriestitle=LAND%20USE%20AND%20MANAGEMENT%20SERIES]). Most agencies' policies also state that, although material remains and original associated documents may be housed in a non-Federal repository, at least one copy of all associated documents must be retained by the agency or filed with the National Archives.

The Bureau of Land Management (BLM) has a National Curator and Native American Graves Protection and Repatriation Act (NAGPRA) Coordinator who oversees curation and related issues. The current National Curator (Ms. Emily S. Palus [personal communication 2007]) said that most BLM collections are in non-Federal repositories, and the BLM relies on those repositories to follow appropriate curation procedures. The BLM is currently drafting its own museum policies and procedures. In the interim, they are following the Department of Interior's [DOI] *Museum Property Handbook* standards. The three repositories operated by the BLM (Anasazi Heritage Center Dolores Colorado, Billings Curation Center Billings, Montana, and the National Oregon Trail Interpretive Center Flagstaff Hill, Oregon) each have their own curation guidelines.

As the lead agency, the National Park Service (NPS) has the most detailed curation policies and procedures. NPS permits (Chapter 5: *Cultural Resource Management*, Section 5.1.2: *Archaeological Resources*, 2001; http://www.nps.gov/history/local-law/arch_stnds_0.htm) require "researchers to provide for the long-term preservation and management of any recovered objects and specimens and for their cataloging, together with any associated records, in the NPS museum cataloging system." NPS will preserve an object in its current condition as long as it is satisfactory for exhibit or research. If not, then the object will be stabilized and "active conservation treatment (intervention) will be minimized to reduce the possibility of compromising the item's integrity. All active treatment will be documented" (Section

5.3.5.5). Restoration will only be done if it is required for research or exhibit purposes, there is sufficient data to restore the object accurately, and restoration will not alter the object's original character. Restoration will use techniques and materials that least modify the object and that can be reversed later. Restored areas will be distinguishable from the original material and will be documented. Areas of wear, damage, prior maintenance, or other historical or scientific evidence will be maintained (Section 5.3.5.5.2).

The NPS Museum Handbook, Part I: Museum Collections (last update November 7, 2006) covers preservation, storage, shipping, handling, conservation, planning proper curation, and other topics (http://www.nps.gov/history/museum/publications/handbook.html). *The NPS Museum Handbook, Part II: Museum Records* (last update November 7, 2006) covers accessioning, cataloging, inventorying, and related topics. The NPS *Conserve O Grams* (1993–present) (http://www.nps.gov/history/museum/publications/conserveogram/conserv.html) are leaflets that provide up-to-date information on procedures, techniques, and materials for conservation. There are more than 150 of them organized into 21 topical areas, including preservation, conservation techniques by material class, packing and shipping, and archiving. They include lists of suppliers and bibliographies.

The online NPS distance-learning program *Managing Archeological Collections: Technical Assistance* (S. Terry Childs and Eileen Corcoran 2000) (http://www.nps.gov/history/archeology/collections/index.htm) is a companion to the book *Curating Archaeological Collections: From the Field to the Repository* by Lynne P. Sullivan and S. Terry Childs (Altamira Press 2003). NPS's distance-learning Web site has a section titled "Curation in the Field and Lab" (http://www.nps.gov/history/archeology/collections/field_02.htm) that covers topics such as the effect of soils on in situ artifacts, handling, lifting, bandaging and consolidation, as well as how to handle various associated documents in the field.

Professional Societies

Most professional societies provide some guidelines for processing, cataloging, and conservation. In *Our Collective Responsibility: The Ethics and Practice of Archaeological Collections Stewardship* (Childs 2004:v–xi), published by the Society for American Archaeology (SAA), there is a list of "Guidelines to Implement SAA Ethic #7, Records and Preservation." The book also contains chapters that address each of the suggested guidelines, including: stewardship of collections and associated records; maintaining and renewing the integrity of collections and associated records; preserving and archiving associated records; and training archaeologists in curation, preservation, conservation, and collections and archives management. The Society for Historical Archaeology's (SHA) *Standards and Guidelines for the Curation of Archaeological Collections* (http://www.sha.org/research_resources/curation_standards.cfm) provides information about cleaning, labeling, documentation, conservation, and related topics. The Register of Professional Archaeologists' (RPA) does not provide detailed guidelines, but its *Standards of Research Performance* (http://www.rpanet.org/displaycommon.cfm?an=1&subarticlenbr=4) Standard IV states that "[d]uring accessioning, analysis, and storage of specimens and records in the laboratory, the archaeologist must take precautions to ensure that correlations between the specimens and the field records are maintained, so that provenience contextual relationships and the like are not confused or obscured."

Overview of Current Standards and Guidelines for Processing, Cataloging, and Conservation

Most Federal agencies do not provide their own agency-wide guidelines or directions for processing, cataloging, or conservation of archaeological collections. Some leave it up to individual installations,

parks, or other entities to devise their own standards and practices. Others direct agency units to follow the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (http://www.nps.gov/history/local-law/arch_stnds_0.htm) and the Departmental Manual (DM) Part 411 *Museum Property Handbook* (March 19, 1997) (http://www.doi.gov/museum/policy/pdf/mphi-1.pdf) the NPS guidelines in the *Museum Handbook (*http://www.nps.gov/history/museum/publications/handbook .html); or the USACE MXC-CMAC report *Guidelines for the Field Collection of Archaeological Materials and Standard Operating Procedures for Curation of Department of Defense Archaeological Collections* (Griset and Kodack 1999). Many also follow the standards and practices of the various Federal and non-Federal repositories housing their collections.

The SHA is the only professional association that provides detailed guidelines for processing, cataloging, and conservation. The SAA has published *Our Collective Responsibility: The Ethics and Practice of Archaeological Collections Stewardship* (Childs 2004), which covers curation topics, but it does not provide a specific set of standards or procedures. However, the SAA does have an Advisory Committee on Museums, Collections, and Curation that was established in 1999 (Little 1999). The RPA also does not provide a set of standards, but it does emphasize the importance of provenience information and the need to preserve it during processing and analysis.

Both Federal and non-Federal guidelines and policies emphasize the importance of maintaining provenience information, guarding against overzealous conservation techniques that obscure information about objects or that are irreversible; the need to document any conservation treatments; the importance of retaining multiple copies of associated documentation; and the need to organize associated documents so that they are accessible and understandable.

Recommended Practices for Processing, Cataloging, and Conserving Collections

Sullivan and Childs (2003:64–65), referencing Jacobson (1998), note that "[t]he primary objectives of collections preparation are to preserve objects and associated records in a stable condition for the long term and to maintain their research, heritage, and educational values." Any action applied, therefore, should be reversible, well documented, respectful of the object's integrity and the culture with which it is affiliated, utilize nonreactive materials, and maintain a connection between the object and its documentation. Many of the procedures outlined in the USACE's MCX-CMAC report *Guidelines for the Field Collection of Archaeological Materials and Standard Operating Procedures for Curation of Department of Defense Archaeological Collections* (Griset and Kodack 1999) follow these objectives. Therefore, most of what is presented here is based on that document, with some additional recommendations developed from other sources as indicated. Two other valuable resources are *Curating Archaeological Collections: From the Field to the Repository* (Sullivan and Childs 2003) and the associated National Park Service (NPS) Archeology and Ethnography Program-hosted website *Managing Archeological Collections: Technical Assistance* (Childs and Corcoran 2000; www.nps.gov/history/archeology/collections/). A third valuable resource, especially for historical-period artifacts, is the SHA's website *Society for Historical Archaeology Standards and Guidelines for the Curation of Archaeological Collections* (Brady et al. 2006; http://www.sha.org/research_resources/curation_standards.cfm). Finally, a good resource for associated documents is the National Archives and Records Administration (NARA) website (http://www.archives .gov/).

It should be noted that the procedures outlined below are presented primarily for reference and general information purposes. They should only be used when a professional conservator is not available. If at all possible, a professional conservator should be consulted. Procedures that should be performed only by a professional conservator are noted.

It should also be noted that these procedures are for dry sites. Artifacts from wet, marine, and water-logged sites should be handled appropriately, ideally by conservators with specialized training. The American Institute of Conservation (AIC) (http://www.conservation-us.org/) can help you contact a specialized conservator. For a general overview and set of guidelines online, see the NPS *Conserve O Gram* "First Aid for Wet-Site Objects" (July 1993: No. 6/1; http://www.nps.gov/history/museum/publications/conserveogram/06-01.pdf). For a good conservation bibliography, including references dealing with wet, waterlogged, and maritime artifacts see the SHA website "Publication of Conservation Information" (http://www.sha.org/research_resources/conservation_faqs/default.cfm).

Material Remains

Categories of Material Remains:

- Structure and feature components (e.g., houses, mills, piers, fortifications, raceways, earthworks, mounds).
- Intact or fragmentary artifacts of human manufacture (e.g., tools, weapons, pottery, basketry, textiles, glass).
- Intact or fragmentary natural objects used by humans (e.g., rock crystals, feathers, pigments).
- By-products, waste products, or debris resulting from manufacture or use of man-made or natural materials (e.g., slag, dumps, cores, lithic debitage).
- Organic material (e.g., vegetable and animal remains, coprolites).
- Human remains (e.g., bone, teeth, mummified flesh, burials, cremations).[1]
- Artistic works or symbolic representations (e.g., petroglyphs, pictographs, intaglios).
- Shipwrecks (e.g., hulls, rigging, armaments, apparel, tackle, contents, cargo).
- Environmental specimens (e.g., pollen, seeds, wood, shell, soil, sediment cores).
- Chronometric specimens (e.g., wood, shell, bone, charcoal, tree core samples, obsidian, volcanic ash, baked clay).
- Paleontological specimens found in direct physical relationship with prehistoric or historic resources (36 CFR 79.4[a][1][i–x]).

In the Field

Processing
In the field handling and processing are very important because it is at the point of discovery that processes of deterioration are introduced. Artifacts are usually at equilibrium with their surrounding

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[1] On the occasion that human remains will be collected and stored at a Federally contracted repository, several guidelines need to be followed. Whether the remains are associated with Native American tribes, local communities, or specific religious institutions, collaboration between the recovering agency and affiliated groups is vital (Cassman, Odegaard, and Powell 2007). The recovery and handling of human remains should be conducted in consultation with groups that claim cultural or religious affiliation. Under NAGPRA, all Native American human remains should be reported to culturally affiliated tribes and prepared for repatriation with their associated funerary goods, should an affiliated tribe request their return. These agreements are handled on a case-by-case basis and require the collaboration of the recovering agency, the repository, and the affiliated tribes. When human remains are housed in a repository they should be treated with care and respect. All notes, field forms, maps, drawings, and associated artifacts should be cross-referenced with the individuals to whom they relate. The scale of the recovery effort, the archaeological context of the human remains, and the condition of the osteological material will be project specific; therefore, the methods used to process, catalog, and conserve the remains will be equally specific. Such methodologies should be decided upon through collaboration with the recovering agency, repository, and affiliated groups, and should be outlined in the research design and curatorial agreements.

environment until exposed to air, light, a different temperature and humidity regime, etc. They can also be affected by in-field treatment, including damage from excavation tools, removal, mishandling, and packaging. Often the "temporary" treatment they receive in the field becomes permanent, as it may be many years before they are processed once they are back in the laboratory or repository (Sullivan and Childs 2003:84–85).

Griset and Kodack (1999:47–49) offer some guidelines for field processing that have been supplemented here by additional sources:

- Fragile artifacts should be photographed and sketched in place.
- Damp, wet, or fragile artifacts should be left in their matrix, but processed as soon as they are back in the lab by a professional conservator.
- Keep handling to a minimum.
- Use tools that will cause the least amount of harm (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/field_02.htm).
- Bulk samples should be transported in polypropylene containers or cloth bags.
- Samples for specialized analysis need appropriate collection, handling, and storage. Ideally, the specialist who will perform the analysis should collect the samples. (One good source is the SHA's website (Brady et al. 2006, http://www.sha.org/research_resources/conservation_faqs/handle.cfm.)
- Samples for chemical, botanical, flotation, or chronometric analyses should not come into contact with greases, oils, dirty fingers, airborne pollen, or polyethylene bags and should be handled with clean, metal instruments.
- Carefully dry soil and ^{14}C samples so that contaminants are not introduced.
- Artifacts should only be dry brushed in the field and not washed. Note if they are washed or wet screened.
- In-field consolidation should only be done by a professional conservator.
- All special treatments should be documented and reversible (Childs and Corcoran 2000, www.nps.gov/history/archeology/collections/field_02.htm).
- All containers should have provenience, date, and recorder.
- Treat human remains with care and respect and cross-reference human remains with associated funerary objects. A professional conservator may be needed to help lift remains or construct supportive housing (http://www.sha.org/research_resources/conservation_faqs/treatment.cfm) (see Footnote 1.).
- For handling and processing artifacts from waterlogged environments, consult a conservator if possible. The SHA has some good tips on their website (Brady et al. 2006, http://www.sha.org/research_resources/conservation_faqs/handle.cfm).

Packaging

Griset and Kodack (1999:47–49) offer some guidelines for field packaging as outlined below.

General Guidelines:
- Place like materials together in boxes.
- Place heavier materials at the bottom of boxes.
- Boxes should be labeled with provenience, contents, whether fragile or heavy, or other special handling instructions.
- Do not overfill bags or boxes.
- Create and duplicate a packing list. Put one in the box and place the other in the general inventory.
- For a good list of archival supplies that can be used in the field for packaging, padding, and support see the SHA's website (Brady et al. 2006, http://www.sha.org/research_resources/conservation_faqs/prepare.cfm).

Do Use:
- Acid-free boxes, folders, and tissue paper.
- Polypropylene containers.
- Metal containers that are rust free and well sealed.
- Glass containers, well padded, when necessary.
- Polyethylene foam, sheeting, chips, and polyethylene resealing bags.
- Polyester batting.
- Aluminum foil for ^{14}C.
- Tyvek® for internal labels for moist items.

Do Not Use:
- Regular, acidic cardboard, paper, grocery bags, folders, etc.
- PVC or other plastic.
- Styrofoam or polyurethane chips, etc.
- Regular toilet paper, tissue, or newspaper.
- Cotton.

Transport

Griset and Kodack (1999:49) offer some guidelines for transporting artifacts as outlined below.

- Vehicles should have adequate padding for transport.
- Heavy boxes should be on bottom and toward the front of the vehicle.
- Do not let boxes slide around.
- Do not place boxes near heavy equipment, fuel, water, or heating vents.
- Do not leave boxes in vehicles during extreme conditions. If you have to, make sure there is adequate ventilation.

In the Laboratory and Repository

Cleaning

Griset and Kodack (1999:51–53) offer guidelines for cleaning artifacts, including when to clean, types of cleaning, and how to clean by material class. These guidelines have been supplemented by other sources as indicated. Cleaning is an irreversible action and should not be done thoughtlessly and automatically (Brady et al. 2006 http://www.sha.org/research_resources/conservation_faqs/process.cfm). If possible, a conservator should be consulted before cleaning any object.

Reasons to Clean

In order to:
- Analyze surface features.
- Apply a specimen number.
- Remove substances that might cause deterioration.

Reasons Not to Clean

Because:
- It may destroy fragile features like decoration or impressions.
- It may destroy use-related evidence such as residue, polish, or scratches.
- Residues may be used for phytolith, blood serum, ^{14}C, elemental analysis, macrofossil ID, DNA, etc.

Types of Cleaning
- Dry cleaning
  - Dry brush with a soft bristled brush.
  - Dry vacuum with a low-powered conservator's or dental vacuum.
- Wet cleaning
  - Do not wet clean:
    - bone
    - shell
    - hides
    - basketry
    - vegetable remains
    - textiles
    - low-fired earthenware (e.g., terracotta)
    - ceramics that are flaking, soft, crumbly, friable, or highly porous
    - ceramics with fugitive decoration
    - glass that has a film, flaking, or iridescence
    - stone artifacts with residues (e.g., ground stone)
    - obsidian that will be used for obsidian hydration
    - metal
  - Can wet clean:
    - high-fired, stable ceramics
    - stable glass
    - most stone
  - How to wet clean:
    - In a basin, not under running water or in a sink
    - Clean only one artifact at a time.
    - Lithic debitage can be placed in a mesh bag and swished.
    - Air dry slowly on a nonmetal screen or on acid-free toweling or paper.
    - Do not use direct heat, direct sunlight, or a drying oven.
- Ultrasonic cleaning
  - What can be cleaned: objects that can stand immersion and fit into an ultrasonic cleaner, generally, high-fired ceramics, glass, and stone.
  - Do not use if microfractures are suspected.
  - Usually less than five minutes is needed. The item should be monitored and removed promptly, rinsed, and dried.
- Spot cleaning
  - Use a moistened soft-cotton tipped stick.
- Chemical cleaning
  - Should be done by a professional conservator.
  - May involve acids, bases, chelating agents, or other chemicals.
  - May need protective clothing, a fume hood, or other safety measures.
  - Procedure:
    - dry brush the artifact
    - if necessary, it may then be immersed in water
    - suspend in the chemical solution for the specified period of time
    - rinse in distilled or deionized water as often as needed
    - dry slowly
  - Note in the catalog which chemicals were used, how long immersed, how rinsed, and how dried.

How to Clean by Material Class:

Faunal bone, antler, and ivory
- Dry brush.

Organics (macrofossils, wood, etc.)
- Do not clean if possible or consult a professional conservator.
- If the artifact must be cleaned, then dry brush or vacuum.
- Retain soil for constituent analysis if called for in the research design.

Ceramics
- Do not clean if there are residues, fugitive decoration, or if flaking, soft, crumbly, friable, or highly porous.
- Unstable or crackled ceramics may need consolidation by a professional conservator.
- If salt encrusted, consult a professional conservator.
- Wash with water or swab with damp cotton swabs.
- Dry thoroughly before labeling or packing.

Glass
- Do not wash if there is film, flaking, or iridescence.
- If unstable glass must be cleaned, dry brush or spot clean only.

Leather
- Consult a professional conservator.
- Minimize handling.

Flaked Stone
- Do not wash if use-wear studies will be done, or if mastic, cordage impressions, or residues are present.
- Wash in water, use a gentle brush if necessary, or ultrasonic cleaning.

Metals (ferrous and nonferrous)
- Do not wash or clean with any method.
- Consult a professional conservator as soon as possible in order to halt deterioration and possible loss of the artifact or distinguishing features.
- Electrolytic reduction cleaning is considered the most efficient and effective process for conserving metal artifacts, particularly iron recovered from marine environments, but it should be done by a professional conservator because it can cause structural and other damage (Hamilton 2000 http://nautarch.tamu.edu/crl/conservationmanual/File10a.htm; Brady et al. 2006, http://www.sha.org/research_resources/conservation_faqs/treatment.cfm).

Paper
- Consult a professional conservator.

Plastics
- If possible, consult a professional conservator.
- Some plastics may be cleaned with a dry, electrostatic cloth.
- If necessary, they may be vacuumed with a conservator's vacuum. (Brady et al. 2006. http://www.sha.org/research_resources/conservation_faqs/treatment.cfm)

Shell
- Dry brush after checking for residues, paint, etc.

- If consolidation is needed, consult a professional conservator.

Textiles
- Consult a professional conservator.
- Do not wash, brush, or clean using any method.
- May vacuum.
- May need special packing.

Labeling

Griset and Kodack (1999:54–57) offer guidelines for labeling artifacts that are outlined below and supplemented with other sources as indicated.

General Guidelines
- Factors to consider before labeling are the physical stability of the object's surface, surface roughness, porosity, strength, and flexibility (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_01a.htm).
- Labels should be noninvasive, stable, reversible, and pose no health risks (Sullivan and Childs 2003:65).
- Use labeling methods and materials that do not damage the object (Sullivan and Childs 2003:65) and that are archival quality.
- Label specimens directly if feasible.
- Human remains should not be directly labeled (see Footnote 1.).
- Use labels that guard against accidental removal (Sullivan and Childs 2003:65).
- Use labels that do not affect the appearance of the object (Sullivan and Childs 2003:65).
- Labels should be sufficiently visible so that handling is minimized (Sullivan and Childs 2003:65).
- Labels should not be placed in areas of wear or friction (e.g., bases) (Sullivan and Childs 2003:65).
- Labels should not cover diagnostic attributes like maker's marks or decoration.
- Labels should not be placed on broken edges that can be reattached.
- The least photogenic side of an artifact should be labeled.
- Label storage units and containers on the exterior.
- Labeling materials used should be added to the curation history notes.
-

Labeling Methods and Materials
Direct Labeling:
- Use an isolating base coat, indelible ink (black India ink or white ink on dark materials), then add an isolating topcoat. Use Paraloid B-72® or another clear acrylic resin dissolved in acetone for base coat. Use Paraloid B-72® or Soluvar® acrylic varnish for topcoat.
- India ink can be applied using Crow quill pens, mechanical drafting pens (which require extensive cleaning), or Pigma® ceramic tipped pens (expensive and quality can vary).
- Ink should be black or blue; waterproof India ink is best.

Indirect Labeling:
- Indirect labels are used on small items, basketry, leather, textiles, wood, and deteriorating ceramics, glass, and metal.
- Loose labels on acid-free paper can be placed inside of containers.
- Labels can be printed on acid-free paper with a high cotton rag content using a xerographic process such as a laser printer or photocopier. Then dip in Rhoplex®, a Paraloid B-72® emulsion, or Acrysol®, a polyvinyl acetate emulsion.
- Indirect labels should use string that is untreated and softer than the artifact. It should not cut through the object. It should be tied loosely, but not too loosely.

- Use 100% cotton, undyed string. Do not use on rubber or plastics, as they will destroy the thread.
- Plastic tie tags (Zap-Straps®) and nylon monofilament (fishing line) incased in polyethylene tubing can be used on large artifacts or outdoor displays.
- Teflon® monofilament (the nonstretchy variety) can be used on greasy, oily, or fragile artifacts.
- Japanese paper labels can be attached to basketry with wheat starch paste or Paraloid B-72®.
- Tyvek® tags are good for outdoor displays, plastic, oily objects, and can be sewn to fabrics.
- Cotton twill tape can be used on textiles. It can be marked with laundry marker and sewn on with undyed cotton thread.

Do not use:
- Ballpoint, felt-tip, or red ink.
- Whiteout or nail polish.
- Tags or labels with metal rims.
- Stationer's or jeweler's paper tags.
- Rubber bands.
- Rubber cement or Elmer's® glue.
- Silicone products.
- Chalk.
- Wire. (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_01a.htm)

Griset and Kodack (1999:22), referencing Wiant and Loveless (1998), note that non-Federal repositories usually label diagnostic artifacts but not all members of bulk samples (e.g., fire-cracked rock, white-bodied earthenware sherds, lithic flakes, slag, window glass, brick, and shell). This is also true for most Federal repositories (S. Terry Childs, personal communication October 2007). The SHA suggests that bulk, undiagnostic artifacts be placed together in an appropriate container that is labeled on the outside and has an archivally sound label on the inside (Brady et al. 2006, http://www.sha.org/research_resources/curation_standards.cfm).

Packaging
Griset and Kodack (1999:57–60) offer guidelines for packaging artifacts, including interior and exterior containers. These are outlined below and supplemented by other sources as indicated.

Interior Containers
General Guidelines and Materials:
- Package and store by material class.
- Lightweight and fragile materials should be kept separate from heavy materials.
- Human remains from an identified individual should be stored in an individual container (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_02.htm) (see Footnote 1.).
- Polyethylene resealing bags of 4-ml or thicker should be used.
- Be careful not to force a large object into a small bag or to overfill.
- Puncture holes in the top of bags using a hole punch or bamboo skewer prior to filling with moisture prone materials.
- Add padding of acid-free tissue or polyethylene foam for sharp objects.
- Fragile objects should not be stored in bags.
- Purchase polyethylene bags from archival suppliers if possible, as some are made of recycled materials.
- Polypropylene rigid wall containers can be used.
- Use acid-free boxes with telescoping lids (rather than flap-fold lids).
- To the extent possible, do not wrap items. Instead, lay tissue, etc., that can be lifted off.
- Can use hand-built acid-free poster board boxes made with linen tape or hot melt adhesive.
- Box strength should allow the item to be supported without any flexure of the box walls.

- Choose metal containers with care as many corrode, attract moisture, etc.
- Polyethylene foam (Ethafoam®) can be carved to support items. Label the support with the specimen number to reduce handling of the actual specimen.
- Containers should be labeled with provenience information, etc., either directly or with an interior tag.

Do not use:
- brown paper bags
- cigar or regular cardboard boxes
- styrofoam
- toilet paper, facial tissue, or newspaper
- plastic sandwich, food storage, or freezer bags
- non-polypropylene plastics
- cotton wool
- film vials
- pill bottles
- glass containers (with exceptions)
- cellophane or masking tape
- foam rubber or urethane foam
- twist ties
- rubber bands
- string
- staples
- heat sealing (Childs and Corcoran 2000, www.nps.gov/history/archeology/collections/ Mgt_02.htm)

Exterior Containers:
- Follow the same guidelines as for interior storage containers.
- Heavy items—like brick, daub, ground stone, and fire-cracked rock—should be stored separately from lighter items to prevent damage from shifting boxes, etc.
- Place boxes, etc., in a single layer in drawers and shelves if possible. If not possible, then place heavy items on bottom even if out of sequence.
- Maximum weight of containers should not exceed 30 lbs.
- Place archival padding between large items for protection and stabilization.
- A specimen list or provenience(s) should either be written in pencil or archival ink on the exterior of the container or on acid-free paper in a sleeve attached to the exterior of the container. There should also be a box inventory on acid-free paper on the interior.

Cataloging

Griset and Kodack (1999:41, Table 7; 53–54) offer guidelines for cataloging as outlined below. Supplemental information from other sources is indicated.

Definitions
- Cataloging is the process of assigning a unique identifying number to an object or specimen, recording a description of the object, its dimensions, and provenience. A photograph may also be made.
- A catalog is the list of all specimen or object numbers in a single collection. Note that *accession numbers* are given to *collections* and *catalog numbers* to *objects within a collection* and each is recorded separately (Simmons 2006:38).

When cataloging:

- Assign a unique specimen number to each object.
- A single number can be assigned to similar objects collected from a single provenience or that are bulk analysis items, such as faunal remains, debitage, glass, or shell.
- Previous field, laboratory, or temporary numbers should be cross-referenced in the catalog and left on the object.
- Abbreviations and codes should be kept to a minimum; provide a key If any are used.
- Record the specimen number and all associated data (provenience, condition, and description) in a catalog or computerized database.
- The catalog should have: accession number; specimen number; object description; material class; form; typological assignment; analyst name and date analyzed; quantity; measurements; weight (if appropriate); geographic location; specific location; associated features and artifacts; chronological data; collector; date collected; comments on condition, conservation treatment, etc.
- Create a finding aid and maintain both a paper and electronic version.

Preventive Conservation and Storage

Simmons (2006:98) states that "Preventive conservation refers to actions taken to ensure that the agents of deterioration that affect the collections are detected, avoided, blocked, or mitigated." He also notes that 90 percent of preventive conservation is accomplished by controlling the storage environment.

Griset and Kodack (1999:39–40; 42, Table 7; 46; 51; 71–84) offer guidelines for handling, packaging, and storing artifacts. These are outlined below and supplemented by other sources as indicated. These techniques are not meant to substitute for proper conservation and packaging by a professional conservator. These procedures should only be used to slow deterioration until a professional conservator is consulted. Finally, it is always a good idea to research what the latest recommended conservation techniques are, as new procedures are constantly being developed.

Causes and Types of Damage

- Environmental factors include temperature, humidity, ultraviolet radiation, infrared radiation, air pollution, acidity, pests, mold, fire, water, contaminants, and visible light.
- Cumulative or direct physical forces, including gravity, dropping, inadequate support, and abrasion (Simmons 2006:101, Table 12.1).
- Deterioration caused by the intrinsic nature of the object or inherent qualities of the material (Simmons 2006:101, Table 12.1).
- Types of damage include hydration, dehydration, oxidation, mold growth, pest damage, and embrittlement.

Prior to the Field

- Prefield research should be performed so that proper conservation techniques are identified and budgeted.
- The collecting strategy should identify the sample or number of artifacts of each material class or artifact type to be conserved (Childs and Corcoran 2000, www.nps.gov/history/archeology/ collections/prior_01.htm; Sullivan and Childs 2003:80-83).

In the Field

- Archival materials should be used to collect and transport specimens because there may be considerable lag time between collection and processing.
- Consider that all temporary actions may have permanent effects.
- See "In the Field" under "Material Remains" above for specifics.

In the Laboratory and Repository

- Perform an initial condition assessment.

- Prioritize conservation needs.
- Perform treatments as necessary.
- Maintain records of all treatments.
- Tie all conservation records to the master catalog.
- Records should list the conservation materials and methods used.
- Record if an object will continue to need special handling.
- Note that 36 CFR 79.9(5)(iii) states that a sample of unaltered material will be retained and only dry brushed if that material is to be treated with chemicals or preservatives that will permanently alter it.

Preventive Conservation and Storage by Material Class

Faunal bone, antler, and ivory
- If it is in good condition, then just dry brush.
- Bone from very dry or wet contexts may need to be stored under those same conditions.
- A professional conservator should consolidate poorly preserved bone.

Human bone
- Should only be handled after meeting the NAGPRA requirement to consult with lineal descendants or affiliated tribes (see Footnote 1.). Non-Native American remains should also only be handled after consulting with the descendant family or appropriate cultural-group representative.

Floral and botanical remains
- Are fragile and should be handled and packaged with care.
- Floated specimens should be thoroughly air-dried before they are placed in rigid, inert containers that have plenty of ventilation.
- Processed pollen should remain in its liquid environment (usually glass or polypropylene test tubes), stored appropriately, and routinely checked.

Ceramics and brick
- May be dry brushed or washed with water or spot washed to leave any residues.
- All ceramics should be thoroughly air dried before storage. Salts are the most common problem and may cause spalling or disintegration.
- Professional conservators should be consulted before any consolidation.
- Large pots may be supported by Ethafoam® or padded cotton knit tubes.

Composite materials
- Should be conserved based on the most important component of the artifact.

Glass
- Decay cannot be reversed, but it can be stabilized if kept at optimum humidity.
- Latex gloves should be worn when handling glass.

Leather
- Professional conservators should perform any treatment.
- If dry and stable, it may not need treatment.
- Temperature, humidity, and ventilation are all critical to preserving leather.
- It should also be protected from pests that may consume it.
- Leather treated prior to 1970 may have arsenic or other compounds and should be handled with one-time-use-only gloves.

Metal
- Most metal objects should be left untreated and placed in a dry environment (unless originally in a wet environment).
- Any treatment should be done by a professional conservator and can be costly.
- Lead objects should be handled with gloves, and a respirator may be needed.
- Lead should be stored separately from organic materials.

Plaster, adobe, and like materials
- A professional conservator should perform any consolidation.
- Should not be subjected to rapid desiccation or stored in airtight containers.
- Samples should be stored in rigid walled containers with custom-fitted Ethafoam®.
- Plaster, adobe, and the like containing botanical or similar material should be monitored for infestation.

Plastics
- Are susceptible to oxidation and, as they off-gas, can be harmful to other items, especially metal, as well as humans.
- Ideal humidity levels depend on the type of plastic, but serious damage can be avoided by placing items in an area with minimal light; cool, stable temperatures; and good ventilation.
- Cellulose nitrate items should be segregated and not touch one another.
- Plastics should not be placed in polyethylene bags because the off-gasses will accumulate and cause further damage.

Worked shell
- Should always be treated by a professional conservator.

Unmodified shell
- Should be gently dry brushed.
- If washed, shell should be thoroughly air-dried.
- Shell should never be stored in airtight containers.
- High levels of carbonyl pollutants can cause deterioration.
- Large collections should be well ventilated, with constant temperature, humidity, and pollution monitoring.
- Shell will develop crystalline deposits (Byne's diseases) if stored in organic rich environments. Therefore, it should be stored in acid free boxes, polycarbonate plastic boxes, or polyethylene bags (Brady et al. 2006 http://www.sha.org/research_resources/conservation_faqs/treatment.cfm).

Soil Samples
- If called for in the research design, and if there is adequate curation space, leave a predetermined sample of soil unprocessed for future studies. Soil samples are especially bulky, and only the smallest amount necessary for precise and accurate analysis should be retained (see Chapter 5, Culling and Deaccessioning, for more information and the "Department of Defense Guidelines for the Curation of Archaeological Soil Samples" (2000) [http://www.denix.osd.mil/portal/page/portal/content/environment/CR/Curation/CollectionGuidance/DODSOILGUIDELINES_0.DOC])
- They should be thoroughly dried and placed in polyethylene bags or other rigid containers.
- The containers should be labeled on the interior and exterior.
- Interior tags of Tyvek® are recommended.
- They should be stored at less than 65% relative humidity.

Stone
- If stone is washed, it should be thoroughly dried and ventilated.
- Formed tools and artifacts should be stored individually and properly padded.
- Large items should not be directly placed on the floor and should be covered by polyethylene sheeting.

Textiles
- Should be kept at constant temperature and humidity levels (ca. 50%) and stored in a dark, acid-free environment.
- Appropriate light and UV levels should be used for a minimum amount of time.
- Cloth or polyethylene gloves should be used when handling.
- Unfolding, etc., should only be done by a professional conservator.
- A low-suction vacuum with a rheostat can be used to clean textiles.
- Other treatments should be done be a professional conservator. Before and after photographs should be taken if changes will be affected.

Basketry and cordage
- Should be kept in environmental conditions similar to those for textiles.
- Large specimens should be placed in a nest of acid free tissue in an acid free box for support and to avoid handling.
- The box should be tied with cotton twill tape and labeled with "Fragile" and directional arrows. The box should be placed in storage as is and not put in a bag or otherwise covered.
- Small fragments can be placed in properly padded boxes or encapsulated in two polyester/Mylar® sheets enclosed with double-sided tape.

Wood
- Can be dry brushed, vacuumed, or cleaned with wooden (not metal) tools.
- If from a moist environment, the wood should be packed in wet polyethylene sheeting, or if small, triple bagged in polyethylene resealing bags and refrigerated until conserved by a professional.
- Humidity and temperature levels should be appropriate and consistent during storage.
- Light, airborne contaminants, handling, and dust should all be kept to a minimum.

Making Conservation Decisions

Conservation by a professional conservator can be expensive and time consuming. Fortunately, not every artifact needs to be conserved. Some things to consider when deciding whether to seek professional conservation treatment include:

- Is there enough funding to do an adequate job?
- What is the information potential of the artifact? Are there things that can only be learned if it is conserved?
- How does the artifact and its information potential fit into the research design?
- What is the intended disposition of the artifact?
- Are there alternative, non-invasive techniques, such as x-Radiography, that can yield useful information?
- Are there multiple examples of the artifact type?
- Will it be undergoing instrumental analysis? (Brady et al. 2006 http://www.sha.org/research _resources/conservation_faqs/whowhat.cfm)

A good resource to use when selecting a professional conservator or a conservation treatment is the American Institute for Conservation of Historic and Artistic Works' (AIC) website (http://www. conservation-us.org/).

Associated Documents

Sullivan and Childs (2003:2) make the very important point that associated documents are what distinguish a true archaeological collection from an antiquarian collection. That is because associated documents are where the data and knowledge accumulated about a collection are stored. That information is necessary to make a collection useful for research, education, and heritage purposes. The Governor's Archaeology Advisory Commission (GAAC) Curation Subcommittee in Arizona states that "museum collections are like books in a library; researchers constantly return to them as knowledge expands" (Lyons et al. 2006:1). In turn, researchers use collections to expand knowledge. Increasingly repositories are rehabilitating collections to make them more accessible. A large and important part of the rehabilitation process is reassociating material remains with their documentation and creating finding aids that make those resources available to researchers and the public (Barker 2004; Marino 2004). Because rehabilitation can be time-consuming and expensive, it is best to process, catalog, and conserve both material remains and associated documents in the field and the laboratory and not leave the entire responsibility to the repository.

Definitions of Associated Documents

Griset and Kodack (1999:62) make a distinction between record *format* and record *content*. The format dictates the storage requirements, and the content influences the value of the document.

Format types
- Paper records
- Cartographic materials
- Photographic media
- Audio and video tapes
- Electronic media (Griset and Kodack 1999:61)

Content categories
- Administrative records (e.g., scopes of work, progress reports, correspondence)
- Background information (e.g., historic oversize maps, historic photographs, census records)
- Field records (e.g., photographs of excavations, feature and profile forms, daily logs or journals)
- Analysis records (e.g., catalog cards, database-generated artifact analyses, photographs of unique artifacts)
- Report records (annotated drafts, electronic and hard copies of final reports) (Griset and Kodack 1999:61)

Possible Types of Associated Records (in alphabetical order)
- Accession records, administrative records, aerial photographs, antiquities permits, architectural and landscape plans, artifact inventories, audio tapes
- Birth, marriage, and death certificates; books
- Catalogs, census records, compliance (Section 106) documents, computer cards and tapes, computer databases, computer disks and diskettes, contracts, correspondence, curation agreements
- Daily logs, deeds, diaries, digital data (e.g., global positioning data [GPS], computer assisted design [CAD] models), digital photographs, draft and final reports, drawings

- Fathometer readings, field notes, film
- Historical maps
- Immigration and naturalization papers
- Laboratory reports, ledgers, level records, literature search results
- Magnetometer readings, manuscripts, military records
- Negatives, NRHP nomination and determination eligibility forms
- Oral histories
- Photographs, printouts of computerized data, published articles
- Radar readings, receipts, reports, requests for proposals, research proposals
- Satellite imagery, scopes of work, side scan sonar, site forms, site maps, site records searches, slides, subbottom profiles, survey plats, survey records
- Tax forms and reports, title searches, topographic maps
- Video (36 CFR 79.99[b][1]; Childs and Corcoran 2000, www.nps.gov/history/archeology/collections/mgt_01.htm; Griset and Kodack 1999:42)

Preventative Conservation and Storage

In the Field

Griset and Kodack (1999:48) offer some guidelines for the use of associated documents in the field. These have been supplemented here by additional sources:

- Establish a system for keeping documents organized (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/).
- Evaluate and reevaluate the importance of documents as the project progresses (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/).
- Use waterproof, archival materials for all paper records, including field journals. The best choice is high alpha cellulose, lignin free, and acid free paper (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Field_02).
- Do not use only electronic media for records, make a hard copy backup (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/).
- Keep electronic media away from magnetic or electric fields such as magnetometers and 12-volt transformers (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Field_02).
- Use No. 3 or 4 pencils or H or 2H lead in mechanical pencils.
- Use carbon-based permanent ink.
- Do not use colored or soluble ink.
- Do not use tape, metal fasteners, or rubber bands to fasten paper.
- Maps and large documents should be rolled, not folded (Drew 2004:57).

In the Laboratory and Repository

Initial Assessment and Arrangement

Griset and Kodack (1999:41, Table 7; 70 –71) offer some guidelines for the assessment and arrangement of associated documents once they are in the laboratory or repository.

- Assess associated documents for condition, retention, necessary conservation treatment, and completeness.
- Index by format type and content.
- If appropriate, organize and arrange according to the guidelines in the pertinent records management plan.
- Provenance is usually the overriding key.

- Arrangements will depend on the collection itself and may be chronological, topical, numerical, or alphabetical or some combination.
- They should be arranged in series and subseries, e.g., *series* may be administrative records, survey records, analysis records, and reports; e.g., the *subseries* of the administrative records may include correspondence, meeting notes, and Section 106 compliance documents.
- Each individual file should be arranged chronologically with the earliest document in front. Undated documents are placed at the back.
- A Curation History for all documents should be kept in the accession or master file.
- A duplicate or safety copy of all documents should be made for use. The originals should be stored in a separate building with fireproof and archival conditions. The copies should be printed with a laser printer on acid free paper, archival microfilm, or electronic media such as digital scanning or CD-ROM.

Packaging and Labeling
Griset and Kodack (1999:41, Table 7) offer guidelines for packaging and labeling associated documents once they are in the laboratory or repository. These have been supplemented by other sources as indicated.
- Use archival quality containers suitable for each media (see Preventative Conservation and Storage by Document Type below).
- Number the repackaged documents. The accession number may be used as a prefix. The documents themselves or their folders may be labeled with the number.
- Folders should be labeled using archival adhesive tape, indelible ink, or #4 (2H) graphite pencil.
- The folder label should include the collection name or accession number, series, description of contents, and dates. It may also include the unique file title, file number, box number, and the agency's name (Drew 2004:63). Oversize documents (e.g., maps) should be labeled the same way.
- If paper is labeled directly, use the reverse edge, a #4 (2H) graphite pencil, use very little pressure, and write small (Childs and Corcoran 2000, www.nps.gov/history/archeology/collections/Mtg_01a.htm).
- Label photographic media with foil-backed archival labels, or label the sleeve or envelope.
- Attach labels to audiovisual and electronic media.
- Label box, folder, or other cross-referencing tools.
- Labels may be produced by direct labeling in indelible ink or with a #3 graphite pencil.
- Adhesive archival labels (generally, foil-backed) may be printed on a laser printer.
- Stainless steel paper clips, Clam Clips©, and string may be used (Drew 2004:58).

Creating a Finding Aid
Griset and Kodack (1999:70–71) offer guidelines for creating a finding aid. These have been supplemented by other sources as indicated.
- A finding aid should be created for the collection both as a paper and electronic version.
- Databases are helpful for organizing and quickly retrieving information, particularly for large collections.
- The finding aid should have:
  o An Introduction or abstract describing contents, origins, and research strengths.
  o A Methods section or synopsis of the curation history may be included (Drew 2004:64).
  o A Scope and Content Note covering the same topics as the introduction but in more detail with any additional comments or notes.
  o A Series Description may be included (Drew 2004:64).
  o A Container List that gives the filing order and contents, including box and folder numbers and labels.
  o An Index, usually not necessary if using a database.

- The archival profession has a standard for archival finding aids in both paper and Web-encoded form called Encoded Archival Description (EAD) (http://www.loc.gov/ead/) (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_01.htm).

Preventative Conservation and Storage by Document Type

The preventive conservation and storage techniques outlined below are not meant as substitutes for proper conservation by a trained conservator or archivist. These procedures should only be used to slow deterioration until trained professionals are consulted.

Griset and Kodack (1999:84–90) offer guidelines for conserving and storing associated documents by type. These have been supplemented by other sources as indicated. One of the best resources on document conservation; including of paper, photographs, audiovisual, and digital records, is the Library of Congress's webpage "Preservation" (http://www.loc.gov/preserv/).

Increasingly, associated documents are not paper documents but are electronic or digital in nature. With the rapid obsolescence of software and hardware technologies and data formats, it is becoming increasingly important for archives and repositories to develop digital preservation plans. Digital preservation plans define what electronic and digital documents are at risk, outline the periodicity of data migration to new formats, outline the methods for migration and updating formats and technologies, and outline how the migration will be documented. The Society of American Archivists has several useful publications on digital preservation (http://www.archivists.org/index.asp).

Paper records
- Should be placed in acid free folders or polyethylene, polypropylene, or polyester/Mylar® sleeves.
- Should be placed vertically in archival boxes with archival spacers to prevent warping.
- They may be placed in baked-enamel metal file cabinets if used frequently.
- Most paper is acidic and will last only 50 years; and colored inks, felt tips, and ballpoint ink are relatively unstable. Therefore, documents should be photocopied onto acid-free paper.
- Newsprint, carbon copies, Photostats, and oilskin, in particular, should be copied and discarded (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_02.htm).
- If kept, blueprints and newsprint should be stored separately because they are unstable (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_02.htm).
- Remove all fasteners (e.g., paper clips) and adhesives (e.g., Post-it® notes).
- Use zip-staplers or archival paper clips.
- Should be kept in dark, dry, cool places with ideal temperature of 60 –75º and humidity of 30–55% (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_02.htm).
- Use filtration systems and integrated pest management.

Oversize documents
- Should be laid flat if under six feet long or can be carefully rolled into archival quality tubes.
- Should be placed flat in baked enamel map cases or in acid free or alkaline buffered boxes.
- If produced by early reproduction equipment, check with a professional conservator about proper storage.
- Deacidifying and humidifying for flattening should be done by a professional conservator.
- Documents that are very fragile or frequently handled may be encapsulated in Mylar®.
- May be soft brushed or erased with a vinyl eraser.
- May be repaired using Japanese tissue and wheat starch.
- Adhesives may be removed using appropriate solvents.

Photographs, negatives, slides, and digital photographs
- Photographs should only be handled while wearing white cotton or natrile (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_01a.htm) gloves to prevent transfer of acids from the hands.
- Copies should be made, especially of sepia toned and color prints, which can lose their color in only 10 years.
- Photographs should be stored in individual envelopes or sleeves made of polyethylene, polypropylene, or polyester/Mylar®.
- Do not use Glassine, vinyl, PVC, or paper envelopes or sleeves.
- The envelopes or sleeves should be directly labeled with indelible ink.
- Photographs can be labeled directly (with indelible ink on reverse side) or indirectly (using foil labels).
- The same image in different formats (print, slide, digital, or negative) should be given the same number and noted in the finding aid.
- Photographs and negatives should be arranged according to format, and each image should be numbered.
- Photographs in sleeves can be placed in acid free boxes, archival notebooks, or baked enamel storage cabinets.
- Only negative containers should be labeled. Only basic information such as the identifying number should be put on the negative itself. Other information should placed in the catalog or finding aid.
- Black-and-white negatives dating prior to 1947 are likely nitrate based and extremely flammable. They should be copied and then handed over to the fire department for disposal.
- Slides can be placed upright in metal slide boxes.
- Slides should be labeled on the nonemulsion side.
- All photographic media should be kept away from sunlight and other UV radiation in a clean, particulate free environment.
- All photographic media should be kept at less than 68ºF and 30% humidity if possible. If not, then in a constant environment. Digital photographs should be printed onto archival quality paper, labeled, cross-referenced, and stored appropriately (see Electronic media below).
- Digital photograph files should be saved in non-proprietary formats, such as TIFF, BMP, or JPG formats.
- Digital photographs should be backed up or archived onto high quality CDs or DVDs, and then the disks should be stored appropriately (see Electronic media below).
- Digital photographs will need to be periodically moved to new formats as hardware and software technology advances.
- A note in the curation history should be made indicating the file format, software used, and date of last data migration.

Audiovisual material
- If possible, should go to a specialist for conservation.
- A written transcript should be made of audio media.
- Should be labeled with indelible ink if possible or with a foil backed label.
- Should be given unique numbers and further described in the catalog or finding aid.
- Should be placed in acid free boxes.
- Should be placed away from electromagnetic fields.
- Should be kept dust free by using a filtration system.
- Compact disks (CDs), DVDs, and similar disks should be stored vertically, placed in archival sleeves, and they should be handled by the edges while wearing gloves.
- Cassettes should be transferred to reel-to-reel or other media.
- Videotapes should be stored in play position and only rewound slowly.

- Videotapes should be transferred to DVDs or other media.
- Nitrate based films (pre–1950) can be combustible and should be handled with the same care and provisions as nitrate negatives (i.e., copied and then handed over to the fire department for disposal).
- Audiovisual media should be stored separately and kept at a low and constant temperature (<68ºF) and humidity (35%).

Electronic media
- Should be checked for viruses and errors.
- Both an electronic and hard copy should be made.
- Hard copies of all files should be made on acid free paper and labeled with the number of the corresponding electronic media, file name, and the software used.
- Magnetic media such as diskettes, floppy disks, hard drives, DAT, and similar tapes are susceptible to magnetic fields, static, dust, and humidity. Optical media (CDs and the like) are more stable.
- Do not use rewritable disks.
- Electronic media should be numbered, labeled directly, and further described in the catalog or finding aid.
- Do not use stickers to label disks, use pens designed specifically for labeling disks.
- For each electronic file, record the format, version of the software used, date of creation, creator's name, file relations, and database structure and related scripts or macros (Sullivan and Childs 2003:37–38).
- The type of software used should be carefully considered for compatibility and long-term utility (Sullivan and Childs 2003:37–38).
- Electronic files will need to be transferred to new media periodically. Most have only a 10-year life span because of hard and software compatibility issues.
- Document each transfer or update (Sullivan and Childs 2003:37–38).
- Use publicly defined file formats rather than proprietary formats. For example, do not use Word's Doc format but RTF or uncompressed TIFF format (Childs and Corcoran 2000, www.nps.gov/history/archeology/collections/Field_02.htm; Eiteljorg 2004).
- Do not embed files such as photographic files within a text file because that complicates data migration (Eiteljorg 2004).
- Avoid using glossy or compressed formats for photographic files (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Field_02.htm).
- Disks should be placed in polypropylene containers.
- Corrosion Intercept® pollutant scavenger inserts may be added to protect CDs from gases and fumes in the environment (Brady et al. 2006 http://www.sha.org/research_resources/conservation_faqs/curation.cfm).
- Should be stored in a cool, dry, environment with 20–30% humidity.
- A good resource is the Library of Congress's "Digital Preservation" webpage (http://www.digitalpreservation.gov/).

Microfilm
- Archival microfilm has a life expectancy of 500 years, is standardized, and stable.
- When produced, a master negative, printing master, and service copy are made.
- Microfilm should be checked for legibility after it is produced.
- Storage should be dark and dust-free with stable temperature and humidity.

There is more to processing, cataloging, and conserving collections and associated documents than simply preparing them for storage or exhibition. In order for a collection to be useful for generations of researchers and the public, it must be well cared for, accessible, and understandable. Increasingly the importance

of associated documentation, including electronic documents and records, is being recognized. This is because provenience information is one of the keys to understanding archaeological materials and, hence, the past. If that information is lost, then a collection becomes virtually useless for research or interpretation. Similarly, if an object deteriorates too much, any inherent information is also lost. The three most important tasks for field, laboratory, and repository personnel, then, is to judiciously conserve objects, to preserve associated documents, and most importantly, to maintain the linkages between them. The methods for processing, cataloging, and conserving collections are similar and well established across institutions in the United States. The key is ensuring that all personnel are trained in the methods and have access to the materials and information that they need.

Curation and Accessioning

Federal Laws

36 CFR 79 is primarily concerned with repository facilities and services and offers more specifics about curation and accessioning than it does other aspects of collections management. It states that Federal government collections may be curated in a museum; archaeological center; laboratory or storage facility managed by a university, college, museum; other educational or scientific institution; a Federal, state, or local government agency; or Indian tribe. Guidelines for selecting a repository include:
- It is in the state where the collection originated.
- It stores collections from the same site or project location.
- It stores collections from a similar geographic or cultural area.
- The collection should not be subdivided unless to meet special storage, conservation, or research needs.
- Material remains and associated records should be in the same repository.

Options for curatorial services include:
- Repositories owned, leased, or operated by the Federal agency concerned.
- Entering into a contract or purchase order with one of the above types of repositories.
- Entering into a cooperative agreement, Memorandum of Understanding (MOU), or Memorandum of Agreement (MOA) with one of the above types of repositories.
- Entering into an interagency agreement with another Federal agency.
- Transferring the collection to another Federal agency.
- Requiring the permittee to provide curatorial services as a condition of a permit.

Repositories housing Federal collections should be able to do the following on a long-term basis, using professional museum and archival practices:
- Accession
- Label
- Catalog
- Store
- Maintain
- Inventory
- Conserve

In addition, repositories housing Federal collections should:
- Have a physical plant that meets local fire, building, health, and safety codes.
- Have intrusion detection and deterrent systems.
- Have emergency management plans for fires, floods, natural disasters, civil unrest, acts of violence, structural and mechanical failures.
- Have additional security for fragile and valuable items.
- Be able to limit access and control.
- Have a staff of qualified museum professionals.
- Be able to preserve against breakage and deterioration.

Department of Defense

Depending on their mission, funding, and type and extent of cultural resources, the Department of Defense (DoD) Service branches have different policies about curation and accessioning. Both the Air Force (Air Force Instruction [AFI] 32-7065 *Cultural Resources Management Program*; June 1, 2004) (http://www.e-publishing.af.mil/shared/media/epubs/AFI32-7065.pdf) and the Army (Army Regulation 200-1: *Environmental Quality, Environmental Protection and Enhancement*; Section 6-4.e(6); December 13, 2007) (http://www.usapa.army.mil) strongly discourage the establishment of curation facilities on installations. The Navy requires that Commanding Generals and Officers "Provide for storage and professional curation of archaeological collections, including samples and associated records that might accrue in carrying out legal compliance actions" and references 36 CFR 800, 36 CFR 79, and 32 CFR 229 for further guidance (OPNAVINST 5090.1C: *Environmental Readiness Program Manual*; Section 27-6.5(l); October 30, 2007; http://www.navy.mil/oceans/5090_1C_Manual.pdf and Marine Corps Order P5090.2A: *Environmental Compliance and Protection Manual*; Chapter 8, 8301.11; July 10, 1998; http://www.usmc.mil/news/publications/Documents/MCO%20P5090.2A.pdf).The Navy also states that ARPA permits must explicitly address curation in accordance with 36 CFR 79 (Section 27-4.6.a).

The service branch with some of the most extensive collections, the U.S. Army Corps of Engineers (USACE), also provides the most comprehensive set of policies and procedures for curation. Engineering Regulation (ER) 1130-2-540 *Project Operations–Environmental Stewardship Operations and Mainte-nance Guidance and Procedures* (updated July 31, 2005) (http://140.194.76.129/publications/eng-regs/er1130-2-540/toc.htm) provides guidance on how to secure curation services, which facilities are pre-ferred and appropriate, procedures for assessing and evaluating existing collections, as well as details on proper processing, conservation, and documentation of both material remains and associated records. It also includes standards for USACE Collections Management Centers, including accessions, storage, and security (Chapter 6). Engineering Pamphlet (EP) 1130-2-540 *Project Operations–Environmental Stew-ardship Operations and Maintenance Guidance and Procedures* (updated July 31, 2005) (http://140.194.76.129/publications/eng-pamphlets/ep1130-2-540/toc.htm) supplements ER 1130-2-540. Chapter 6 "establishes guidance for the management of collecting, preserving and curating archeological and his-torical materials at civil works water resources projects" (6-1). DoD Legacy Resource Management Program Project 00-107 *Commander's Guide to Archaeological Curation–Workbook* (February 2005), produced by the MCX-CMAC for installation personnel with limited curatorial experience, is essentially a roadmap to the pertinent laws and curation procedures.

Other Federal Agencies

The policies for curation and accessioning also vary across the other Federal agencies. Bureau of Land Management (BLM) Manual 8100 Series: *The Foundations for Managing Cultural Resources* (Section 8140.1.B.7; December 3, 2004) (http://www.blm.gov/heritage/docum/manual/Binder2-2.pdf) simply states that collections and records resulting from data recovery should "be curated at a qualified repos-itory within the geographic region." However, the BLM is currently drafting its own museum policies and procedures (Ms. Emily S. Palus [personal communication 2007]). In the interim, they are following the Department of Interior's [DOI] *Museum Property Handbook* standards. The three repositories operated by the BLM (Anasazi Heritage Center Dolores Colorado, Billings Curation Center Billings, Montana, and the National Oregon Trail Interpretive Center Flagstaff Hill, Oregon) each have their own curation guide-lines. Similarly, the Bureau of Reclamation (BOR) Manual (*Program Series Land Management and De-velopment* [LND 02-01]: *Directives and Standards;* Section 3.E.; March 13, 1998)

(http://www.usbr.gov/recman/lnd/lnd02-01.pdf) states that curation activities are to follow the provisions of the DOI's *Museum Property Handbook.*

Similarly, the U.S. Fish and Wildlife Service (USFWS) Manual Series 600 Land Use and Management: *Cultural Resources Management* (Part 614, FW1–FW5; Section 4.3.A; November 18, 1992) (http://www.fws.gov/policy/manuals/part.cfm?series=600&seriestitle=LAND%20USE%20AND%20MANAGEMENT%20SERIES) states that collections will be maintained according to the standards of 36 CFR 79 and applicable DOI and USFWS manuals. This includes USFWS Manual Series 100 External Relations and Outreach: *Library and Museum Services* (Part 126, FW1–FW3; October 7, 1997) (http://www.fws.gov/policy/manuals/part.cfm?series=100&seriestitle=EXTERNAL%20RELATIONS%20AND%20OUTREACH%20SERIES#126), which enumerates the policies and standards for managing museum property collections, including accessions, environmental controls, integrated pest management, security, storage, and similar topics. The U.S. Forest Service (USFS) Manual: *Cultural Resources* (*Title 2300 – Recreation, Wilderness, and Related Resource Management*; Section 2361–2361.7c; June 21, 1990) (http://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsm?2300) states that cultural resources and associated records recovered under permit, contract, or cooperative agreement will be curated by the agency or institution involved or designated depository. Cultural resources recovered by USFS personnel will be curated in local depositories if possible, otherwise they will be curated by the Smithsonian Institution. The USFS will rarely establish its own depository (Section 2361.29b).

The Department of Energy's (DOE) *Environmental Guidelines for Development of Cultural Resources Management Plans—Update* (DOE G 450.1–3; September 22, 2004) (https://www.directives.doe.gov/pdfs/doe/doetext/neword/450/g4501-3.pdf) is a guide for field managers at individual DOE facilities or programs to help them develop their own cultural resource management plan (CRMP). Section 3.4.6 states that CRMPs should "[i]dentify facilities and procedures for internal curation and arrangements for external curation." Also, CRMPs should "[d]escribe the strategy for involving tribal elders, traditional leaders, and other technical experts in curation of cultural resources." They should also address collection policies, scope of collections, and assess whether they are adequately curated.

The *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [as Amended and Annotated] (September 29, 1983) (http://www.nps.gov/history/local-law/arch_stnds_0.htm) states that archaeological "specimens and records" must be curated in "facilities with adequate space, facilities, [and] professional personnel;" that artifacts and their informational value are "not lost through deterioration;" that "records are maintained to a professional archival standard;" and that "collections are available for interpretive purposes, subject to reasonable security precautions." The *Museum Property Handbook* (March 19, 1997) (http://www.doi.gov/museum/policy/pdf/mphi-1.pdf) consists of Chapter 1 "Policy and Responsibilities for Managing Museum Property;" Chapter 2 "Actions Required for Managing Museum Property;" and Chapter 3 "Standards for Managing Museum Property." They establish and outline policies and standards that are detailed in *Volume I, Preservation and Protection of Museum Property,* which addresses storage, security, emergency planning, planning proper curation, and other topics and *Volume II, Documentation of Museum Property,* which discusses accessioning, inventorying, and related topics.

As lead agency, the National Park Service (NPS) provides many guidelines and resources for curation and accessioning. *Museum Handbook, Part I: Museum Collections* (last update November 7, 2006) (http://www.nps.gov/history/museum/publications/handbook.html) covers planning, preservation, and protection, including storage, environmental controls, health and safety, and emergency preparedness. *Museum Handbook, Part II: Museum Records* (last update November 7, 2006) covers accessioning, inventorying, and related topics. The NPS *Conserve O Grams* (1993–present) (http://www.nps.gov/history/museum/publications/conserveogram/conserv.html) are leaflets that provide up-to-date information on various curation procedures and techniques. There are over 150 *Conserve O Grams* organized into 21 topical areas, including security and disaster response. The NPS Management Policies *Cultural Resource Management* (2001, Chapter 5) (http://www.nps.gov/refdesk/mp/chapter5.htm) outline the NPS policies on a wide range of cultural resource issues, including inventories, emergency management, pest management, acquisition, and related topics. Finally, the online NPS distance-learning program *Mana-*

ging Archeological Collections: Technical Assistance (S. Terry Childs and Eileen Corcoran 2000) (http://www.nps.gov/history/archeology/collections/index.htm), a companion to the book *Curating Archaeological Collections: From the Field to the Repository* (Sullivan and Childs 2003), includes discussion of curation planning, storage, environmental controls, and similar issues. The book *Curating Archaeological Collections: From the Field to the Repository* (Sullivan and Childs 2003), although not sponsored or published by the NPS, addresses the curation of archaeological collections and records. It covers the history of archaeological curation in the United States, Federal legislation and policies, repository responsibilities, basic curation practices (acquisition, accessioning, cataloging, conservation, storage, inventory, deaccessioning, and public access and use), fieldwork and curation (project design, sampling, laboratory conservation, and records management), arranging long-term curation, use of curated collections, and the future of curation.

Professional Societies

The Society for American Archaeology's (SAA) *Principles of Archaeological Ethics* (Lynott and Wylie 2000:11–12) outlines eight ethical principles. The seventh is "Records and Preservation." It states:

> [a]rchaeologists should work actively for the preservation of, and long-term access to, archaeological collections, records, and reports. To this end, they should encourage colleagues, students, and others to make responsible use of collections, records, and reports in their research as one means of preserving the *in situ* archaeological record, and of increasing care and attention given to that portion of the archaeological record which has been removed and incorporated into archaeological collections, records, and reports.

In *Our Collective Responsibility: The Ethics and Practice of Archaeological Collections Stewardship* (Childs 2004:v–xi), seven "Guidelines to Implement SAA Ethic #7, Records and Preservation" are outlined. The book contains seven parts with chapters that address each of the suggested guidelines. They include ethical stewardship of collections and associated records; maintaining and renewing the integrity of collections and associated records; preserving and archiving associated records; using existing collections and records for research; project planning and curation; public access and education; and training archaeologists in curation, preservation, conservation, and collections and archives management.

The *Society for Historical Archaeology Standards and Guidelines for the Curation of Archaeological Collections* (http://www.sha.org/research_resources/curation_standards.cfm) addresses cleaning, labeling, storage, documentation, conservation, environmental controls, deaccessioning, and human remains. The Register of Professional Archaeologists's (RPA) *Standards of Research Performance* (http://www.rpanet .org/displaycommon.cfm?an=1&subarticlenbr=4) state that an archaeologist has the responsibility to "[e]nsure the availability of adequate and competent staff and support facilities to carry the project to completion, and of adequate curatorial facilities for specimens and records" (Section I.1.4). It also states that "[s]pecimens and research records resulting from a project must be deposited at an institution with permanent curatorial facilities, unless otherwise required by law" (Section V). The American Association of Museums (AAM) published *Things Great and Small: Collection Management Policies* (Simmons 2006), which addresses collection management from a strictly museum perspective. Topics covered include scope of collections, acquisitions, accessions, deaccessioning, disposal, loans, documentation, conservation, access and use, risk management, insurance, intellectual property, ethics, and appraisals. Appendices include laws and legislation and the AAM's *Code of Ethics for Museums*.

Overview of Current Standards and Guidelines for Archaeological Curation and Accessioning of Collections

Most Federal agencies do not have their own curatorial facilities, and many are strongly discouraged from establishing their own facilities. That means that most Federal collections are curated by non-Federal institutions. However, Federal agency policies and standards on curation and accessioning are strongly driven by 36 CFR 79, which calls for periodic assessment of curatorial facilities (36 CFR 79.11). In addition the DOI's *Museum Property Handbook* requires annual inventories of items over a certain value and a random sampling of all others (Sullivan and Childs 2003:71). Guidelines for assessment of non-Federal repositories are often lacking in agency policies, although Federal agencies are becoming increasingly diligent about assessing non-Federal facilities housing their collections (e.g., Luke Air Force Base [Sterner and Herbert 2005] and various Archaeological Curation-Needs Assessment reports produced by the MCX-CMAC available online: http://www.mvs.usace.army.mil/engr/curation/Pubs.htm). Both Federal agencies and professional societies emphasize that collections should, at a minimum, be housed in the same geographic region from which they were recovered, and that material remains and associated documents should be curated together. Also, curation facilities should have professional personnel, be secure against unauthorized intrusion, be secure against natural and man-made disasters, have an emergency management plan, and have a pest management program.

Recommended Practices for Curation and Accessioning

Sullivan and Childs (2003:33) note that archaeologists often regard curation as a storage problem rather than as a process of banking irreplaceable data, objects, and documents for research, education, and as a foundation for cultural heritage. This means that curation is often not adequately planned for before a project begins. Curation decisions should be made during project planning, including deciding which facility will house the collection, evaluating whether the facility is capable of housing the collection (i.e., at least meets 36 CFR 79 specifications), getting or negotiating a fee schedule, and making repository agreements (Sullivan and Childs 2003:81–83). Many of the procedures recommended below are from the USACE's MCX-CMAC report *Guidelines for the Field Collection of Archaeological Materials and Standard Operating Procedures for Curation of Department of Defense Archaeological Collections* (Griset and Kodack 1999) along with the AAM's Things Great and Small: Collections Management Policies (Simmons 2006).

Curation Facilities

36 CFR 79 states that collections should, if at all possible, be housed in the state where the collections were made, in a repository with collections from the same site or project location, or that houses collections from a similar geographic region or cultural area. This ensures that the repository has the appropriate experience, knowledge, and facilities to care for the collection. It also helps to maximize the research potential of the collection by storing material remains and associated records from the same region, culture, or time period in one place. For the same reasons 36 CFR 79 requires that collections not be subdivided and that material remains and associated records be housed in the same repository (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/prior_01.htm).

In many cases Federal agencies have designated repositories. If they do not, things to consider when choosing a repository include (Childs and Corcoran 2000 www.nps.gov/history/archaeology/collections/prior_01.htm; Griset and Kodack 1999:90; Sullivan and Childs 2003:68, Table 5.1):

- Does it meet health and safety requirements?
- Does it have a pest management plan?
- Does it have adequate environmental controls and monitoring?
- Does it secure all storage areas?
- Does it have adequate rules for storage areas?
- Are the staff members qualified professionals as defined in 36 CFR 79.4(6)(h)?
- Does it have collections registration procedures (e.g., accessioning, assessment, cataloging, labeling, packaging, and deaccessioning)?
- Does it store archival quality duplicates of all associated documents in a separate facility?
- Does it have a policy that permits intellectual control of the contents and storage location of all materials and associated documents?
- Does it have a records management policy?
- Does it have collections use and access policies (e.g., loans, duplication, photography, and destructive testing)?
- Does it have a policy for regular monitoring, inspections, and inventories?
- Is monitoring equipment regularly maintained and calibrated?
- Is there regular housekeeping, including cleaning of storage and exhibition space?
- Does it have an emergency management plan?
- Does it have a backlog of collections to process and catalog?
- Is it financially secure?
- Does it segregate materials and associated documents by material class within a collection?
- Does it store materials and associated documents in archival quality containers?
- Does it have policies on exhibition that reduces risk to the objects?
- Will it make no decisions affecting the condition of materials or associated documents without first consulting the appropriate DoD point-of-contact?
- Another good checklist can be found in the DoD Legacy Resource Management Program Project 00-107 *Commander's Guide to Archaeological Curation–Workbook* (February 2005).

Repository Policies

Sullivan and Childs (2003:3) point out that repositories should have policies for making collections, caring for them, and making them accessible (see Chapter 2 Sampling and Acquisition and Chapter 3 Processing, Cataloging, and Conservation). A repository should also have a mission statement, scope of collections, collecting plan, and long-range goals (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/prior_01.htm). Similarly, Simmons (2006:2) suggests that good policies establish the standards that regulate a museum's activities, identify what needs to be done, and provide a framework to help staff make decisions. In turn, collections management procedures give the staff succinct and unambiguous steps about how to implement the actions outlined in the policy. Finally, policies should not be too outdated, complex, or simplistic; ignored; or outside the scope of the museum's mission (Simmons 2006:2–3).

Repository Agreements

Childs and Corcoran (2000: www.nps.gov/history/archeology/collections/prior_01.htm) provide an outline of what should be in a repository agreement:
- Expected condition of the collection upon arrival at the repository. This can include specifics on cataloging (e.g., numbering system, labeling procedures), storage and packing requirements, and expected accompanying documentation or data.

- Details as to what, if any, final preparations for long-term curation are to be done at the repository, including conservation and archival processing and description.
- Costs for any final preparations for long-term care.
- Responsibilities of the repository for collections care.
- Details on ownership, accessibility, and any intellectual property rights issues.
- Details on how deaccessioning is handled (who has authority to make decisions, expected disposition of any deaccessioned objects, etc.).

Professional Qualifications

Griset and Kodack (1999:44, Table 7) list the minimum number and types of professionals that a repository should have:
- One full-time curator (master's or Ph.D. in museum studies or related discipline).
- One full-time collections manager (master's in museum studies or related discipline).
- Access to a professional conservator (master's in conservation).
- Access to a professional archivist (master's or Ph.D. in history, library science, or related discipline).
- The people in these professional roles should meet the minimum standards in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.

Lists of professional staff titles, duties, training, and degrees can be found in Sullivan and Childs (2003: 55, Table 4.1) and on http://www.nps.gov/history/archeology/collections/repos_03.htm (Childs and Corcoran 2000).

Emergency Management Plans

Griset and Kodack (1999:44, Table 7) provide a few guidelines for emergency management plans:
- A written policy concerning fire, flood, natural disaster, civil unrest, and acts of violence should be generated and periodically updated.
- The plan should incorporate the services and facilities available locally from city, county, and state emergency agencies.
- All responsible staff should receive annual training on implementing the plan.
- The plan should be reviewed annually.
- Regular inspections of structures and mechanical systems should be conducted and inadequacies corrected.
- Any emergency management plan should be integrated with existing agency or installation-wide plans.

A good source on creating or updating an emergency management plan is *Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions* published by The Getty Conservation Institution (Dorge and Jones 1999). A second good source is *dPlan™: The Online Disaster-Planning Tool for Cultural and Civic Institutions* (www.Dplan.org) developed by the Northeast Document Conservation Center and the Massachusetts Board of Library Commissioners. It is a free online tool that allows you to enter information about your agency or service branch using a fill-in-the-blank template. It then generates a printed disaster plan specific to your institution. The resulting plan contains contact information for staff and key personnel, preventive maintenance checklists, salvage techniques, and more.

A valuable resource for dealing with emergencies is *Field Guide to Emergency Response: A Vital Tool for Cultural Institutions* produced by the nonprofit Heritage Preservation, Inc., (2006) in support of the Heritage Emergency National Task Force and funded by the National Endowment for the Humanities. Topics covered include emergency contacts, the response team, top ten problems (water, extreme environ-

mental conditions, mold, mud, bleeding dyes, corrosion, soot and ash, broken objects, pests, and hazardous materials), and insurance. It includes a disaster supply shopping list, an emergency assessment form, and an instructional DVD. Also see the Heritage Preservation, Inc. website (http://www.heritagepreservation .org/) for additional information and resources.

The Society for Historical Archaeology website provides a good list of supplies to have on hand for small emergencies (Brady et al. 2006 http://www.sha.org/research_resources/conservation_faqs/plan.cfm). They suggest keeping these supplies in a 50-gallon rolling trash can:

- Packages of white paper towels
- Rolls of plastic sheeting
- Rolls of duct tape
- Large sponges
- Cans of Lysol®
- Flashlights (at least one lamp type and one hand held)
- D batteries and one 6-volt battery (batteries should be replaced annually)
- A copy of the organization's Disaster Recovery Plan in a sturdy binder: may include maps that show where in the building different parts of the collections are stored and emergency contact information for staff.
- Large polyethylene resealing bags containing administrative materials: notepads, pencils, Sharpies®, and one disposable camera (film expiration date should be checked annually)
- Boxes of tape with dispenser
- Pairs of scissors
- One or more three-gallon buckets
- A copy of *Field Guide to Emergency Response: A Vital Tool for Cultural Institutions*, which has an additional supply list for large emergencies.
- One wet-dry vacuum (stored near the rolling trash can)

Inspections and Inventories

Childs and Corcoran (2000 www.nps.gov/history/archeology/collections/laws_04.htm) provide a good synopsis of what 36 CFR 70 requires in terms of inspections and inventories:

- The repository has to give a copy of the catalog list to the Federal agency when a collection is received, periodically inspect and monitor their physical plant, inspect the collection for condition, and periodically inventory the collection.
- The repository has to have qualified professionals do the inventory and inspection work and give copies of the results to the Federal agency.
- The repository has to make the collection accessible to the Federal agency or applicable Indian tribes for periodic inspection.
- The repository must prepare a written notification of the discovery of and circumstances behind any loss, theft of, deterioration or damage to, or destruction of all or part of a collection within five days to the Federal agency owner.
- A Federal agency shall have qualified professional staff who investigate reports of lost, stolen, deteriorated or damaged collections
- A Federal agency should have qualified professional staff who periodically inspect the repositories that house its collections to determine its compliance with minimum standards.
- Fragile or perishable items should be inspected for damage or deterioration on a more frequent basis than stable items.
- Objects and associated records should be handled as little as possible during inspections.
- More valuable artifacts should be inventoried more often.

- Multiple Federal agencies should have interagency agreements for coordinated inspections and inventories when they have collections at the same repository.

The purposes of inventories include:
- Updating location information on objects and associated records.
- Identifying conservation needs.
- Aiding in security and access.
- Planning, budgeting, and accountability. (Child and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_04.htm)

An inventory usually includes:
- Object number and name.
- Location.
- Condition. (Child and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_04.htm)

Inspection intervals and completeness will vary depending on the repository size and staff availability. Inventories may be complete or partial. Partial inventories may be statistically random, done on a rotating basis through sections of the collection, or may be done by "grade" or relative value and importance of objects or sections. On a graded inspection schedule, collections that are rare, valuable, or diagnostic may be frequently inspected (e.g., annually), bulk or redundant collections may be inspected less frequently (e.g., every 2–5 years), and objects used primarily for educational, research, or display purposes may be inspected infrequently (e.g., every 5–10 years) (Simmons 2006:99).

Repository Facilities

Griset and Kodack (1999:42–45, Table 7) outline the safety, health, and security requirements that repositories should meet. These are presented below with supplemental sources as indicated.

Structural Adequacy
- Facilities should meet all local, county, and state building codes.
- Qualified personnel should inspect facilities on a regular basis.

Storage Areas
- Storage areas should be physically separate from offices, research areas, conservation areas, registration activities, or other non-storage functions.
- Access should be restricted and monitored.
- Lights should remain off when personnel are not present.
- No food or beverages allowed.
- If possible, storage areas should have cabinets that can be closed and locked to keep out dust, light, and thieves (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_02a.htm).

Fire Detection and Suppression
- Facilities should have a fire suppression sprinkler system.
- Facilities should have a fire detection system (i.e., heat and smoke sensors).
- A Halon fire suppression system should not be used.
- Fire detection and suppression systems should meet all local, county, state, and Federal codes.
- Qualified personnel should inspect fire detection and suppression systems on a regular schedule.

- Documents should be stored in fire resistant cabinets, safes, or vaults. These should be securable, insulated, and provide protection against fire, smoke, and water damage.
- All documentation should be duplicated and stored separately.

Security
- Facilities should have an appropriate and operational intrusion detection and deterrent system.
- Valuable items and documents (those that are extremely rare or monetarily valuable) should be kept in an environmentally sound safe, vault, or securable cabinet.
- Facilities should be inspected at least once a month for faults and lapses in security.
- Access should be limited to authorized individuals.
- Visitors should be monitored, a record kept of items they used, and all items inspected prior to their departure.
- A sample of the collections should be inspected and inventoried twice a year.
- Facilities should have policies about opening and closing of areas and control of keys (Sullivan and Childs 2003:68, Table 5.1).

Pest Management
- Facilities should use Integrated Pest Management (IPM) to monitor collections for infestation.
- Facilities should use preventative care: identify how pests enter, what they are consuming, and how to eliminate a specific pest.
- Facilities should use sticky traps to monitor insects and mousetraps for rodents and check them monthly.
- Facilities should treat infestations if they occur, but not routinely spray or use chemical treatments if no infestation is evident.
- If an infestation occurs, facilities should isolate the infested object, and treat it and the affected storage area.
- Facilities should use freezing as an alternative to chemical treatment, if possible.

Health Issues
The health issues listed below are just some of the many potential health hazards that can result from archaeological collections and their storage. In many cases, professional hazardous materials (HAZMAT) crews may be needed to decontaminate storage areas or dispose of affected collections. Repositories should have policies for preventing and treating these health issues. A good resource is *Dangerous Places: Health, Safety and Archaeology* (Poirer and Feder 2001), which discusses Lyme disease, rabies, valley fever, hantavirus, plague, histoplasmosis, unexploded ordnance, chemicals, and other health-related topics. The SHA website (Brady et al. 2006 http://www.sha.org/research_resources/conservation _faqs/labmaintain.cfm#B) also has information on hazardous materials and disposing of chemicals.
- Microorganisms such as mold and mildew can cause damage to objects such as leather, wood, paper, and cloth. They can also lead to respiratory issues in humans.
- Asbestos used in buildings between 1940–1975 can contaminate collections and can cause lung disease in humans.
- Residues on objects left from pesticides, including arsenic compounds and mercury salts can cause health problems.
- Hantavirus carried by the saliva and feces of deer mice in the American west can cause serious respiratory illness. This can be a problem with collections brought in from the field or can be caused by mice that get into a repository (Childs and Corcoran 2000 www.nps.gov/history/ archeology/collections/Mgt_02a.htm).
- Anthrax can contaminate soil (e.g., soil samples) and animal products (http://www.cdc.gov/ nczved/dfbmd/disease_listing/anthrax_gi.html).
- Valley fever fungal spores can also contaminate soils in the American southwest (http://www .vfce.arizona.edu/).

Environmental Controls

Sullivan and Childs (2003:67) state that "[m]aintaining environmental standards minimizes the rate of deterioration, extends the lives of objects and records, and reduces the need for conservation treatment." Basic environmental factors to control include temperature, humidity, level and duration of visible light, ultraviolet radiation, and air pollution (Griset and Kodack 1999:39; Sullivan and Childs 2003:68, Table 5.1).

Griset and Kodack (1999:45, Table 7) offer a few guidelines, supplemented by other sources as indicated:

- Facilities should have a heating, ventilation, and air conditioning (HVAC) system in storage areas that maintains a temperature of 55–70º F and humidity of 30–50 percent to prevent mold and fungus. If not economically feasible, then they should use a portable system. It should be noted that rapid fluctuations in temperature or humidity are more damaging than a constant temperature and humidity that are slightly above optimum.
- A hygrothermograph or thermohygrometer should be used to monitor temperature and humidity.
- Filters and vents should be installed to keep dust and soot levels down. Filters should be replaced regularly.
- There should be no windows in storage areas to eliminate UV sunlight.
- UV filters should be placed on overhead lights and changed annually.
- Low wattage light bulbs can be used in collections areas.
- Silica gel may be used to buffer relative humidity (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_02a.htm)

Accessioning Collections

Simmons (2006:37) notes that museums often differentiate between acquisitions, which are collections that are obtained by a museum, but where ownership has not been transferred; and accession where ownership is transferred to the museum. For Federal collections, title and responsibility remain with the Federal government no matter where collections are accessioned or stored (Griset and Kodack 1999:50–51). As a result, Federal collections, especially DoD collections, are rarely accessioned by curatorial facilities. Non-Federal curatorial facilities should state which Federal entity has title of ownership in their acquisition records; and, if the title is transferred, the accession records should note from which Federal entity ownership was transferred (Sullivan and Childs 2003:60–62).

Because there are relatively few Federally owned repositories, most DoD projects will require that the principal investigator find a repository and negotiate a curation agreement prior to beginning fieldwork. They should also acquire a copy of the repository procedures and find out the required specimen number format (Griset and Kodack 1999:50–51). As the curation crisis grows, finding a willing and suitable repository may be increasingly difficult. Simmons (2006:44, Table 7.2) outlines some of the factors that affect repository decisions about accepting collections:

- Are there adequate resources for care of the collection (e.g., space, staff, facilities, etc.)?
- What is the condition of the collection?
- Is there funding to stabilize or restore it?
- Does it duplicate other collections?
- Is there adequate documentation, including of legal title and provenance?
- Are there other legal issues?
- What are potential uses of the collection (e.g., research, reference, loan, exhibition, education, exchange, etc.)?
- Are there public relations issues?
- Is it relevant to the mission and scope of the repository?

- Are there any restrictions (e.g., on ownership, intellectual property rights, copyright, trademarks, etc.)?
- Are there safety and security concerns and are there funds to cover them?
- Are there other special considerations?

Initial Inventory and Assessment of Collections

Griset and Kodack (1999:51) list the procedures for initial inventory and assessment:
- The repository should compare the inventory against the collection and deal with discrepancies.
- The repository should segregate items that need stabilization, special cleaning, or need no cleaning; or that will be submitted for testing; or that will be set aside as unprocessed samples.
- Specimen numbers should be given.
- It should be noted in the records whenever specimens are consumed or rejoin the collection after testing.
- If called for in the collecting strategy and research design, and if there is enough curation space, a part of every sample should be left unaltered for the future.

Accessioning Procedures

Griset and Kodack (1999:41, Table 7; 50–51, 62) and Simmons (2006:39) provide guidelines for accessioning that have been supplemented with other sources as indicated.
- Assign a unique accession number.
- Create an accession record for each collection that notes:
  o Method of acquisition (e.g., gift, purchase, excavation, etc.).
  o The collection owner or source, including name and address.
  o Date of accession.
  o Who accessioned it.
  o Provenience (e.g., archaeological, geographic location, culture, etc.).
  o Terms of the curation agreement.
  o Condition.
  o Value.
  o Any conditions of use.
  o Any repatriation (NAGPRA) issues (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/).
  o Any limitations on deaccessioning or disposal (e.g., permission needed from the Federal agency) (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/).
  o A general description of the collection.
  o Legal status or documents (e.g., deed of gift, bill of sale, collecting permit, export/import permits, etc.).
- Create a file that includes:
  o The accession record.
  o Copies of all associated documentation:
    ▪ Project management and administrative files.
    ▪ Documentation associated with the original archaeological investigation (e.g., field notes, etc.).
    ▪ Project results.
    ▪ Ongoing curation procedures and treatments.
    ▪ Photographs.
    ▪ Citations in published references.
    ▪ Uses of the collection.
    ▪ Storage location(s).
    ▪ Curation history (see Curation History below).
    ▪ Initial inventory and assessment.
- Cross-index all material remains and associated documents by archaeological site number.

Curation History

Griset and Kodack (1999:60–61) explain what a curation history is and provide some guidelines for producing one. These guidelines are outlined below and supplemented as indicated.

The curation history:
- Allows users to identify suitable specimens for research, interpretation, or educational uses.
- Allows curators and conservators to monitor and choose treatments that are advantageous and weed out those that are deleterious.
- Should be reviewed and updated every two years.

The curation history should record or include:
- Acquisition information:
  - Accession number.
  - Date of accession.
  - Who accessioned it.
  - The collection owner or source.
  - Why acquired.
  - Provenience (e.g., archaeological, geographic location, culture, etc.).
  - Any conditions of use, access, or curation.
- Collection inventory:
  - Field inventory (if present).
  - Previous inventories.
  - Final catalog.
  - Notes on any treatments, analysis, if lost or damaged.
- Processing techniques:
  - Date processed.
  - How cleaned.
  - Specific treatments and products used on individual specimens.
- Conservation treatments:
  - A record for each specimen.
  - A list of any that need monitoring.
- Condition Reports:
  - Object identification.
  - Object description: text, notes, photographs.
  - Type, location, and extent of damage.
  - Previous conservation work.
  - Date(s) and reason(s) for damage (if known).
  - Recommendations. (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_03.htm)
- Material Safety Data Sheet (MSDS) for all conservation products that includes:
  - The nonproprietary ingredients.
  - Basic handling, use, and storage guidelines.
  - Potential chemical interactions.
  - Fire hazards.
  - Toxicity.
  - Spill clean-up procedures.
- Storage conditions:
  - General conditions.
  - Specific conditions for objects.
  - Type of pest management, inspector, and frequency of inspections.
  - Notes on any crisis-induced changes.

- Collection use:
  - o Records of loans, exhibits, and research.
  - o Lists of publications, photographs, and exhibit catalogs or a copy of the actual document.
  - o Notes on destructive uses, including original request and approval, methods, and results.
  - o Notes on any restrictions on use (e.g., NAGPRA, etc.).

Other Records
- Catalogs and inventories.
- Treatment records.
- Loan and exhibition records.
- Records on lost, deteriorated, damaged, or destroyed materials.
- Records of destructive analysis.
- Records of physical location (e.g., shelf address, loan agreements, materials on exhibit, etc.).
- Material Safety Data Sheet (MSDS) for all conservation products.
- Correspondence.
- Access, reference, and use files.
- Insurance information. (Child and Corcoran 2000 www.nps.gov/history/archeology/collections/Mgt_05.htm; Griset and Kodack 1999:42, 60)

Records Retention

36 CFR 79 requires Federal agencies to retain copies of all administrative records, including those recording the disposition and care of collections. The repository is responsible for all associated documents (Griset and Kodack 1999:62; Sullivan and Childs 2003:36–37).

It bears repeating that curation should be dealt with during project planning (Childs and Corcoran 2000 www.nps.gov/history/archeology/collections/; Sullivan and Childs 2003:80–83). Repositories should be contacted to see if they are willing to take the resulting collection, the repository should be visited and assessed as to whether it can adequately curate the collection, and a repository agreement or contract should be executed. In assessing a repository, its adequacy for curating both material remains and associated documents should be considered. The facility should meet the minimal 36 CFR 79 requirements for safety, security, emergency preparedness, professional qualifications, etc. But, the adequacy of its record keeping should also be evaluated. Finally, the repository, whether Federal or non-Federal, should be visited and evaluated on a regular basis.

Culling and Deaccessioning

The Law

All cultural resources collected from Federal lands are considered to be the property of the Federal government and are to be managed by the Federal agencies that administer those lands. According to 36 CFR 79, it is the duty of these Federal agencies to ensure that cultural resources are carefully curated, so as to ensure their preservation for future generations. Section 79.5 of the regulation ("Management and Preservation of Collections") states that "The Federal Agency Official is responsible for the long-term management and preservation of preexisting and new collections subject to this part. Such collections shall be placed in a repository with adequate long-term curatorial capabilities, as set forth in Section 79.9 of this part, appropriate to the nature and content of the collections."

A proposed draft of section 79.12, called "Procedures to discard material remains," was published in the Federal Register in 1990, but was never promulgated. As it stands, the regulation explicitly allows for collections to be transferred to other repositories or Federal agencies, repatriated to affiliated Native American communities, and subjected to destructive analyses (if data gains exceed data losses). Federal agencies and repositories of Federally-owned materials are required to maintain "complete and accurate" records of all aspects of the collection, including records on "lost, deteriorated, damaged, or destroyed Government property" and on "any deaccessions and subsequent transfers, repatriations, or discards, as approved by the Federal Agency Official" (36 CFR 79.9:ix–x). Unfortunately, the regulation does not explicitly state the circumstances in which it might be appropriate to deaccession and dispose of part of the collection. In most cases, the regulation encourages the preservation of accessioned materials within a collection; for example, Appendix B to Part 79, "Example of a Memorandum of Understanding for Curatorial Services for a Federally-Owned Collection," states that the Repository shall not "in any way adversely alter or deface any of the Collection except as may be absolutely necessary in the course of stabilization, conservation, scientific study, analysis and research." Thus, one might suppose that the circumstances that lead to the deaccessioning and disposal of part of the collection are rare.

As curators and collections managers grow increasingly interested in reducing the size of their collections, the ambiguous position on deaccessioning presented in 36 CFR 79 has become more problematic. The National Park Service has reinitiated the effort to write regulations on the disposition of Federally-owned archaeological materials; however, these regulations will need to go up the chain of review through the Department of the Interior before they can be published as a draft in the Federal Register (see p. 64251 of http://edocket.access.gpo.gov/2009/pdf/E9-28608.pdf). Thus, at present, almost all Federal agencies have little legal authority to deaccession and dispose of collections except in such cases as are explicitly allowed in the law.

Why the Sudden Demand?

Over the last few decades, an increase in development both on and off of Federal land has led to an increase in contract archaeological work, and with it, an increase in the amount of archaeological material to be curated. Unfortunately, as the volume of artifacts has grown, the number of repositories has held steady, and the amount of funding available for curation has decreased. Conditions within many

repositories worsened as institutions were unwilling or unable to provide adequate funds to care for the materials, make necessary improvements to the facilities, or build new facilities. Without the ability to construct new, larger facilities, many repositories were forced to adapt their culling and deaccessioning policies, raise their fees (Childs and Kinsey 2003), and (in extreme cases) stop accepting collections altogether. Thus, in the past few decades we have begun to experience what has been termed a "curation crisis" (Bawaya 2007; Byrne 2002; Childs 1999; Lyons et al. 2006; Maryland Historical Trust 2005; Nepstad-Thornberry 2002; Reichhardt 2007; Sullivan and Childs 2003; Thompson 1999).

With space and funds decreasing and curation costs rising, both archaeologists and collections managers have begun to look at minimizing their collections. The former have addressed the problem by altering their in-field sampling and collection strategies and by culling bulky or "redundant" materials from the collection prior to curation. The latter have likewise attempted to cull materials prior to accessioning the collection or to later deaccession materials deemed to be of little research value.

These changing practices have provoked a heated response from many professionals within the field who are concerned, and legitimately so, about the potential introduction of bias and loss of data. Until the conditions of curation change, however, it is clear that some compromises will have to be made.

Strategies for Reducing Collections

Different strategies can be employed at each stage in the collection process to reduce the overall size of collections. Each of these can be problematic, however, especially if applied by individuals with little knowledge of the archaeology, material, and appropriate sampling strategies. All of these strategies, and their benefits and their failings, are discussed below.

In-Field Sampling

Archaeologists can limit the quantity of material they bring in by adjusting their methods in the field (see Chapter 2 Sampling and Acquisition for more information). Rather than collecting all or a large percentage of surface materials from sites recorded on survey, the surveyors can elect to analyze all artifacts in the field, thereby eliminating the need for collections. The principal benefit of this strategy is that it is less destructive to the site and less expensive for the archaeologists. Furthermore, because diagnostic artifacts are left at the site, it helps to prevent misidentification of the site by later surveyors. The main disadvantages of this strategy are that the results are difficult to replicate (as artifacts may have been buried or looted in the interim) and the data quality tends to be poor. Crew members often have little to no background in the diverse materials they are expected to analyze, and conditions in the field (variable light, no cleaning instruments, etc.) are less than optimal for analysis. These problems may be alleviated by providing the survey crew with basic laboratory supplies and with special training and/or thorough and up-to-date field guides; however, this will likely increase the cost of the project.

If a noncollection strategy is too extreme, surveyors can also collect only the diagnostic artifacts and bring them back to the laboratory for analysis. This strategy is not recommended, however, as it negatively affects the ability of future researchers to identify the site correctly.

When excavation is required, archaeologists can attempt to design a sampling strategy that is appropriate to the site, that will yield sufficient data to address research questions, and that will keep the amount of material that is brought back to a minimum. Such a design would probably include a sampling strategy for bulk items such as fire-affected rock or midden shell. As a general rule, stratified, random samples tend to produce the most statistically significant results; however, sampling strategies should be custom-designed for each site by a professional with considerable knowledge of the site, the research questions, and the various methods of sampling a site.

In all cases, it is important to remember that statistically significant results require unbiased data. If (as sometimes happens) archaeologists choose not to collect ground stone metates or large, historical-period canisters because of their weight, bulk, or perceived lack of research value, they bias their sample and thus their results. One strategy for large objects is to count, measure, and weigh them in the field and take a small sample, as needed for material identification, residue analysis, etc.

Culling

What is Culling?

Culling (or "selective discard") of materials occurs after they have been collected, brought back to the lab, and analyzed, and before they have been accessioned by the repository. Materials can be culled from the collection by the principal investigator (PI) prior to being sent to the repository or by the repository staff (preferably in consultation with the PI) prior to being accessioned. Most curation facilities will have a written policy on culling procedures, but often these policies are too vague to be helpful. PIs are much less likely to be guided by a specific policy and much more likely to discriminate based on the size and weight (and thus potential curation cost) of the material. This lack of a systematic culling policy and the tendency to discriminate against certain material classes (especially historical-period artifacts) is problematic.

Many repositories encourage their clients to discard bulk or redundant materials and materials with questionable research value. The first category may include brick, fire-altered rock, window glass, mortar, slag, coal, shell, metal containers, recent debris, glass bottles shards, lithic debitage, and unprocessed soil samples. The second category may include materials that have little to no provenience information or that are badly deteriorated. Some repositories encourage their clients to curate a sample of the redundant materials, but recommendations on what constitutes an adequate sample vary wildly. Others refuse to accept certain categories of materials outright.

Recommended Procedures

If the decision must be made to cull the collection, it should be made in consultation with professional archaeologists with expertise in that particular material and temporal sphere (ideally, the PI should be involved) as well as with the land manager and other interested parties (tribal governments, descendent communities, etc.). Collections managers should discourage discriminatory culling practices that echo the interests and background of the staff more than the inherent potential of the materials. Adequate samples should be retained, and in the case of materials likely to experience destructive analyses, larger samples should be taken. Experts should be able to advise the culling staff on what constitutes an adequate sample for that particular assemblage, and on what materials should not be culled under any circumstances. The disposition of culled artifacts should be planned in advance, and culling procedures should be documented both in the project notes and in the final report. The excerpt below, taken from Chapter 6 of the National Park Service's guide *Managing Archaeological Collections* (Childs and Corcoran 2000), reviews the steps that are involved in sampling collections.

> The first step to statistical sampling in the laboratory is a preliminary analysis of all material remains. This includes separating, counting, and weighing the different classes of objects to determine the range of variation of each. A specialist in the object or material class should work with the principal investigator to determine the exact extent of the variation and what object features should be used for classification and analysis. The specialist and principal investigator should then determine if statistical sampling of artifacts should occur. This decision should be based on:

- evaluation of the relative quantities of objects in each artifact class and how they are distributed over the project area;

- the range of variation within a class;

- the scientific methods that could be used to study the objects (and the number and variety of objects needed for those scientific methods); and

- the potential of future research by other specialists and colleagues (although this can never be fully anticipated).

If the principal investigator supports the recommendation to statistically sample an object class, the next step is to determine the appropriate sample size. This will generally depend on the anticipated needs of researchers, educators, curators, and others, both currently and in the future. In the case of human remains and associated burial objects (including soils, botanical samples, radiocarbon samples and the like), descendant communities should also be consulted. Estimates should take into account any destructive analytical methods that may be used, which impact the total sample size available over time.

Due to the variables listed above, sample sizes may differ for each artifact class. Important diagnostic artifacts should be retained (sampled at 100%), while more common, highly redundant artifacts may be sampled at, for example, 10, 25, or 50%.

Documentation of Culling Procedures

Culled materials should be analyzed, cataloged, and otherwise documented prior to disposal. In order to produce the best data, the attributes that are recorded should be selected in consultation with experts in each material class. Documentation may involve taking digital photographs and/or sketching the objects. The culling and disposal of the materials should likewise be documented, both in the collection catalog and in reports relating to those collections, and in documents specifically relating to the culling and disposal processes. At a minimum, these documents should identify the objects (catalog number, etc.), describe the objects, offer the justification for culling, include the signatures of the Federal agent and archaeological consultants who approved the procedure, the date of approval, the method of disposal, and the date of disposal. These records should be maintained.

Deaccessioning

As stated in the introduction, the current laws and regulations surrounding the management of Federally owned archaeological collections are ambiguous at best. As a result, managers of Federally owned collections have been hesitant to deaccession materials in ways not explicitly mentioned within 36 CFR 79. This is wise, as without guidelines in place, "deaccessioning by Federal employees would likely be illegal" (Reichhardt 2007:34). The situation could soon change, as the National Park Service, working with an informal interagency working group, will be recommending a draft rule related to the disposition of some Federal materials (see p. 64251 of http://edocket.access.gpo.gov/2009/pdf/E9-28608.pdf). When this happens, the new regulation will probably echo many of the points below (synthesized from presentations on the NPS work as well as from Federal agency, state, and repository guidelines). In the meantime however, managers of Federal collections should stick to a cautious, conservative interpretation of the law.

What Is Deaccessioning?

Deaccessioning is the process of documenting and permanently removing accessioned material(s) or collection(s) from a repository or existing ownership. These materials can be deaccessioned for a variety of reasons and disposed of in a variety of ways, the vast majority of which are nondestructive.

Reasons

Sullivan and Childs (2003:39–40, 72) reviewed the policies of a wide variety of museums and repositories and came up with the following list of reasons for a repository to deaccession materials:

1. Loss
2. Theft
3. Physical deterioration beyond viable research or educational value
4. Involuntary destruction (i.e., materials destroyed by fire or flooding)
5. Abandonment
6. Voluntary destruction (most often in the case of hazardous materials)
7. Nonconformity to a repository's scope of collection
8. Repository is unable to care for the collection
9. Destructive analysis
10. Return to rightful owner
11. Repatriation under NAGPRA
12. Materials were inadvertently collected and lack archaeological value or historical significance (i.e., stones that looked like sherds)
13. Materials are highly redundant and nondiagnostic
14. Materials are without good research potential
15. Materials are deemed to lack archaeological interest under ARPA
16. Materials were acquired illegally or unethically
17. Materials are a hazard to human safety and health

The last six reasons (12–17) are subjective, and determinations of "research potential," "redundancy," etc. should be made in consultation with an expert. Simmons (2006) notes that only those objects with a clear title can be accessioned. He further recommends that missing or stolen objects and objects that have been cited or figured in a publication not be deaccessioned.

Procedures

Sullivan and Childs (2003) list the following requirements for deaccessioning:

1. A written justification that lays out the reasons for deaccessioning in relation to the repository's mission, collecting plan, scope of collections, and any relevant state or Federal laws
2. Confirmation that the collection was accessioned, cataloged, and documented
3. Physical inspection by a conservator to determine best method of disposal
4. Confirmation of title and records check for any donor restrictions
5. If applicable, an outside appraisal of monetary or research value
6. Internal review of the deaccessioning plans
7. Approval by director, governing board, or review committee as appropriate
8. Assignment of a deaccession number to each item disposed of
9. Public relations with any affected public group

If possible, a person or persons with expertise in the appropriate material class and archaeological context should be consulted as a part of the approval process. Simmons (2006) notes that the deaccessioning decision should be at the same or higher level than accessioning decision and that all stakeholders should be

involved in the decision. Generally speaking, objects should be kept for at least two years before they are deaccessioned (Simmons 2006). In the case of Federally owned materials, the public should be informed of the owner's decision to deaccession a collection (Byrne 2000; Reichhardt 2007).

Documentation
Documentation must be provided for each step of the deaccessioning process. According to Volume II, Chapter 6, of the Department of the Interior's *Museum Property Handbook* and Part 2, Chapter 6, of the National Park Service's *Museum Handbook*, recorded data should include, at a minimum, the following:

1. Deaccession number (a unique number for tracking the item, cross-referenced with the accession or catalog number)
2. Catalog number and object name(s)
3. Number of objects
4. Photograph(s) of object
5. Value of each object (determined by an appraisal from an outside source)
6. Designated authority(ies)
7. Justification of deaccession transaction
8. Deaccession approval or disapproval
9. Date of deaccession approval or disapproval
10. Disposition of objects (the chosen method of disposal)
11. Disposition approval or disapproval (indicate if an alternative disposition was approved)
12. Date of disposition approval or disapproval
13. Date deaccessioned (date it was officially removed from property records)

Simmons (2006:52–53) adds that the forms should include an explanation of the context of the decision to the repository's mission, vision, strategic plan, collections plan, code of ethics, or other policies.

Disposal of Deaccessioned Materials
The following options for disposal have been cited in the literature (Department of the Interior n.d.; Reichhardt 2007; Simmons 2006; Society for Historical Archaeology 1993; Sullivan and Childs 2003; Virginia Department of Historic Resources 2007). These options are (more or less) in order of decreasing preference. Only the first four are explicitly addressed in 36 CFR 79.

1. Repatriate objects to the appropriate tribe, cultural group, or nation of origin. Consult with them first about any sensitive issues or handling. Note that NAGPRA requires that repositories keep unaffiliated human remains until final regulations are promulgated or unless legally required to do otherwise.
2. Return the materials to their rightful owner.
3. Transfer the materials to another research or educational institution.
4. Exchange the materials with another research or educational institution for a more relevant collection.
5. Sell the materials (strongly discouraged in the case of archaeological material).
6. Bury the materials.
7. Destroy the material. This is usually reserved for hazardous, severely deteriorated, or counterfeit items. Destruction should be permanent, irreversible, and well documented.

According to Simmons (2006), the sales or auctions of collections should be handled by a disinterested third party and an impartial witness should observe the destruction of objects. The deaccessioning policies of most state repositories and Federal agencies often dictate that no employees, officers, or board members, or any of their family members profit from the sale, transfer, or disposal of the materials. In such cases as the materials are sold, profits must be earmarked for the acquisition of cultural materials.

Summary

Culling and deaccessioning practices must be done in a systematic fashion and in accordance with existing laws. Professionals with expertise in the appropriate temporal and material sphere should be consulted before any materials are culled or deaccessioned, and sampling strategies should be custom-designed to meet the research requirements regarding the targeted materials class ($n = 100$ may not always be adequate). Furthermore, although a Federal policy on deaccessioning should be forthcoming, at present, collections managers should hold to the few instances of deaccessioning that are explicitly mentioned within 36 CFR 79.

The Use of Archaeological Collections

Once archaeological collections have been housed in a repository, additional access and use of those collections becomes a paramount concern. It is stipulated in 36 CFR 79.10(a) that Federal agencies shall ensure that the chosen repository makes collections available for scientific, educational, and religious uses, insofar as such access does not damage the collection. These categories encompass a wide range of possibilities, which include independent scholarly research, artifact loans for museum display, and use in Native American religious ceremonies.

Federal Regulation of Collections Management

The most comprehensive guide to the management and use of archaeological collections under the jurisdiction of a Federal agency is provided in 36 CFR 79.10. As previously stated, this law mandates that all archaeological materials collected by Federal agencies should be made available for scientific research, educational purposes, or religious uses. Further clarification of each of these categories is provided below.

Scientific Uses

At its most basic level, 36 CFR 79.10(b) stipulates that archaeological collections must be made available for independent scientific analysis or scholarly research by qualified professionals. Access shall be granted for such scientific study in so far as the research effort does not compromise the condition, uniqueness, research potential, or religious importance of the collection. Qualified professionals include researchers, scholars, and archaeological contractors. Students may also have access to archaeological collections, provided that they are under the direct supervision of a qualified professional. Any publications that result from sanctioned research activities must acknowledge the repository as the place of curation, as well as the Federal agency that owns the collection. If the collection is from an Indian reservation, the Indian tribe shall also be acknowledged if they wish to be identified.

Educational Uses

It is also stated in 36 CFR 79.10(b) that archaeological collections be used for educational purposes. Collections must be available to qualified professionals for in-house loans, traveling exhibits, teaching, and public interpretation. Those qualified professionals who would have access to a collection for these purposes include curators, conservators, collection managers, exhibitors, researchers, archaeological contractors, and educators. As stated above, any publications that result from these activities must acknowledge the repository as the place of curation, as well as the Federal agency that owns the collection. If the collection is from an Indian reservation, the Indian tribe shall also be acknowledged if they wish to be identified.

Religious Uses

Under the statutes of 36 CFR 79.10(c), religious items in a collection must be available for use in religious ceremonies or spiritual activities to religious practitioners from affiliated populations, most often Native American tribes, including medicine men and women. Access for religious purposes may be granted to religious practitioners from American Indian tribes, Alaskan Native corporations, Native Hawaiians, and other indigenous and immigrant groups that have aboriginal or historical ties to the lands from which the remains were collected and that have traditionally used those remains in religious activities.

Terms and Conditions of Scientific, Educational, and Religious Uses

In compliance with the Archaeological Resources Protection Act (ARPA) and the National Historic Preservation Act (NHPA), 36 CFR 79.10(d) states that Federal agencies will restrict access to additional records that detail the location, nature, or character of an archaeological resource unless it is determined that such disclosure would not result in an adverse effect to the resource or to the area in which the resource is located. Federal agencies may disclose resource information to qualified individuals who, following Section .18(a)(2) of uniform regulations 43 CFR 7, 36 CFR 296, 18 CFR 1312, and 32 CFR 229, demonstrate that the disclosure will result in no adverse effect upon the resource or the area where the resource is located. These qualified individuals to whom such disclosures may be made include archaeological contractors, researchers, scholars, tribal representatives, Federal personnel, state employees, local agency staff, and other people who are examining the resources. When a collection originates from Indian lands, the Federal agency shall place terms and conditions on the scientific, educational, and religious uses of the remains, as well as access to the associated records that contain information regarding the character and location of the resource as requested by the Indian landowner.

It is stipulated in 36 CFR 79.10(d)(5) that the Federal agency must not allow uses that would damage or alter an object in a collection unless it is determined that such use is necessary for research purposes or public interpretation. When possible, destructive analyses should be limited to unprovenienced, nonunique, nonfragile objects, or to a sample of objects taken from a larger collection of similar objects. In a larger sense, the needs of scientific research must be balanced with the preservation of the integrity of the collection.

In order to access or use a collection, 36 CFR 79.10(e) states that a person must enter into a written agreement with the repository specifying the terms and conditions of the loan. This written agreement should, at a minimum, detail the collection or object being loaned, the purpose and length of the loan, any restrictions on the use of the materials, a requirement that the borrower handle the collection in accordance with specified restrictions, and insurance for any loss or damage during transit or while in the borrower's possession. Also included in this agreement will be an assurance that the repository maintains records of approved uses of the collection and an understanding that the repository may charge the borrower reasonable fees to cover the cost of handling, packaging, shipping, and insuring the materials, or for other related costs.

Operationalizing 36 CFR 79.10

Although 36 CFR 79.10 designates access to collections owned by Federal agencies for scientific, educational, and religious uses, when put into practice, requests for such access fall into three categories: research, public access, and artifact loans. In general the repository where the collections are housed will have its own operating procedures regarding the access and use of the collection, with which the owner

(the Federal agency) will have to comply (Museum of New Mexico 2004; Society for Historical Archaeology 1993).

Research

It is stipulated in 36 CFR 79.10(b) that a repository should provide qualified individuals with access to a collection as well as facilities in which the collection can be examined. Continued research on accessioned collections benefits the public by increasing the knowledge base (Childs and Corcoran 2000). Research projects that utilize accessioned collections generally take several key steps. The first and most difficult task is to locate appropriate items that will address the researcher's questions. This is generally difficult because many of the collections in repositories are poorly cataloged in systems that are not cross referenced. Additionally, repositories do not use a standardized system; therefore, classification schemes used by one institution will likely be significantly different from another. Furthermore, many collections have not been reported on, whereas others may be represented in gray literature. Extensive background research is necessary in order to find appropriate research materials, and to this end it is imperative for a repository to implement a useful and user-friendly archival cataloging system. Some repositories have created published guides to their collections, or they have made gray literature available for public perusal. Some have also made efforts to standardize categorical ascriptions, create searchable databases, and publish data on CD-ROMs. These efforts will improve the ability of qualified individuals to more easily access and examine archaeological collections. In addition, user-friendly interfaces will encourage more research on existing collections, thereby taking advantage of an underutilized resource and ensuring its interpretation and preservation for future generations. In order to encourage research on existing collections, repositories should develop online catalogs with (at minimum) site age, size, composition, collection condition, notes, photographs, and references (Wiant 2004:88). Additionally, Federal agencies should consider creating national databases of all their collections in repositories. This would facilitate easier access to archaeological records and the identification of repositories that comply with Federal standards.

All researchers who wish to work with accessioned collections must make a formal request and submit a research proposal along with their own qualifications (Childs and Corcoran 2000). Each proposal will be evaluated by the repository and permission will be given on a case-by-case basis. In some cases, the proposed research may require tribal consultation.

Generally, research projects are conducted either on- or off-site (Childs and Corcoran 2000). Off-site research requires that the materials also go through the loan process. Many researchers prefer to conduct research projects off-site in order to work at their own pace, although an off-site research project complicates the research and loan process. The repository must ensure that the materials will be safe from unauthorized access and adverse effects. It is preferable for the repository to provide adequate work space for researchers so as to encourage on-site research. On-site research projects have the benefit of accruing no additional risks to the safety of the collection. Furthermore, it enables the repository to monitor the research itself and ensure that no unauthorized destructive analyses are undertaken.

Destructive analyses such as radiocarbon dating, isotope analysis, and DNA analysis are becoming more widely used by researchers (Childs and Corcoran 2000). These analyses require the destruction of archaeological material in order to generate meaningful data. In order to conduct destructive analyses, a researcher must submit a request form, which details the specific specimens to be analyzed, the specific tests to be used, a list and justification of what the data will be used for, the amount of time it will take to complete the analysis, and the amount of the sample to be used. In all cases it is preferable to analyze samples of the material rather than the entire material class so as to avoid the complete destruction of a unique class of data. The repository will generally have their own procedures for approving requests for destructive analysis and will make its decisions on a case-by-case basis. In cases where the researchers wish to conduct destructive analyses on Native American human remains, tribal consultation is mandatory.

Intellectual property rights also fall under the purview of collections research. The Smithsonian Institution defines intellectual property rights as "rights and protections based on Federal or State law such as

patent, trademark, copyright, privacy, and publicity" (Smithsonian Institution 2001). This definition does not include consideration for communal knowledge, such as oral history. When dealing with oral testimony, oral tradition, or personal statements, written permission from these consultants is necessary. Intellectual property rights apply to everyone, with the exception of U.S. Government employees.

Public Access

As previously stated, 36 CFR 79.10(a) requires that collections owned by Federal agencies be available to the public for scientific, educational, and religious purposes. Research, publications, exhibitions, public education, interpretation, heritage activities, reproductions, and derivative works all fall under this designation (Childs and Corcoran 2000). These activities result in the advancement of science, the promotion of research, the sharing of public resources, and the expansion of the public knowledge base. However, in the case of culturally sensitive materials, increased security precautions are needed to protect resources from the additional risks incurred by making those materials accessible to the public. The need for increased security precautions may, in turn, necessitate an increase in the funds and staff available to facilitate use of the collections. Repositories have developed their own specific guidelines to meet these new demands and challenges. Repositories that hold Federal materials are required to have established policies and documentation relating to access and use of collections (Sonderman 2004:116). These policies should address loans, public accessibility to collections, access for independent research, destructive analyses, and intellectual property rights.

There can be several different kinds of collections with different policies for access and use (Simmons 2006:33–34). Archives, collections under a repository agreement, teaching collections, exhibition collections, library collections, permanent collections, research collections, reserve collections, and type collections should all be managed using collection-specific regulations implemented by the repository.

Public access to collections is facilitated through exhibitions in museums, television segments, video documentaries, teaching kits (Phillips 2004), and Web sites (Childs and Corcoran 2000). Although not all repositories have exhibits, those that do can have long-term, temporary, revolving, and/or traveling exhibits. Public and educational programs are repository specific. Direct access to associated documents is seldom available to the general public and is restricted to legitimate research and cultural or educational interests (Maxwell Museum of Anthropology n.d.). ARPA restricts the dissemination of information that relates the nature, location, or character of the resource if it is deemed likely to cause harm, theft, or destruction to the resource or the area in which it is located.

Some material, specifically artifacts associated with funerary contexts, may not be appropriate for display. Culturally sensitive materials may also require differential access to or use of objects, restrictions on where they can be stored, and allowances for ceremonial use. Native American concerns on the handling of objects are often based on their belief that the object is alive or that they should not be handled by certain people (Neller 2004:127–128). Some objects can only be handled by initiated tribal members, those of a certain gender, religious practitioners, or those with special knowledge. These beliefs may require that certain objects need to breathe, be available for special ceremonies, or be fed. This, in turn, may mean that objects should be stored on special materials, facing a certain direction, or in open containers. Special rooms may need to be available for ceremonies, repairs may have to be made by Native specialists, and material contaminants used on an object may need to be removed. All of these considerations necessitate tribal consultation.

Artifact Loans

Artifact loans are another way in which repositories can satisfy 36 CFR 79.10. The steps of the loan process generally include approval of the loan by the lending repository, signing of a loan agreement, preparation and shipping of the collection, use of the collection, repacking and shipping of the collection, final

signatures on the loan agreement, and an evaluation of the conditions of the loaned items upon their return (California Office of Historic Preservation 1993; Childs and Corcoran 2000). Loans should only involve collections that have been accessioned and cataloged.

Formal loan agreement procedures are repository specific. The terms of a loan depend on whether it is primarily for the benefit of the lender, the borrower, or both (Simmons 2006:69–70). Loans are typically made to peer institutions for exhibition, scholarly use, or educational use. To the extent possible and appropriate, loans should be made only for the greater public good, including research, public display, and religious activity (Simmons 2006:70). Loan requests should be made in writing, and it should be documented that the receiving institution, not the individual requesting the loan, bears the responsibility for the loan. Loans to peer institutions often require the receiving institution to prove that it can care for and secure the loaned collection, and this proof often takes the form of a facilities report. Insurance is provided by the institution benefiting the most, which is usually the borrower (Simmons 2006:71).

Repository policies often restrict the loaning of collections that are involved in ongoing research, cannot withstand the rigors of packaging and transport, are culturally sensitive, have significant monetary value, are very important to the institution, or whose absence would have a negative impact on the visiting public. Lending restrictions may include a limit on photography, state the borrower's right to copyright and use images of the object, prohibit casting or reproduction, limit types of preparation, and prohibit alterations (Simmons 2006:72).

Loan documents often outline that objects must be returned in the same packaging in which they were received, the length of time borrowed, if and how to renew the loan, the preparation of outgoing and incoming condition reports, and required information for display such as credits, the donor, or accession numbers. Additionally, the costs, fees, and/or charges incurred by the lender in association with the loan, i.e., fees associated with research, appraisal, conservation, condition reporting, packing, shipping, courier services, or administrative costs, must be detailed in the loan agreement. Any environmental or handling requirements for the object(s), and the conditions under which the loan may be recalled, must be cited in the agreement (Simmons 2006:72–73, 79). Environmental monitoring, maintenance, and any conservation records are made by the borrower and returned with the collection (Simmons 2006:78). Loans should not be made if they will give rise to commercial exploitation, if they will bring discredit to the lender, or if the loan is primarily for the purpose of storage (Simmons 2006:81).

Conclusion

As stipulated under 36 CFR 79.10, Federal agencies are required to make collections available for scientific, educational, and religious purposes. At the repository level this generally translates into requests for research, public access, and artifact loans. Although Federal law provides an outline of sanctioned practices regarding collections management, these collections are also subject to state and local agency regulations. Federal agencies are responsible for placing restrictions on access to their collections; however, these restrictions will be implemented within the policies of the curation facility. The curation facility is ultimately responsible for providing and monitoring such access and use of the collections. Ideally, the Federal agency that owns the collection will maintain an open dialogue with the chosen curation facility, ensuring that any future use of a collection is approved by both institutions.

Concluding Remarks

This guidance document was prepared for use by the Department of Defense (DoD) in developing standard operating procedures for the curation and management of archaeological collections across service installations and repositories. It outlines the best practices on key curation topics, including the problematic issues of culling and deaccessioning of archaeological collections.

To prepare the most comprehensive report possible, SRI reviewed collections management and curation policies and protocols within the DoD and those of select Federal agencies, non-Federal agencies, and professional societies. Specific aspects of archaeological collections management and curation were researched, with particular attention given to field collection policies; associated documents; culling of archaeological materials; accessioning and deaccessioning decision making and practices; disposal of deaccessioned objects; facility health, safety, and environmental controls; loans; and use of collections. The result is a guidance document that provides an overview of current collections management policies and procedures, presents the best practices in each area of curation with an eye to ethical considerations and the maintenance of professional standards, and summarizes issues particular to Federal collections. Several issues deserve emphasis here, in the hopes that when preparing their guidance document, the DoD will develop strong, consistent, and ethical positions on these topics.

First, it is recommended that the DoD establish curation protocols and practices that will (1) result in high-quality care for all collections, wherever they are housed, and (2) reduce the curation load to the extent practicable. By enacting standard curation procedures for the project planning phase, the field, the laboratory, and repository, the DoD will save time and funds. If standard procedures are not followed, then the cost of rehabilitating collections to restore research, education, and heritage value can become prohibitive. Standard protocols and procedures also ensure that the mandates of 36 CFR 79 and other cultural resource–related legislation are being met.

Second, it is recommended that the curation protocols and practices developed by the DoD stress the maintenance of professional standards; these can apply to everything from collection strategies to conservation practices to the ethical treatment of Native American Graves Protection and Repatriation Act (NAGPRA) materials/human remains to deaccessioning. Both the Society for Historical Archaeology (SHA) and the Society for American Archaeology (SAA) stress that it is our ethical responsibility to preserve collections for future generations. This means having the right kinds of conditions and conservation techniques, but it also means ensuring that the research potential of the collections is not harmed. Biased sampling techniques and unsystematic culling procedures weaken the interpretive value of the data and thus detract from the future research potential of the collection.

Third, accurate sampling at various stages of the "life cycle" of an artifact cannot be stressed enough. Relatively few archaeologists or collections managers have a strong background in sampling strategies and statistics. Instead, many archaeologists or laboratory technicians fall back on using "standard" samples—100 pieces of shell, or 5 percent of the materials from a shell midden, for example—without ensuring that such a sample would be adequate or appropriate for the site and materials involved. Sampling strategies must take into account the variability within the targeted class; it may be necessary to consult with specialists who know how much variability is to be expected. Likewise, sampling strategies must consider the research questions that are being addressed. Thus, if the goal is to date the various occupations of a shell-midden site, and if diagnostic markers for such sites are relatively rare within an assemblage, a 5 percent sample will not achieve this goal. In fact, a 50 percent sample may not achieve this

goal, as a statistically significant sample captures the *majority* of the variability, and rare diagnostic artifacts are likely to belong to the minority (as they do not contribute much to the overall assemblage).

Fourth, encouraging research on collections must be emphasized. With all of the angst over the state of collections in the country, it might be wise to revisit (along with questions of sampling and collections strategies and curation procedures) what it is that we *do* with these collections. These collections are an underutilized resource. This should not imply, in any way, that because the collections are not being used we should cut back even further. Rather, the point is that we are saving these collections for future research, yet as entropy and mismanagement chip away at the overall research potential of the collections, we are doing little to encourage "future research" *now*. If collections managers placed more emphasis on systematizing their databases and making the collections more accessible to researchers and to the general public (with searchable databases, online exhibits, research space, possibly even funding for research), they would not only do a greater service to the public and to the collections, but by increasing public interest and involvement in the collections (through popular archaeological publications, public education, etc.) they might win enough support to solve the current crisis of lack of funding and space.

Finally, in order to ensure that the proper standards are followed, it is recommended that DoD installations consider establishing more of their own repositories (a recommendation made by the USACE Mandatory Center of Expertise for Curation and Collections Management years ago), thereby alleviating extra costs associated with the curation crisis and providing them with ready access to their curated materials and the ability to monitor their care and use.

REFERENCES CITED

American Institute for Conservation of Historic and Artistic Works

    n.d.   American Institute for Conservation of Historic and Artistic Works. Electronic document, http://www.conservation-us.org/, accessed February 5, 2010. American Institute for Conservation of Historic and Artistic Works, Washington, D.C.

Barker, Alex W.

    2004   Stewardship, Collections Integrity, and Long-term Research Value. In *Our Collective Responsibility: The Ethics and Practice of Archaeological Collections Stewardship*, edited by S. Terry Childs, pp. 25–41. Society for American Archaeology, Washington, D.C.

Bawaya, Michael

    2007   Curation in Crisis. *Science* 317:1025–1026.

Brady, Colleen, Molly Gleeson, Melba Myers, Claire Peachey, Betty Seifert, Howard Wellman, Emily Williams, and Lisa Young

    2006   Conservation FAQs and Facts. Electronic document, http://www.sha.org/research _resources/curation_standards.cfm, accessed February 5, 2010. Society for Historical Archaeology, Rockville, Maryland.

Byrne, Kathleen T.

    2000   Deaccessioning Museum Collections. *CRM* 5:15–17.

California Office of Historic Preservation

    1993   Guidelines for the Curation of Archeological Collections, May 7, 1993. Electronic document, http://www.ohp.parks.ca.gov/pages/1054/files/guide93.pdf, accessed February 8, 2010. State Historical Resources Commission, Department of Parks and Recreation.

Cassman, Vicki, Nancy Odegaard, and Joseph Powell

    2007   *Human Remains: Guide for Museums and Academic Institutions*. AltaMira Press, Lanham, Maryland.

Centers for Disease Control and Prevention

    2005   Anthrax. Electronic document, http://www.cdc.gov/nczved/dfbmd/disease_listing/ anthrax_gi.html, accessed February 5, 2010. Department of Health and Human Services, Centers for Disease Control and Prevention, Washington D.C.

Childs, S. Terry

    1999   Contemplating the Future: Deaccessioning. *Museum Anthropology* 23(2):38-45.

Childs, S. Terry (editor)

    2004   *Our Collective Responsibility: The Ethics and Practice of Archaeological Collections Stewardship.* Society for American Archaeology, Washington, D.C.

Childs, S. Terry, and Eileen Corcoran

    2000   Managing Archeological Collections: Technical Assistance. Electronic document, www.nps .gov/history/archeology/collections/, accessed February 5, 2010. Archeology and Ethnography Program, National Park Service, Washington, D.C.

Childs, S. Terry, and Karolyn Kinsey

    2003   Costs of Curating Archeological Collections: A Study of Repository Fees in 2002 and 1997/ 98. Electronic document, http://www.nps.gov/history/aad/tools/feesstud.htm, accessed February 8, 2010. Archeology and Ethnography Program, National Center for Cultural Resources, National Park Service, Washington, D.C.

Dorge, Valerie, and Sharon L. Jones

    1999   *Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions*. The Getty Conservation Institute, Los Angeles, California.

Drew, Natalie M.

    2004   Preserving Archaeological Associated Records. In *Our Collective Responsibility: The Ethics and Practice of Archaeological Collections Stewardship*, edited by S. Terry Childs, pp. 55–66. Society for American Archaeology, Washington, D.C.

Eiteljorg, Harrison III

    2004   Archiving Digital Archaeological Records. In *Our Collective Responsibility: The Ethics and Practice of Archaeological Collections Stewardship*, edited by S. Terry Childs, pp. 67–73.

Federal Register

    2009   The Regulatory Plan. *Federal Register* 74(233):64137–64374. Published Monday, December 7, 2009. Electronic document, http://edocket.access.gpo.gov/2009/pdf/E9-28608.pdf, accessed February 5, 2010.

Griset, Suzanne, and Marc Kodack

    1999   *Guidelines for the Field Collection of Archaeological Materials and Standard Operating Procedures for Curation of Department of Defense Archaeological Collections. Legacy Project No. 98-1714.* Mandatory Center of Expertise for the Curation and Management of Archaeological Collections, U.S. Army Corps of Engineers, St. Louis District.

Hamilton, Donny L.

    2000   Iron Conservation. Electronic document, http://nautarch.tamu.edu/crl/conservationmanual/ File10a.htm, accessed February 5, 2010. Conservation Research Laboratory, Nautical Archaeology Program, Texas A&M University, College Station, Texas.

Heritage Preservation, Inc.

    n.d.   Heritage Preservation: The National Institute for Conservation. Electronic document, http://www.heritagepreservation.org/, accessed February 5, 2010. Heritage Preservation, Washington, D.C.

    2006   *Field Guide to Emergency Response: A Vital Tool for Cultural Institutions*. Heritage Preservation, Washington, D.C.

King, Thomas F.
2004 *Cultural Resource Laws and Practice: An Introductory Guide*. AltaMira Press, Walnut Creek, California.

Library of Congress
n.d. Digital Preservation. Electronic document, http://www.digitalpreservation.gov/, accessed February 5, 2010. Library of Congress, Washington D.C.

2009 Encoded Archival Description: Version 2002 Official Site. Electronic document, http://www.loc.gov/ead/, accessed February 5, 2010. Library of Congress, Washington D.C.

2010 Preservation. Electronic document, http://www.loc.gov/preserv/, accessed February 5, 2010. Library of Congress, Washington D.C.

Little, Barbara J.
1999 Report from the SAA Board of Directors. *SAA Bulletin* 17(3):6.

Lynott, Mark J., and Alison Wylie (editors)
2000 *Ethics in American Archaeology.* Society for American Archaeology, Washington, D.C.

Lyons, Patrick D., E. Charles Adams, Jeffrey H. Altschul, C. Michael Barton, and Chris M. Roll
2006 The Archaeological Curation Crisis in Arizona: Analysis and Possible Solutions. A Report Prepared by the Governor's Archaeology Advisory Commission Curation Subcommittee. Manuscript on file, State Historic Preservation Office, Phoenix, Arizona.

Marino, Eugene A.
2004 Back from the Brink–Renewing Research Potential. In *Our Collective Responsibility: The Ethics and Practice of Archaeological Collections Stewardship,* edited by S. Terry Childs, pp. 43–51. Society for American Archaeology, Washington, D.C.

Maryland Historical Trust
2005 Technical Update No. 1 of the Standards and Guidelines for Archeological Investigations in Maryland: Collections and Conservation Standards. Electronic document, http://mht.maryland.gov/documents/PDF/Archeology_standards_curation.pdf, accessed February 8, 2010, Maryland Historical Trust, Crownsville.

Maxwell Museum of Anthropology
n.d. Archaeological Collections Management Policy. Maxwell Museum of Anthropology, Albuquerque, New Mexico. Electronic document, http://www.unm.edu/~maxwell/archaeology_collections.html, accessed February 8, 2010, University of New Mexico, Albuquerque.

Museum of New Mexico System
2004 *Museum of New Mexico System Collections Policy.* Museum of New Mexico, Santa Fe.

National Archives, The
n.d. The National Archives. Electronic document, http://www.archives.gov/, accessed February 5, 2010. The U.S. National Archives and Records Administration, College Park, Maryland.

Neller, Angela J.
    2004   The Future is in the Past: Native American Issues in Archaeological Collections Care and Management. In *Our Collective Responsibility: The Ethics and Practice of Archaeological Collections Stewardship*, edited by S. Terry Childs, pp. 123–135. Society for American Archaeology, Washington, D.C.

Nepstad-Thornberry, Tina, Curtis Nepstad-Thornberry, Melissa Stoltz, Karyn de Dufour, and Richard Wilshusen
    2002   Addressing the Curation Crisis in Colorado: An Assessment for the Executive Committee of the Colorado Council of Professional Archaeologists. Electronic document, http://www.coloradoarchaeologists.org/Curation.pdf, accessed February 8, 2010. University of Colorado, Boulder.

Neumann, Thomas W., and Robert M. Sanford
    2001   *Cultural Resources Archaeology: An Introduction*. AltaMira Press, Walnut Creek, California.

Northeast Document Conservation Center
    2006   dPlan™: The Online Disaster-Planning Tool for Cultural and Civic Institutions. Electronic document, http://www.dplan.org/, accessed February 5, 2010. The Northeast Document Conservation Center and the Massachusetts Board of Library Commissioners.

Phillips, Laura S.
    2004   Adaptive Reuse: Incorporating Public Education into the Curation Process. In *Our Collective Responsibility: The Ethics and Practice of Archaeological Collections Stewardship*, edited by S. Terry Childs, pp. 137–145. Society for American Archaeology, Washington, D.C.

Poirer, David A., and Kenneth L. Feder
    2001   *Dangerous Places: Health, Safety and Archaeology*. Bergin and Garvey, Westport, Connecticut.

Register of Professional Archaeologists
    n.d.   Code of Conduct. Electronic document, http://www.rpanet.org/displaycommon.cfm?an=1&subarticlenbr=3, accessed February 5, 2010. Register of Professional Archaeologists, Baltimore, Maryland.

    n.d.   Standards of Research Performance. Electronic document, http://www.rpanet.org/displaycommon.cfm?an=1&subarticlenbr=4, accessed February 5, 2010. Register of Professional Archaeologists, Baltimore, Maryland.

Reichhardt, Tony
    2007   The Difficulties of Deaccessioning. *American Archaeology* 11(1):32–37.

Simmons, John E.
    2006   *Things Great and Small: Collections Management Policies*. American Association of Museums, Washington, D.C.

Smithsonian Institution
    2001   National Collections Program: Smithsonian Directive 600. Electronic document, http://siarchives.si.edu/collections/SD600.html, accessed September 6, 2007. Smithsonian Institution Archives, Washington, D.C.

Society of American Archivists, The
    n.d.   The Society of American Archivists. Electronic document, http://www.archivists.org/
            index.asp, accessed February 5, 2010. The Society of American Archivists.

Society for Historical Archaeology
    n.d.   Ethical Principles of The Society for Historical Archaeology. Electronic document,
            http://www.sha.org/about/ethics.cfm, accessed February 5, 2010. Society for Historical
            Archaeology.

    1993   The Society for Historical Archaeology Standards and Guidelines for the Curation of Archae-
            ological Collections. *Society for Historical Archaeology Newsletter* 26(4). Electronic version,
            http://www.sha.org/research_resources/curation_standards.cfm, accessed February 5, 2010.
            Society for Historical Archaeology.

Sonderman, Robert C.
    2004   Before You Start that Project, Do You Know What to Do with the Collection? In *Our
            Collective Responsibility: The Ethics and Practice of Archaeological Collections Stew-
            ardship*, S. T. Childs, ed., pp. 107–120. Society for American Archaeology, Washington,
            D.C.

Sterner, Matthew A., and Simon Herbert
    2005   *Curation Options Cost-Benefit Analysis for Collections from the Barry M. Goldwater Range
            East, Arizona.* Statistical Research. Submitted to 56th Range Management Office, Luke Air
            Force Base, Arizona, Contract No. F022604-99-D-0002.

Sullivan, Lynne P., and S. Terry Childs
    2003   *Curating Archaeological Collections: From the Field to the Repository.* Archaeologist's
            Toolkit Vol. 6. AltaMira Press, Walnut Creek, California.

Thompson, Raymond H.
    1999   The Crisis in Archeological Collection Management. *CRM* 23:4–6.

U.S. Air Force (USAF)
    n.d.   Air Force Instruction 32-7065: *Cultural Resources Management*, June 1, 2004. Electronic
            document, http://www.e-publishing.af.mil/shared/media/epubs/AFI32-7065.pdf, accessed
            February 5, 2010. Air Force e-Publishing.

U.S. Army
    n.d.   Army Regulation 200-1: *Environmental Quality, Environmental Protection and Enhance-
            ment,* December 13, 2007. Electronic document, http://www.apd.army.mil/, accessed Feb-
            ruary 5, 2010. Army Publishing Directorate.

    n.d.   Department of the Army Pamphlet 200–4: *Cultural Resources Management,* October 1, 1998.
            Electronic document, http://www.usapa.army.mil/pdffiles/p200_4.pdf, accessed February 5,
            2010. Army Publishing Directorate.

U.S. Army Corps of Engineers [USACE]
    n.d.   USACE Engineering Pamphlet (EP) 1130-2-540 *Project Operations – Environmental
            Stewardship Operations and Maintenance Guidance and Procedures* (updated July 31,
            2005). Electronic document, http://140.194.76.129/publications/eng-pamphlets/ep1130-2-
            540/toc.htm, accessed February 5, 2010. U.S. Army Corps of Engineers.

n.d.   Mandatory Center of Expertise for the Curation and Management of Archaeological
            Collections, MCX-CMAC Publications, Archaeological Curation-Needs Assessments.
            Electronic Document, http://www.mvs.usace.army.mil/engr/curation/Pubs.htm, accessed
            February 5, 2010. U.S. Army Corps of Engineers, St. Louis District.

2005   *Commander's Guide to Archaeological Curation–Workbook.* Legacy Resource Management
            Program Project 00-107. MCX-CMAC, USACE St. Louis District.

U.S. Bureau of Land Management [BLM]
n.d.   Manual 8100 Series: *The Foundations for Managing Cultural Resources*, December 3, 2004.
            Electronic document, http://www.blm.gov/heritage/docum/manual/Binder2-2.pdf, accessed
            February 5, 2010. U.S. Bureau of Land Management, Department of the Interior.

n.d.   Manual 8110 Series: *Identifying Cultural Resources,* December 3, 2004. Electronic docu-
            ment, http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/
            policy/blm_manual.Par.71969.File.dat/8100.pdf, accessed February 5, 2010. U.S. Bureau of
            Land Management, Department of the Interior.

n.d.   Manual 8150 Series: *Permitting Uses of Cultural Resources*, December, 12, 2004. Electronic
            document, http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources
            _Management/policy/blm_manual.Par.18440.File.dat/8150.pdf, accessed February 5, 2010.
            U.S. Bureau of Land Management, Department of the Interior.

U.S. Bureau of Reclamation [BOR]
n.d.   Reclamation Manual. Electronic document, http://www.usbr.gov/recman/, accessed February
            5, 2010. U.S. Bureau of Reclamation, Department of the Interior.

U.S. Department of Defense [DoD]
n.d.   Department of Defense Instruction 4715.3: *Environmental Conservation Program*, May 3,
            1996. Electronic document, http://www.dtic.mil/whs/directives/corres/pdf/471503p.pdf,
            accessed February 5, 2010. U.S. Department of Defense.

n.d.   Department of Defense Guidelines for the Curation of Archaeological Soil Samples. Elec-
            tronic document, http://www.denix.osd.mil/portal/page/portal/content/environment/CR/
            Curation/CollectionGuidance/DODSOILGUIDELINES_0.DOC, accessed February 5, 2010.
            DENIX, DoD Environment, Safety and Occupational Health Network and Information
            Exchange.

2005   DoD Legacy Resource Management Program Project 00-107 *Commander's Guide to Ar-
            chaeological Curation–Workbook*, February 2005.

U.S. Department of Energy [DOE]
n.d.   *Environmental Guidelines for Development of Cultural Resources Management Plans—
            Update*, September 22, 2004. Electronic document, http://www.directives.doe.gov/pdfs/
            doe/doetext/neword/450/g4501-3.pdf, accessed February 5, 2010. Departmental Directives
            Program.

U.S. Department of the Interior [USDI]
n.d.   Departmental Manual (DM) Part 411 *Museum Property Handbook*, March 19, 1997.
            Electronic document, http://www.doi.gov/museum/policy/pdf/mphi-1.pdf, accessed February

5, 2010. U.S. Department of Interior Museum Program.

U.S. Department of the Navy [USN]
n.d.   Chief of Naval Operations Instruction 5090.1C: *Environmental Readiness Program Manual*, October 30, 2007. Electronic document, http://doni.daps.dla.mil/allinstructions.aspx, accessed February 5, 2010. Department of the Navy Issuances.

U.S. Fish and Wildlife Service [USFWS]
n.d.   U.S. Fish and Wildlife Service (USFWS) Manual Series 100 External Relations and Outreach: *Library and Museum Services*, October 7, 1997. Electronic document, http://www.fws.gov/policy/manuals/part.cfm?series=100&seriestitle=EXTERNAL%20RELATIONS%20AND%20OUTREACH%20SERIES#126, accessed February 5, 2010. U.S. Fish and Wildlife Service, Division of Policy and Directives Management.

n.d.   U.S. Fish and Wildlife Service (USFWS) Manual: Series 600 Land Use and Management; *Cultural Resources Management*, November 18, 1992. Electronic document, http://www.fws.gov/policy/manuals/part.cfm?series=600&seriestitle=LAND%20USE%20AND%20MANAGEMENT%20SERIES, accessed February 5, 2010. U.S. Fish and Wildlife Service, Division of Policy and Directives Management.

U.S. Forest Service [USFS]
n.d.   USFS Manual: *Cultural Resources*: *Title 2300 – Recreation, Wilderness, and Related Resource Management*, June 21, 1990. Electronic document, http://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsm?2300, accessed February 5, 2010. Forest Service Directives.

U.S. Marine Corps [USMC]
n.d.   Marine Corps Order P5090.2A: *Environmental Compliance and Protection Manual*, July 10, 1998. Electronic document, http://www.usmc.mil/news/publications/Documents/MCO%20P5090.2A.pdf, accessed February 5, 2010. U.S. Marine Corps Publications.

U.S. National Park Service (NPS)
n.d.   Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation [As Amended and Annotated]. Electronic document, http://www.nps.gov/history/local-law/arch_stnds_0.htm, accessed February 5, 2010. U.S. National Park Service, Department of the Interior.

n.d.   NPS *Conserve O Grams* (1993–present). Electronic documents, http://www.nps.gov/history/museum/publications/conserveogram/conserv.html, accessed February 5, 2010. U.S. National Park Service, Department of the Interior, Museum Management Program.

n.d.   National Historic Preservation Act of 1966 as amended through 1992. Public Law 102-575. Electronic document, http://www.nps.gov/history/local-law/nhpa1966.htm, accessed February 5, 2010. U.S. National Park Service, Department of the Interior.

n.d.   The NPS Museum Handbook. Electronic document, http://www.nps.gov/history/museum/publications/handbook.html, accessed February 5, 2010. U.S. National Park Service, Department of the Interior, Museum Management Program.

n.d.   2001 Management Policies National Park Service. Electronic document, http://www.nps.gov/refdesk/mp/, accessed February 5, 2010. U.S. National Park Service, Department of the Interior.

Valley Fever Center for Excellence
 2009 Valley Fever Center for Excellence. Electronic document, http://www.vfce.arizona.edu/, accessed February 5, 2010. The University of Arizona, Tucson.

Virginia Department of Historic Resources
 2007 Virginia Department of Historic Resources State Collections Management Standards. Electronic document, http://www.dhr.virginia.gov/pdf_files/Collections_Mgmt_Standards _3_22_07.pdf, accessed February 8, 2010. Virginia Department of Historic Resources, Richmond.

Wiant, Michael D.
 2004 If You Build It, Will They Come? Archaeological Collections Use at the Illinois State Museum. In *Our Collective Responsibility: The Ethics and Practice of Archaeological Collections Stewardship*, edited by S. Terry Childs, pp. 77–89. Society for American Archaeology, Washington, D.C.

Wiant, Michael D., and Debra K. Loveless
 1998 *A Survey of Archaeological Collecting and Collections Management Policies.* Prepared for the U.S. Army Corps of Engineers, St. Louis District. Manuscript on file, U.S. Army Corps of Engineers, St. Louis District.

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The Society for Historical Archaeology (SHA) Standards and Guidelines for the Curation of Archaeological Collections

(b) If the waiver is still in effect at the time the Federal Agency Head receives recommendations from the Secretary, the Agency Head shall consider the recommendations and any comments received from the Advisory Council and the State Historic Preservation Officer before deciding whether to continue, withdraw, or modify the waiver. The Federal Agency Head shall respond to recommendations received from the Secretary either accepting or rejecting those recommendations, and, where recommendations are rejected, explaining the reasons for such a decision. Information copies of such response shall be forwarded by the Federal Agency Head to the Advisory Council on Historic Preservation and the appropriate State Historic Preservation Officer.

(c) If the waiver is no longer in effect at the time the Federal Agency Head receives recommendations from the Secretary or comments from the Advisory Council or the State Historic Preservation Officer, the Federal Agency Head should consider such recommendations and comments in similar future emergencies.

PART 79—CURATION OF FEDERALLY-OWNED AND ADMINISTERED ARCHAEOLOGICAL COLLECTIONS

§ 79.1 Purpose.

(a) The regulations in this part establish definitions, standards, procedures and guidelines to be followed by Federal agencies to preserve collections of prehistoric and historic material remains, and associated records, recovered under the authority of the Antiquities Act (16 U.S.C. 431–433), the Reservoir Salvage Act (16 U.S.C. 469–469*c*), section 110 of the National Historic Preservation Act (16 U.S.C. 470*h*–2) or the Archaeological Resources Protection Act (16 U.S.C. 470*aa-mm*). They establish:

(1) Procedures and guidelines to manage and preserve collections;

(2) Terms and conditions for Federal agencies to include in contracts, memoranda, agreements or other written instruments with repositories for curatorial services;

(3) Standards to determine when a repository has the capability to provide long-term curatorial services; and

(4) Guidelines to provide access to, loan and otherwise use collections.

(b) The regulations in this part contain three appendices that provide additional guidance for use by the Federal Agency Official.

(1) Appendix A to these regulations contains an example of an agreement between a Federal agency and a non-Federal owner of material remains who is donating the remains to the Federal agency.

(2) Appendix B to these regulations contains an example of a memorandum of understanding between a Federal agency and a repository for long-term curatorial services for a federally-owned collection.

(3) Appendix C to these regulations contains an example of an agreement between a repository and a third party for a short-term loan of a federally-owned collection (or a part thereof).

(4) The three appendices are meant to illustrate how such agreements might

appear. They should be revised according to the:

(i) Needs of the Federal agency and any non-Federal owner;

(ii) Nature and content of the collection; and

(iii) Type of contract, memorandum, agreement or other written instrument being used.

(5) When a repository has preexisting standard forms (e.g., a short-term loan form) that are consistent with the regulations in this part, those forms may be used in lieu of developing new ones.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.2 Authority.

(a) The regulations in this part are promulgated pursuant to section 101(a)(7)(A) of the National Historic Preservation Act (16 U.S.C. 470a) which requires that the Secretary of the Interior issue regulations ensuring that significant prehistoric and historic artifacts, and associated records, recovered under the authority of section 110 of that Act (16 U.S.C. 470h–2), the Reservoir Salvage Act (16 U.S.C. 469–469c) and the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) are deposited in an institution with adequate long-term curatorial capabilities.

(b) In addition, the regulations in this part are promulgated pursuant to section 5 of the Archaeological Resources Protection Act (16 U.S.C. 470dd) which gives the Secretary of the Interior discretionary authority to promulgate regulations for the:

(1) Exchange, where appropriate, between suitable universities, museums or other scientific or educational institutions, of archeological resources recovered from public and Indian lands under that Act; and

(2) Ultimate disposition of archeological resources recovered under that Act (16 U.S.C. 470aa-mm), the Antiquities Act (16 U.S.C. 431–433) or the Reservoir Salvage Act (16 U.S.C. 469–469c).

(3) It further states that any exchange or ultimate disposition of resources excavated or removed from Indian lands shall be subject to the consent of the Indian or Indian tribe that owns or has jurisdiction over such lands.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.3 Applicability.

(a) The regulations in this part apply to collections, as defined in § 79.4 of this part, that are excavated or removed under the authority of the Antiquities Act (16 U.S.C. 431–433), the Reservoir Salvage Act (16 U.S.C. 469–469c), section 110 of the National Historic Preservation Act (16 U.S.C. 470h-2) or the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm). Such collections generally include those that are the result of a prehistoric or historic resource survey, excavation or other study conducted in connection with a Federal action, assistance, license or permit.

(1) Material remains, as defined in § 79.4 of this part, that are excavated or removed from a prehistoric or historic resource generally are the property of the landowner.

(2) Data that are generated as a result of a prehistoric or historic resource survey, excavation or other study are recorded in associated records, as defined in § 79.4 of this part. Associated records that are prepared or assembled in connection with a Federal or federally authorized prehistoric or historic resource survey, excavation or other study are the property of the U.S. Government, regardless of the location of the resource.

(b) The regulations in this part apply to preexisting and new collections that meet the requirements of paragraph (a) of this section. However, the regulations shall not be applied in a manner that would supersede or breach material terms and conditions in any contract, grant, license, permit, memorandum, or agreement entered into by or on behalf of a Federal agency prior to the effective date of this regulation.

(c) Collections that are excavated or removed pursuant to the Antiquities Act (16 U.S.C. 431–433) remain subject to that Act, the Act's implementing rule (43 CFR part 3), and the terms and conditions of the pertinent Antiquities Act permit or other approval.

(d) Collections that are excavated or removed pursuant to the Archaeological Resources Protection Act (16 U.S.C. 470*aa–mm*) remain subject to that Act, the Act's implementing rules (43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229), and the terms and conditions of the pertinent Archaeological Resources Protection Act permit or other approval.

(e) Any repository that is providing curatorial services for a collection subject to the regulations in this part must possess the capability to provide adequate long-term curatorial services, as set forth in § 79.9 of this part, to safeguard and preserve the associated records and any material remains that are deposited in the repository.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.4 Definitions.

As used for purposes of this part:

(a) *Collection* means material remains that are excavated or removed during a survey, excavation or other study of a prehistoric or historic resource, and associated records that are prepared or assembled in connection with the survey, excavation or other study.

(1) *Material remains* means artifacts, objects, specimens and other physical evidence that are excavated or removed in connection with efforts to locate, evaluate, document, study, preserve or recover a prehistoric or historic resource. Classes of material remains (and illustrative examples) that may be in a collection include, but are not limited to:

(i) Components of structures and features (such as houses, mills, piers, fortifications, raceways, earthworks and mounds);

(ii) Intact or fragmentary artifacts of human manufacture (such as tools, weapons, pottery, basketry and textiles);

(iii) Intact or fragmentary natural objects used by humans (such as rock crystals, feathers and pigments);

(iv) By-products, waste products or debris resulting from the manufacture or use of man-made or natural materials (such as slag, dumps, cores and debitage);

(v) Organic material (such as vegetable and animal remains, and coprolites);

(vi) Human remains (such as bone, teeth, mummified flesh, burials and cremations);

(vii) Components of petroglyphs, pictographs, intaglios or other works of artistic or symbolic representation;

(viii) Components of shipwrecks (such as pieces of the ship's hull, rigging, armaments, apparel, tackle, contents and cargo);

(ix) Environmental and chronometric specimens (such as pollen, seeds, wood, shell, bone, charcoal, tree core samples, soil, sediment cores, obsidian, volcanic ash, and baked clay); and

(x) Paleontological specimens that are found in direct physical relationship with a prehistoric or historic resource.

(2) *Associated records* means original records (or copies thereof) that are prepared, assembled and document efforts to locate, evaluate, record, study, preserve or recover a prehistoric or historic resource. Some records such as field notes, artifact inventories and oral histories may be originals that are prepared as a result of the field work, analysis and report preparation. Other records such as deeds, survey plats, historical maps and diaries may be copies of original public or archival documents that are assembled and studied as a result of historical research. Classes of associated records (and illustrative examples) that may be in a collection include, but are not limited to:

(i) Records relating to the identification, evaluation, documentation, study, preservation or recovery of a resource (such as site forms, field notes, drawings, maps, photographs, slides, negatives, films, video and audio cassette tapes, oral histories, artifact inventories, laboratory reports, computer cards and tapes, computer disks and diskettes, printouts of computerized data, manuscripts, reports, and accession, catalog and inventory records);

(ii) Records relating to the identification of a resource using remote sensing methods and equipment (such as satellite and aerial photography and imagery, side scan sonar,

magnetometers, subbottom profilers, radar and fathometers);

(iii) Public records essential to understanding the resource (such as deeds, survey plats, military and census records, birth, marriage and death certificates, immigration and naturalization papers, tax forms and reports);

(iv) Archival records essential to understanding the resource (such as historical maps, drawings and photographs, manuscripts, architectural and landscape plans, correspondence, diaries, ledgers, catalogs and receipts); and

(v) Administrative records relating to the survey, excavation or other study of the resource (such as scopes of work, requests for proposals, research proposals, contracts, antiquities permits, reports, documents relating to compliance with section 106 of the National Historic Preservation Act (16 U.S.C. 470*f*), and National Register of Historic Places nomination and determination of eligibility forms).

(b) *Curatorial services.* Providing curatorial services means managing and preserving a collection according to professional museum and archival practices, including, but not limited to:

(1) Inventorying, accessioning, labeling and cataloging a collection;

(2) Identifying, evaluating and documenting a collection;

(3) Storing and maintaining a collection using appropriate methods and containers, and under appropriate environmental conditions and physically secure controls;

(4) Periodically inspecting a collection and taking such actions as may be necessary to preserve it;

(5) Providing access and facilities to study a collection; and

(6) Handling, cleaning, stabilizing and conserving a collection in such a manner to preserve it.

(c) *Federal Agency Official* means any officer, employee or agent officially representing the secretary of the department or the head of any other agency or instrumentality of the United States having primary management authority over a collection that is subject to this part.

(d) *Indian lands* has the same meaning as in §–.3(e) of uniform regulations

43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229.

(e) *Indian tribe* has the same meaning as in §–.3(f) of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229.

(f) *Personal property* has the same meaning as in 41 CFR 100–43.001–14. Collections, equipment (e.g., a specimen cabinet or exhibit case), materials and supplies are classes of personal property.

(g) *Public lands* has the same meaning as in §–.3(d) of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229.

(h) *Qualified museum professional* means a person who possesses knowledge, experience and demonstrable competence in museum methods and techniques appropriate to the nature and content of the collection under the person's management and care, and commensurate with the person's duties and responsibilities. Standards that may be used, as appropriate, for classifying positions and for evaluating a person's qualifications include, but are not limited to, the following:

(1) The Office of Personnel Management's ''Position Classification Standards for Positions under the General Schedule Classification System'' (U.S. Government Printing Office, stock No. 906–028–00000–0 (1981)) are used by Federal agencies to determine appropriate occupational series and grade levels for positions in the Federal service. Occupational series most commonly associated with museum work are the museum curator series (GS/GM–1015) and the museum technician and specialist series (GS/GM–1016). Other scientific and professional series that may have collateral museum duties include, but are not limited to, the archivist series (GS/GM–1420), the archeologist series (GS/GM–193), the anthropologist series (GS/GM–190), and the historian series (GS/GM–170). In general, grades GS–9 and below are assistants and trainees while grades GS–11 and above are professionals at the full performance level. Grades GS–11 and above are determined according to the level of independent professional responsibility, degree of specialization and scholarship, and the nature, variety, complexity, type and scope of the work.

(2) The Office of Personnel Management's "Qualification Standards for Positions under the General Schedule (Handbook X–118)" (U.S. Government Printing Office, stock No. 906–030–00000–4 (1986)) establish educational, experience and training requirements for employment with the Federal Government under the various occupational series. A graduate degree in museum science or applicable subject matter, or equivalent training and experience, and three years of professional experience are required for museum positions at grades GS–11 and above.

(3) The "Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation" (48 FR 44716, Sept. 29, 1983) provide technical advice about archeological and historic preservation activities and methods for use by Federal, State and local Governments and others. One section presents qualification standards for a number of historic preservation professions. While no standards are presented for collections managers, museum curators or technicians, standards are presented for other professions (i.e., historians, archeologists, architectural historians, architects, and historic architects) that may have collateral museum duties.

(4) Copies of the Office of Personnel Management's standards, including subscriptions for subsequent updates, may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Copies may be inspected at the Office of Personnel Management's Library, 1900 E Street NW., Washington, DC, at any regional or area office of the Office of Personnel Management, at any Federal Job Information Center, and at any personnel office of any Federal agency. Copies of the "Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation" are available at no charge from the Interagency Resources Division, National Park Service, P.O. Box 37127, Washington, DC 20013–7127.

(i) *Religious remains* means material remains that the Federal Agency Official has determined are of traditional religious or sacred importance to an Indian tribe or other group because of customary use in religious rituals or spiritual activities. The Federal Agency Official makes this determination in consultation with appropriate Indian tribes or other groups.

(j) *Repository* means a facility such as a museum, archeological center, laboratory or storage facility managed by a university, college, museum, other educational or scientific institution, a Federal, State or local Government agency or Indian tribe that can provide professional, systematic and accountable curatorial services on a long-term basis.

(k) *Repository Official* means any officer, employee or agent officially representing the repository that is providing curatorial services for a collection that is subject to this part.

(l) *Tribal Official* means the chief executive officer or any officer, employee or agent officially representing the Indian tribe.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.5 Management and preservation of collections.

The Federal Agency Official is responsible for the long-term management and preservation of preexisting and new collections subject to this part. Such collections shall be placed in a repository with adequate long-term curatorial capabilities, as set forth in § 79.9 of this part, appropriate to the nature and content of the collections.

(a) *Preexisting collections.* The Federal Agency Official is responsible for ensuring that preexisting collections, meaning those collections that are placed in repositories prior to the effective date of this rule, are being properly managed and preserved. The Federal Agency Official shall identify such repositories, and review and evaluate the curatorial services that are being provided to preexisting collections. When the Federal Agency Official determines that such a repository does not have the capability to provide adequate long-term curatorial services, as set forth in § 79.9 of this part, the Federal Agency Official may either:

(1) Enter into or amend an existing contract, memorandum, agreement or other appropriate written instrument

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for curatorial services for the purpose of:

(i) Identifying specific actions that shall be taken by the repository, the Federal agency or other appropriate party to eliminate the inadequacies;

(ii) Specifying a reasonable period of time and a schedule within which the actions shall be completed; and

(iii) Specifying any necessary funds or services that shall be provided by the repository, the Federal agency or other appropriate party to complete the actions; or

(2) Remove the collections from the repository and deposit them in another repository that can provide such services in accordance with the regulations in this part. Prior to moving any collection that is from Indian lands, the Federal Agency Official must obtain the written consent of the Indian landowner and the Indian tribe having jurisdiction over the lands.

(b) *New collections.* The Federal Agency Official shall deposit a collection in a repository upon determining that:

(1) The repository has the capability to provide adequate long-term curatorial services, as set forth in § 79.9 of this part;

(2) The repository's facilities, written curatorial policies and operating procedures are consistent with the regulations in this part;

(3) The repository has certified, in writing, that the collection shall be cared for, maintained and made accessible in accordance with the regulations in this part and any terms and conditions that are specified by the Federal Agency Official;

(4) When the collection is from Indian lands, written consent to the disposition has been obtained from the Indian landowner and the Indian tribe having jurisdiction over the lands; and

(5) The initial processing of the material remains (including appropriate cleaning, sorting, labeling, cataloging, stabilizing and packaging) has been completed, and associated records have been prepared and organized in accordance with the repository's processing and documentation procedures.

(c) *Retention of records by Federal agencies.* The Federal Agency Official shall maintain administrative records

on the disposition of each collection including, but not limited to:

(1) The name and location of the repository where the collection is deposited;

(2) A copy of the contract, memorandum, agreement or other appropriate written instrument, and any subsequent amendments, between the Federal agency, the repository and any other party for curatorial services;

(3) A catalog list of the contents of the collection that is deposited in the repository;

(4) A list of any other Federal personal property that is furnished to the repository as a part of the contract, memorandum, agreement or other appropriate written instrument for curatorial services;

(5) Copies of reports documenting inspections, inventories and investigations of loss, damage or destruction that are conducted pursuant to § 79.11 of this part; and

(6) Any subsequent permanent transfer of the collection (or a part thereof) to another repository.

§ 79.6 Methods to secure curatorial services.

(a) Federal agencies may secure curatorial services using a variety of methods, subject to Federal procurement and property management statutes, regulations, and any agency-specific statutes and regulations on the management of museum collections. Methods that may be used by Federal agencies to secure curatorial services include, but are not limited to:

(1) Placing the collection in a repository that is owned, leased or otherwise operated by the Federal agency;

(2) Entering into a contract or purchase order with a repository for curatorial services;

(3) Entering into a cooperative agreement, a memorandum of understanding, a memorandum of agreement or other agreement, as appropriate, with a State, local or Indian tribal repository, a university, museum or other scientific or educational institution that operates or manages a repository, for curatorial services;

(4) Entering into an interagency agreement with another Federal agency for curatorial services;

(5) Transferring the collection to another Federal agency for preservation; and

(6) For archeological activities permitted on public or Indian lands under the Archaeological Resources Protection Act (16 U.S.C. 470 *aa–mm*), the Antiquities Act (16 U.S.C. 431–433) or other authority, requiring the archeological permittee to provide for curatorial services as a condition to the issuance of the archeological permit.

(b) *Guidelines for selecting a repository.* (1) When possible, the collection should be deposited in a repository that:

(i) Is in the State of origin;

(ii) Stores and maintains other collections from the same site or project location; or

(iii) Houses collections from a similar geographic region or cultural area.

(2) The collection should not be subdivided and stored at more than a single repository unless such subdivision is necessary to meet special storage, conservation or research needs.

(3) Except when non-federally-owned material remains are retained and disposed of by the owner, material remains and associated records should be deposited in the same repository to maintain the integrity and research value of the collection.

(c) *Sources for technical assistance.* The Federal Agency Official should consult with persons having expertise in the management and preservation of collections prior to preparing a scope of work or a request for proposals for curatorial services. This will help ensure that the resulting contract, memorandum, agreement or other written instrument meets the needs of the collection, including any special needs in regard to any religious remains. It also will aid the Federal Agency Official in evaluating the qualifications and appropriateness of a repository, and in determining whether the repository has the capability to provide adequate long-term curatorial services for a collection. Persons, agencies, institutions and organizations that may be able to provide technical assistance include, but are not limited to the:

(1) Federal agency's Historic Preservation Officer;

(2) State Historic Preservation Officer;

(3) Tribal Historic Preservation Officer;

(4) State Archeologist;

(5) Curators, collections managers, conservators, archivists, archeologists, historians and anthropologists in Federal and State Government agencies and Indian tribal museum;

(6) Indian tribal elders and religious leaders;

(7) Smithsonian Institution;

(8) American Association of Museums; and

(9) National Park Service.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.7 Methods to fund curatorial services.

A variety of methods are used by Federal agencies to ensure that sufficient funds are available for adequate, long-term care and maintenance of collections. Those methods include, but are not limited to, the following:

(a) Federal agencies may fund a variety of curatorial activities using monies appropriated annually by the U.S. Congress, subject to any specific statutory authorities or limitations applicable to a particular agency. As appropriate, curatorial activities that may be funded by Federal agencies include, but are not limited to:

(1) Purchasing, constructing, leasing, renovating, upgrading, expanding, operating, and maintaining a repository that has the capability to provide adequate long-term curatorial services as set forth in § 79.9 of this part;

(2) Entering into and maintaining on a cost-reimbursable or cost-sharing basis a contract, memorandum, agreement, or other appropriate written instrument with a repository that has the capability to provide adequate long-term curatorial services as set forth in § 79.9 of this part;

(3) As authorized under section 110(g) of the National Historic Preservation Act (16 U.S.C. 470*h*–2), reimbursing a grantee for curatorial costs paid by the grantee as a part of the grant project;

(4) As authorized under section 110(g) of the National Historic Preservation Act (16 U.S.C. 470*h*–2), reimbursing a State agency for curatorial costs paid by the State agency to carry out the

historic preservation responsibilities of the Federal agency;

(5) Conducting inspections and inventories in accordance with § 79.11 of this part; and

(6) When a repository that is housing and maintaining a collection can no longer provide adequate long-term curatorial services, as set forth in § 79.9 of this part, either:

(i) Providing such funds or services as may be agreed upon pursuant to § 79.5(a)(1) of this part to assist the repository in eliminating the deficiencies; or

(ii) Removing the collection from the repository and depositing it in another repository that can provide curatorial services in accordance with the regulations in this part.

(b) As authorized under section 110(g) of the National Historic Preservation Act (16 U.S.C. 470h–2) and section 208(2) of the National Historic Preservation Act Amendments (16 U.S.C. 469c–2), for federally licensed or permitted projects or programs, Federal agencies may charge licensees and permittees reasonable costs for curatorial activities associated with identification, surveys, evaluation and data recovery as a condition to the issuance of a Federal license or permit.

(c) Federal agencies may deposit collections in a repository that agrees to provide curatorial services at no cost to the U.S. Government. This generally occurs when a collection is excavated or removed from public or Indian lands under a research permit issued pursuant to the Antiquities Act (16 U.S.C. 431–433) or the Archaeological Resources Protection Act (16 U.S.C. 470aa–mm). A repository also may agree to provide curatorial services as a public service or as a means of ensuring direct access to a collection for long-term study and use. Federal agencies should ensure that a repository that agrees to provide curatorial services at no cost to the U.S. Government has sufficient financial resources to support its operations and any needed improvements.

(d) Funds provided to a repository for curatorial services should include costs for initially processing, cataloging and accessioning the collection as well as costs for storing, inspecting,

inventorying, maintaining, and conserving the collection on a long-term basis.

(1) Funds to initially process, catalog and accession a collection to be generated during identification and evaluation surveys should be included in project planning budgets.

(2) Funds to initially process, catalog and accession a collection to be generated during data recovery operations should be included in project mitigation budgets.

(3) Funds to store, inspect, inventory, maintain and conserve a collection on a long-term basis should be included in annual operating budgets.

(e) When the Federal Agency Official determines that data recovery costs may exceed the one percent limitation contained in the Archeological and Historic Preservation Act (16 U.S.C. 469c), as authorized under section 208(3) of the National Historic Preservation Act Amendments (16 U.S.C. 469c–2), the limitation may be waived, in appropriate cases, after the Federal Agency Official has:

(1) Obtained the concurrence of the Secretary of the U.S. Department of the Interior by sending a written request to the Departmental Consulting Archeologist, National Park Service, P.O. Box 37127, Washington, DC 20013–7127; and

(2) Notified the Committee on Energy and Natural Resources of the U.S. Senate and the Committee on Interior and Insular Affairs of the U.S. House of Representatives.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.8 Terms and conditions to include in contracts, memoranda and agreements for curatorial services.

The Federal Agency Official shall ensure that any contract, memorandum, agreement or other appropriate written instrument for curatorial services that is entered into by or on behalf of that Official, a Repository Official and any other appropriate party contains the following:

(a) A statement that identifies the collection or group of collections to be covered and any other U.S. Government-owned personal property to be furnished to the repository;

(b) A statement that identifies who owns and has jurisdiction over the collection;

(c) A statement of work to be performed by the repository;

(d) A statement of the responsibilities of the Federal agency and any other appropriate party;

(e) When the collection is from Indian lands:

(1) A statement that the Indian landowner and the Indian tribe having jurisdiction over the lands consent to the disposition; and

(2) Such terms and conditions as may be requested by the Indian landowner and the Indian tribe having jurisdiction over the lands;

(f) When the collection is from a site on public lands that the Federal Agency Official has determined is of religious or cultural importance to any Indian tribe having aboriginal or historic ties to such lands, such terms and conditions as may have been developed pursuant to §–.7 of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229;

(g) The term of the contract, memorandum or agreement; and procedures for modification, suspension, extension, and termination;

(h) A statement of costs associated with the contract, memorandum or agreement; the funds or services to be provided by the repository, the Federal agency and any other appropriate party; and the schedule for any payments;

(i) Any special procedures and restrictions for handling, storing, inspecting, inventorying, cleaning, conserving, and exhibiting the collection;

(j) Instructions and any terms and conditions for making the collection available for scientific, educational and religious uses, including procedures and criteria to be used by the Repository Official to review, approve or deny, and document actions taken in response to requests for study, laboratory analysis, loan, exhibition, use in religious rituals or spiritual activities, and other uses. When the Repository Official to approve consumptive uses, this should be specified; otherwise, the Federal Agency Official should review and approve consumptive uses. When the repository's existing operating pro-

cedures and criteria for evaluating requests to use collections are consistent with the regulations in this part, they may be used, after making any necessary modifications, in lieu of developing new ones;

(k) Instructions for restricting access to information relating to the nature, location and character of the prehistoric or historic resource from which the material remains are excavated or removed;

(l) A statement that copies of any publications resulting from study of the collection are to be provided to the Federal Agency Official and, when the collection is from Indian lands, to the Tribal Official and the Tribal Historic Preservation Officer, if any, of the Indian tribe that owns or has jurisdiction over such lands;

(m) A statement that specifies the frequency and methods for conducting and documenting the inspections and inventories stipulated in § 79.11 of this part;

(n) A statement that the Repository Official shall redirect any request for transfer or repatriation of a federally-owned collection (or any part thereof) to the Federal Agency Official, and redirect any request for transfer or repatriation of a federally administered collection (or any part thereof) to the Federal Agency Official and the owner;

(o) A statement that the Repository Official shall not transfer, repatriate or discard a federally-owned collection (or any part thereof) without the written permission of the Federal Agency Official, and not transfer, repatriate or discard a federally administered collection (or any part thereof) without the written permission of the Federal Agency Official and the owner;

(p) A statement that the Repository Official shall not sell the collection; and

(q) A statement that the repository shall provide curatorial services in accordance with the regulations in this part.

§ 79.9 Standards to determine when a repository possesses the capability to provide adequate long-term curatorial services.

The Federal Agency Official shall determine that a repository has the capability to provide adequate long-term curatorial services when the repository is able to:

(a) Accession, label, catalog, store, maintain, inventory and conserve the particular collection on a long-term basis using professional museum and archival practices; and

(b) Comply with the following, as appropriate to the nature and consent of the collection:

(1) Maintain complete and accurate records of the collection, including:

(i) Records on acquisitions;

(ii) Catalog and artifact inventory lists;

(iii) Descriptive information, including field notes, site forms and reports;

(iv) Photographs, negatives and slides;

(v) Locational information, including maps;

(vi) Information on the condition of the collection, including any completed conservation treatments;

(vii) Approved loans and other uses;

(viii) Inventory and inspection records, including any environmental monitoring records;

(ix) Records on lost, deteriorated, damaged or destroyed Government property; and

(x) Records on any deaccessions and subsequent transfers, repatriations or discards, as approved by the Federal Agency Official;

(2) Dedicate the requisite facilities, equipment and space in the physical plant to properly store, study and conserve the collection. Space used for storage, study, conservation and, if exhibited, any exhibition must not be used for non-curatorial purposes that would endanger or damage the collection;

(3) Keep the collection under physically secure conditions within storage, laboratory, study and any exhibition areas by:

(i) Having the physical plant meet local electrical, fire, building, health and safety codes;

(ii) Having an appropriate and operational fire detection and suppression system;

(iii) Having an appropriate and operational intrusion detection and deterrent system;

(iv) Having an adequate emergency management plan that establishes procedures for responding to fires, floods, natural disasters, civil unrest, acts of violence, structural failures and failures of mechanical systems within the physical plant;

(v) Providing fragile or valuable items in a collection with additional security such as locking the items in a safe, vault or museum specimen cabinet, as appropriate;

(vi) Limiting and controlling access to keys, the collection and the physical plant; and

(vii) Inspecting the physical plant in accordance with § 79.11 of this part for possible security weaknesses and environmental control problems, and taking necessary actions to maintain the integrity of the collection;

(4) Require staff and any consultants who are responsible for managing and preserving the collection to be qualified museum professionals;

(5) Handle, store, clean, conserve and, if exhibited, exhibit the collection in a manner that:

(i) Is appropriate to the nature of the material remains and associated records;

(ii) Protects them from breakage and possible deterioration from adverse temperature and relative humidity, visible light, ultraviolet radiation, dust, soot, gases, mold, fungus, insects, rodents and general neglect; and

(iii) Preserves data that may be studied in future laboratory analyses. When material remains in a collection are to be treated with chemical solutions or preservatives that will permanently alter the remains, when possible, retain untreated representative samples of each affected artifact type, environmental specimen or other category of material remains to be treated. Untreated samples should not be stabilized or conserved beyond dry brushing;

(6) Store site forms, field notes, artifacts inventory lists, computer disks and tapes, catalog forms and a copy of

the final report in a manner that will protect them from theft and fire such as:

(i) Storing the records in an appropriate insulated, fire resistant, locking cabinet, safe, vault or other container, or in a location with a fire suppression system;

(ii) Storing a duplicate set of records in a separate location; or

(iii) Ensuring that records are maintained and accessible through another party. For example, copies of final reports and site forms frequently are maintained by the State Historic Preservation Officer, the State Archeologist or the State museum or university. The Tribal Historic Preservation Officer and Indian tribal museum ordinarily maintain records on collections recovered from sites located on Indian lands. The National Technical Information Service and the Defense Technical Information Service maintain copies of final reports that have been deposited by Federal agencies. The National Archeological Database maintains summary information on archeological reports and projects, including information on the location of those reports.

(7) Inspect the collection in accordance with § 79.11 of this part for possible deterioration and damage, and perform only those actions as are absolutely necessary to stabilize the collection and rid it of any agents of deterioration;

(8) Conduct inventories in accordance with § 79.11 of this part to verify the location of the material remains, associated records and any other Federal personal property that is furnished to the repository; and

(9) Provide access to the collection in accordance with § 79.10 of this part.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

§ 79.10   Use of collections.

(a) The Federal Agency Official shall ensure that the Repository Official makes the collection available for scientific, educational and religious uses, subject to such terms and conditions as are necessary to protect and preserve the condition, research potential, religious or sacred importance, and uniqueness of the collection.

(b) *Scientific and educational uses.* A collection shall be made available to qualified professionals for study, loan and use for such purposes as in-house and traveling exhibits, teaching, public interpretation, scientific analysis and scholarly research. Qualified professionals would include, but not be limited to, curators, conservators, collection managers, exhibitors, researchers, scholars, archeological contractors and educators. Students may use a collection when under the direction of a qualified professional. Any resulting exhibits and publications shall acknowledge the repository as the curatorial facility and the Federal agency as the owner or administrator, as appropriate. When the collection is from Indian lands and the Indian landowner and the Indian tribe having jurisdiction over the lands wish to be identified, those individuals and the Indian tribe shall also be acknowledged. Copies of any resulting publications shall be provided to the Repository Official and the Federal Agency Official. When Indian lands are involved, copies of such publications shall also be provided to the Tribal Official and the Tribal Historic Preservation Officer, if any, of the Indian tribe that owns or has jurisdiction over such lands.

(c) *Religious uses.* Religious remains in a collection shall be made available to persons for use in religious rituals or spiritual activities. Religious remains generally are of interest to medicine men and women, and other religious practitioners and persons from Indian tribes, Alaskan Native corporations, Native Hawaiians, and other indigenous and immigrant ethnic, social and religious groups that have aboriginal or historic ties to the lands from which the remains are recovered, and have traditionally used the remains or class of remains in religious rituals or spiritual activities.

(d) *Terms and conditions.* (1) In accordance with section 9 of the Archaeological Resources Protection Act (16 U.S.C. 470*hh*) and section 304 of the National Historic Preservation Act (16 U.S.C. 470 *w*–3), the Federal Agency Official shall restrict access to associated records that contain information relating to the nature, location or character

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of a prehistoric or historic resource unless the Federal Agency Official determines that such disclosure would not create a risk of harm, theft or destruction to the resource or to the area or place where the resource is located.

(2) Section –.18(a)(2) of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229 sets forth procedures whereby information relating to the nature, location or character of a prehistoric or historic resource may be made available to the Governor of any State. The Federal Agency Official may make information available to other persons who, following the procedures in §–.18(a)(2) of the referenced uniform regulations, demonstrate that the disclosure will not create a risk of harm, theft or destruction to the resource or to the area or place where the resource is located. Other persons generally would include, but not be limited to, archeological contractors, researchers, scholars, tribal representatives, Federal, State and local agency personnel, and other persons who are studying the resource or class or resources.

(3) When a collection is from Indian lands, the Federal Agency Official shall place such terms and conditions as may be requested by the Indian landowner and the Indian tribe having jurisdiction over the lands on:

(i) Scientific, educational or religious uses of material remains; and

(ii) Access to associated records that contain information relating to the nature, location or character of the resource.

(4) When a collection is from a site on public lands that the Federal Agency Official has determined is of religious or cultural importance to any Indian tribe having aboriginal or historic ties to such lands, the Federal Agency Official shall place such terms and conditions as may have been developed pursuant to §–.7 of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229 on:

(i) Scientific, educational or religious uses of material remains; and

(ii) Access to associated records that contain information relating to the nature, location or character of the resource.

(5) The Federal Agency Official shall not allow uses that would alter, damage or destroy an object in a collection unless the Federal Agency Official determines that such use is necessary for scientific studies or public interpretation, and the potential gain in scientific or interpretive information outweighs the potential loss of the object. When possible, such use should be limited to unprovenienced, nonunique, nonfragile objects, or to a sample of objects drawn from a larger collection of similar objects.

(e) No collection (or a part thereof) shall be loaned to any person without a written agreement between the Repository Official and the borrower that specifies the terms and conditions of the loan. Appendix C to the regulations in this part contains an example of a short-term loan agreement for a federally-owned collection. At a minimum, a loan agreement shall specify:

(1) The collection or object being loaned;

(2) The purpose of the loan;

(3) The length of the loan;

(4) Any restrictions on scientific, educational or religious uses, including whether any object may be altered, damaged or destroyed;

(5) Except as provided in paragraph (e)(4) of this section, that the borrower shall handle the collection or object being borrowed during the term of the loan in accordance with this part so as not to damage or reduce its scientific, educational, religious or cultural value; and

(6) Any requirements for insuring the collection or object being borrowed for any loss, damage or destruction during transit and while in the borrower's possession.

(f) The Federal Agency Official shall ensure that the Repository Official maintains administrative records that document approved scientific, educational and religious uses of the collection.

(g) The Repository Official may charge persons who study, borrow or use a collection (or a part thereof) reasonable fees to cover costs for handling, packing, shipping and insuring material remains, for photocopying associated records, and for other related incidental costs.

§ 79.11 Conduct of inspections and inventories.

(a) The inspections and inventories specified in this section shall be conducted periodically in accordance with the Federal Property and Administrative Services Act (40 U.S.C. 484), its implementing regulation (41 CFR part 101), any agency-specific regulations on the management of Federal property, and any agency-specific statutes and regulations on the management of museum collections.

(b) Consistent with paragraph (a) of this section, the Federal Agency Official shall ensure that the Repository Official:

(1) Provides the Federal Agency Official and, when the collection is from Indian lands, the Indian landowner and the Tribal Official of the Indian tribe that has jurisdiction over the lands with a copy of the catalog list of the contents of the collection received and accessioned by the repository;

(2) Provides the Federal Agency Official will a list of any other U.S. Government-owned personal property received by the repository;

(3) Periodically inspects the physical plant for the purpose of monitoring the physical security and environmental control measures;

(4) Periodically inspects the collection for the purposes of assessing the condition of the material remains and associated records, and of monitoring those remains and records for possible deterioration and damage;

(5) Periodically inventories the collection by accession, lot or catalog record for the purpose of verifying the location of the material remains and associated records;

(6) Periodically inventories any other U.S. Government-owned personal property in the possession of the repository;

(7) Has qualified museum professionals conduct the inspections and inventories;

(8) Following each inspection and inventory, prepares and provides the Federal Agency Official with a written report of the results of the inspection and inventory, including the status of the collection, treatments completed and recommendations for additional treatments. When the collection is from Indian lands, the Indian landowner and the Tribal Official of the Indian tribe that has jurisdiction over the lands shall also be provided with a copy of the report;

(9) Within five (5) days of the discovery of any loss or theft of, deterioration and damage to, or destruction of the collection (or a part thereof) or any other U.S. Government-owned personal property, prepares and provides the Federal Agency Official with a written notification of the circumstances surrounding the loss, theft, deterioration, damage or destruction. When the collection is from Indian lands, the Indian landowner and the Tribal Official of the Indian tribe that has jurisdiction over the lands shall also be provided with a copy of the notification; and

(10) Makes the repository, the collection and any other U.S. Government-owned personal property available for periodic inspection by the:

(i) Federal Agency Official;

(ii) When the collection is from Indian lands, the Indian landowner and the Tribal Official of the Indian tribe that has jurisdiction over the lands; and

(iii) When the collection contains religious remains, the Indian tribal elders, religious leaders, and other officials representing the Indian tribe or other group for which the remains have religious or sacred importance.

(c) Consistent with paragraph (a) of this section, the Federal Agency Official shall have qualified Federal agency professionals:

(1) Investigate reports of a lost, stolen, deteriorated, damaged or destroyed collection (or a part thereof) or any other U.S. Government-owned personal property; and

(2) Periodically inspect the repository, the collection and any other U.S. Government-owned personal property for the purposes of:

(i) Determining whether the repository is in compliance with the minimum standards set forth in § 79.9 of this part; and

(ii) Evaluating the performance of the repository in providing curatorial services under any contract, memorandum, agreement or other appropriate written instrument.

(d) The frequency and methods for conducting and documenting inspections and inventories stipulated in this section shall be mutually agreed upon, in writing, by the Federal Agency Official and the Repository Official, and be appropriate to the nature and content of the collection:

(1) Collections from Indian lands shall be inspected and inventoried in accordance with such terms and conditions as may be requested by the Indian landowner and the Indian tribe having jurisdiction over the lands.

(2) Religious remains in collections from public lands shall be inspected and inventoried in accordance with such terms and conditions as may have been developed pursuant to §–.7 of uniform regulations 43 CFR part 7, 36 CFR part 296, 18 CFR part 1312, and 32 CFR part 229.

(3) Material remains and records of a fragile or perishable nature should be inspected for deterioration and damage on a more frequent basis than lithic or more stable remains or records.

(4) Because frequent handling will accelerate the breakdown of fragile materials, material remains and records should be viewed but handled as little as possible during inspections and inventories.

(5) Material remains and records of a valuable nature should be inventoried on a more frequent basis than other less valuable remains or records.

(6) Persons such as those listed in §79.6(c) of this part who have expertise in the management and preservation of similar collections should be able to provide advice to the Federal Agency Official concerning the appropriate frequency and methods for conducting inspections and inventories of a particular collection.

(e) Consistent with the Single Audit Act (31 U.S.C. 75), when two or more Federal agencies deposit collections in the same repository, the Federal Agency Officials should enter into an interagency agreement for the purposes of:

(1) Requesting the Repository Official to coordinate the inspections and inventories, stipulated in paragraph (b) of this section, for each of the collections;

(2) Designating one or more qualified Federal agency professionals to:

(i) Conduct inspections, stipulated in paragraph (c)(2) of this section, on behalf of the other agencies; and

(ii) Following each inspection, prepare and distribute to each Federal Agency Official a written report of findings, including an evaluation of performance and recommendations to correct any deficiencies and resolve any problems that were identified. When the collection is from Indian lands, the Indian landowner and the Tribal Official of the Indian tribe that has jurisdiction over the lands shall also be provided with a copy of the report; and

(3) Ensuring consistency in the conduct of inspections and inventories conducted pursuant to this section.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

APPENDIX A TO PART 79—EXAMPLE OF A DEED OF GIFT

DEED OF GIFT
TO THE
(Name of the Federal agency)

Whereas, the (name of the Federal agency), hereinafter called the Recipient, is dedicated to the preservation and protection of artifacts, specimens and associated records that are generated in connection with its projects and programs;

Whereas, certain artifacts and specimens, listed in Attachment A to this Deed of Gift, were recovered from the (name of the prehistoric or historic resource) site in connection with the Recipient's (name of the Recipient's project) project;

Whereas, the (name of the prehistoric or historic resource) site is located on lands to which title is held by (name of the donor), hereinafter called the Donor, and that the Donor holds free and clear title to the artifacts and specimens; and

Whereas, the Donor is desirous of donating the artifacts and specimens to the Recipient to ensure their continued preservation and protection;

Now therefore, the Donor does hereby unconditionally donate to the Recipient, for unrestricted use, the artifacts and specimens listed in Attachment A to this Deed of Gift; and

The Recipient hereby gratefully acknowledges the receipt of the artifacts and specimens.

Signed: (signature of the Donor)

Date: (date)

Signed: (signature of the Federal Agency Official)

Date: (date)

Attachment A: Inventory of Artifacts and Specimens.

[55 FR 37630, Sept. 12, 1990; 55 FR 41639, Oct. 10, 1990]

APPENDIX B TO PART 79—EXAMPLE OF A MEMORANDUM OF UNDERSTANDING FOR CURATORIAL SERVICES FOR A FEDERALLY-OWNED COLLECTION

MEMORANDUM OF UNDERSTANDING FOR CURATORIAL SERVICES BETWEEN THE (Name of the Federal agency)
AND THE
(Name of the Repository)

This Memorandum of Understanding is entered into this (day) day of (month and year), between the United States of America, acting by and through the (name of the Federal agency), hereinafter called the Depositor, and the (name of the Repository), hereinafter called the Repository, in the State of (name of the State).

The Parties do witnesseth that,

Whereas, the Depositor has the responsibility under Federal law to preserve for future use certain collections of archeological artifacts, specimens and associated records, herein called the Collection, listed in Attachment A which is attached hereto and made a part hereof, and is desirous of obtaining curatorial services; and

Whereas, the Repository is desirous of obtaining, housing and maintaining the Collection, and recognizes the benefits which will accrue to it, the public and scientific interests by housing and maintaining the Collection for study and other educational purposes; and

Whereas, the Parties hereto recognize the Federal Government's continued ownership and control over the Collection and any other U.S. Government-owned personal property, listed in Attachment B which is attached hereto and made a part hereof, provided to the Repository, and the Federal Government's responsibility to ensure that the Collection is suitably managed and preserved for the public good; and

Whereas, the Parties hereto recognize the mutual benefits to be derived by having the Collection suitably housed and maintained by the Repository;

Now therefore, the Parties do mutually agree as follows:

1. The Repository shall:

a. Provide for the professional care and management of the Collection from the (names of the prehistoric and historic resources) sites, assigned (list site numbers) site numbers. The collections were recovered in connection with the (name of the Federal or federally-authorized project) project, located in (name of the nearest city or town),

(name of the county) county, in the State of (name of the State).

b. Perform all work necessary to protect the Collection in accordance with the regulation 36 CFR part 79 for the curation of federally-owned and administered archeological collections and the terms and conditions stipulated in Attachment C to this Memorandum.

c. Assign as the Curator, the Collections Manager and the Conservator having responsibility for the work under this Memorandum, persons who are qualified museum professionals and whose expertise is appropriate to the nature and content of the Collection.

d. Begin all work on or about (month, date and year) and continue for a period of (number of years) years or until sooner terminated or revoked in accordance with the terms set forth herein.

e. Provide and maintain a repository facility having requisite equipment, space and adequate safeguards for the physical security and controlled environment for the Collection and any other U.S. Government-owned personal property in the possession of the Repository.

f. Not in any way adversely alter or deface any of the Collection except as may be absolutely necessary in the course of stabilization, conservation, scientific study, analysis and research. Any activity that will involve the intentional destruction of any of the Collection must be approved in advance and in writing by the Depositor.

g. Annually inspect the facilities, the Collection and any other U.S. Government-owned personal property. Every (number of years) years inventory the Collection and any other U.S. Government-owned personal property. Perform only those conservation treatments as are absolutely necessary to ensure the physical stability and integrity of the Collection, and report the results of inventories, inspections and treatments to the Depositor.

h. Within five (5) days of discovery, report all instances of and circumstances surrounding loss of, deterioration and damage to, or destruction of the Collection and any other U.S. Government-owned personal property to the Depositor, and those actions taken to stabilize the Collection and to correct any deficiencies in the physical plant or operating procedures that may have contributed to the loss, deterioration, damage or destruction. Any actions that will involve the repair and restoration of any of the Collection and any other U.S. Government-owned personal property must be approved in advance and in writing by the Depositor.

i. Review and approve or deny requests for access to or short-term loan of the Collection (or a part thereof) for scientific, educational or religious uses in accordance with the regulation 36 CFR part 79 for the

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curation of federally-owned and administered archeological collections and the terms and conditions stipulated in Attachment C of this Memorandum. In addition, refer requests for consumptive uses of the Collection (or a part thereof) to the Depositor for approval or denial.

j. Not mortgage, pledge, assign, repatriate, transfer, exchange, give, sublet, discard or part with possession of any of the Collection or any other U.S. Government-owned personal property in any manner to any third party either directly or in-directly without the prior written permission of the Depositor, and redirect any such request to the Depositor for response. In addition, not take any action whereby any of the Collection or any other U.S. Government-owned personal property shall or may be encumbered, seized, taken in execution, sold, attached, lost, stolen, destroyed or damaged.

2. The Depositor shall:

a. On or about (month, date and year), deliver or cause to be delivered to the Repository the Collection, as described in Attachment A, and any other U.S. Government-owned personal property, as described in Attachment B.

b. Assign as the Depositor's Representative having full authority with regard to this Memorandum, a person who meets pertinent professional qualifications.

c. Every (number of years) years, jointly with the Repository's designated representative, have the Depositor's Representative inspect and inventory the Collection and any other U.S. Government-owned personal property, and inspect the repository facility.

d. Review and approve or deny requests for consumptively using the Collection (or a part thereof).

3. Removal of all or any portion of the Collection from the premises of the Repository for scientific, educational or religious purposes may be allowed only in accordance with the regulation 36 CFR part 79 for the curation of federally-owned and administered archeological collections; the terms and conditions stipulated in Attachment C to this Memorandum; any conditions for handling, packaging and transporting the Collection; and other conditions that may be specified by the Repository to prevent breakage, deterioration and contamination.

4. The Collection or portions thereof may be exhibited, photographed or otherwise reproduced and studied in accordance with the terms and conditions stipulated in Attachment C to this Memorandum. All exhibits, reproductions and studies shall credit the Depositor, and read as follows: "Courtesy of the (name of the Federal agency)." The Repository agrees to provide the Depositor with copies of any resulting publications.

5. The Repository shall maintain complete and accurate records of the Collection and any other U.S. Government-owned personal property, including information on the study, use, loan and location of said Collection which has been removed from the premises of the Repository.

6. Upon execution by both parties, this Memorandum of Understanding shall be effective on this (day) day of (month and year), and shall remain in effect for (number of years) years, at which time it will be reviewed, revised, as necessary, and reaffirmed or terminated. This Memorandum may be revised or extended by mutual consent of both parties, or by issuance of a written amendment signed and dated by both parties. Either party may terminate this Memorandum by providing 90 days written notice. Upon termination, the Repository shall return such Collection and any other U.S. Government-owned personal property to the destination directed by the Depositor and in such manner to preclude breakage, loss, deterioration and contamination during handling, packaging and shipping, and in accordance with other conditions specified in writing by the Depositor. If the Repository terminates, or is in default of, this Memorandum, the Repository shall fund the packaging and transportation costs. If the Depositor terminates this Memorandum, the Depositor shall fund the packaging and transportation costs.

7. Title to the Collection being cared for and maintained under this Memorandum lies with the Federal Government.

In witness whereof, the Parties hereto have executed this Memorandum.

Signed: (signature of the Federal Agency Official)

Date: (date)

Signed: (signature of the Repository Official)

Date: (date)

Attachment A: Inventory of the Collection
Attachment B: Inventory of any other U.S. Government-owned Personal Property
Attachment C: Terms and Conditions Required by the Depositor

APPENDIX C TO PART 79—EXAMPLE OF A SHORT-TERM LOAN AGREEMENT FOR A FEDERALLY-OWNED COLLECTION

SHORT-TERM LOAN AGREEMENT
BETWEEN THE
(Name of the Repository)
AND THE
(Name of the Borrower)

The (name of the Repository), hereinafter called the Repository, agrees to loan to (name of the Borrower), hereinafter called the Borrower, certain artifacts, specimens and associated records, listed in Attachment A, which were collected from the (name of the prehistoric or historic resource) site which is assigned (list site number) site

number. The collection was recovered in connection with the (name of the Federal or federally authorized project) project, located in (name of the nearest city or town), (name of the county) county in the State of (name of the State). The Collection is the property of the U.S. Government.

The artifacts, specimens and associated records are being loaned for the purpose of (cite the purpose of the loan), beginning on (month, day and year) and ending on (month, day and year).

During the term of the loan, the Borrower agrees to handle, package and ship or transport the Collection in a manner that protects it from breakage, loss, deterioration and contamination, in conformance with the regulation 36 CFR part 79 for the curation of federally-owned and administered archeological collections and the terms and conditions stipulated in Attachment B to this loan agreement.

The Borrower agrees to assume full responsibility for insuring the Collection or for providing funds for the repair or replacement of objects that are damaged or lost during transit and while in the Borrower's possession. Within five (5) days of discovery, the Borrower will notify the Repository of instances and circumstances surrounding any loss of, deterioration and damage to, or destruction of the Collection and will, at the direction of the Repository, take steps to conserve damaged materials.

The Borrower agrees to acknowledge and credit the U.S. Government and the Repository in any exhibits or publications resulting from the loan. The credit line shall read as follows: ''Courtesy of the (names of the Federal agency and the Repository).'' The Borrower agrees to provide the Repository and the (name of the Federal agency) with copies of any resulting publications.

Upon termination of this agreement, the Borrower agrees to properly package and ship or transport the Collection to the Repository.

Either party may terminate this agreement, effective not less than (number of days) days after receipt by the other party of written notice, without further liability to either party.

Signed: (signature of the Repository Official)

Date: (date)

Signed: (signature of the Borrower)

Date: (date)

Attachment A: Inventory of the Objects being Loaned.

Attachment B: Terms and Conditions of the Loan.

PARTS 80–199 [RESERVED]

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Principles of Archaeological Ethics

At its April 10, 1996 meeting, the SAA Executive Board adopted the Principles of Archaeological Ethics, reproduced below, as proposed by the SAA Ethics in Archaeology Committee. The adoption of these principles represents the culmination of an effort begun in 1991 with the formation of the ad-hoc Ethics in Archaeology Committee. The committee was charged with considering the need for revising the society's existing statements on ethics. A 1993 workshop on ethics, held in Reno, resulted in draft principles that were presented at a public forum at the 1994 annual meeting in Anaheim. SAA published the draft principles with position papers from the forum and historical commentaries in a special report distributed to all members, *Ethics and Archaeology: Challenges for the 1990s*, edited by Mark. J. Lynott and Alison Wylie (1995). Member comments were solicited in this special report, through a notice in *SAA Bulletin*, and at two sessions held at the SAA booth during the 1995 annual meeting in Minneapolis. The final principles, presented here, are revised from the original draft based on comments from members and the Executive Board.

The Executive Board strongly endorses these principles and urges their use by all archaeologists "in negotiating the complex responsibilities they have to archaeological resources, and to all who have an interest in these resources or are otherwise affected by archaeological practice (Lynott and Wylie 1995:8)." The board is grateful to those who have contributed to the development of these principles, especially the members of the Ethics in Archaeology Committee, chaired by Mark. J. Lynott and Alison Wylie, for their skillful completion of this challenging and important task. The bylaws change just voted by the members has established a new standing committee, the Committee on Ethics, that will carry

on with these crucial efforts.

Principle No. 1:

Stewardship

The archaeological record, that is, in situ archaeological material and sites, archaeological collections, records and reports, is irreplaceable. It is the responsibility of all archaeologists to work for the long-term conservation and protection of the archaeological record by practicing and promoting stewardship of the archaeological record. Stewards are both caretakers of and advocates for the archaeological record for the benefit of all people; as they investigate and interpret the record, they should use the specialized knowledge they gain to promote public understanding and support for its long-term preservation.

Principle No. 2:

Accountability

Responsible archaeological research, including all levels of professional activity, requires an acknowledgment of public accountability and a commitment to make every reasonable effort, in good faith, to consult actively with affected group(s), with the goal of establishing a working relationship that can be beneficial to all parties involved.

Principle No. 3:

Commercialization

The Society for American Archaeology has long recognized that the buying and selling of objects out of archaeological context is contributing to the destruction of the archaeological record on the American continents and around the world. The commercialization of archaeological objects - their use as commodities to be exploited for personal enjoyment or profit - results in the destruction of archaeological sites and of contextual information that is essential to understanding the archaeological record. Archaeologists should therefore carefully weigh the benefits to scholarship of a project against the costs of potentially enhancing the commercial value of archaeological objects. Whenever possible they should discourage, and should themselves avoid, activities that enhance the commercial value

of archaeological objects, especially objects that are not curated in public institutions, or readily available for scientific study, public interpretation, and display.

Principle No. 4:

Public Education and Outreach

Archaeologists should reach out to, and participate in cooperative efforts with others interested in the archaeological record with the aim of improving the preservation, protection, and interpretation of the record. In particular, archaeologists should undertake to: 1) enlist public support for the stewardship of the archaeological record; 2) explain and promote the use of archaeological methods and techniques in understanding human behavior and culture; and 3) communicate archaeological interpretations of the past. Many publics exist for archaeology including students and teachers; Native Americans and other ethnic, religious, and cultural groups who find in the archaeological record important aspects of their cultural heritage; lawmakers and government officials; reporters, journalists, and others involved in the media; and the general public. Archaeologists who are unable to undertake public education and outreach directly should encourage and support the efforts of others in these activities.

Principle No. 5:

Intellectual Property

Intellectual property, as contained in the knowledge and documents created through the study of archaeological resources, is part of the archaeological record. As such it should be treated in accord with the principles of stewardship rather than as a matter of personal possession. If there is a compelling reason, and no legal restrictions or strong countervailing interests, a researcher may have primary access to original materials and documents for a limited and reasonable time, after which these materials and documents must be made available to others.

Principle No. 6:

Public Reporting and Publication

Within a reasonable time, the knowledge archaeologists gain from investigation of the archaeological record must be presented in accessible form (through publication or other means) to as wide a range of interested publics as possible. The documents and materials on which publication and other forms of public reporting are based should be deposited in a suitable place for permanent safekeeping. An interest in preserving and protecting *in situ* archaeological sites must be taken in to account when publishing and distributing information about their nature and location.

Principle No. 7:

Records and Preservation

Archaeologists should work actively for the preservation of, and long term access to, archaeological collections, records, and reports. To this end, they should encourage colleagues, students, and others to make responsible use of collections, records, and reports in their research as one means of preserving the *in situ* archaeological record, and of increasing the care and attention given to that portion of the archaeological record which has been removed and incorporated into archaeological collections, records, and reports.

Principle No. 8:

Training and Resources

Given the destructive nature of most archaeological investigations, archaeologists must ensure that they have adequate training, experience, facilities, and other support necessary to conduct any program of research they initiate in a manner consistent with the foregoing principles and contemporary standards of professional practice.

Click here for additional ethics resources.

Last Modified: Thursday January 18 2007

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Society for Historical Archaeology

Research Resources

The Society for Historical Archaeology Standards and Guidelines for the Curation of Archaeological Collections

Download Curation Standards
MS Word Format

Introduction

Archaeologists have an ethical obligation to preserve the data they collect during archaeological projects for future generations. The following standards and guidelines were developed by The Society for Historical Archaeology with the explicit goals of permitting the long-term preservation of archaeological collections and maintaining their research and public education values. These SHA standards are in accordance with the more general federal regulations issued as 36 CFR Part 79: *Curation of Federally-Owned and Administered Archaeological Collections.* For the purposes of archaeological curation, the following terms are employed:

- **Archaeological Collections** are comprised of several components, including but not limited to artifacts, environmental and dating samples, field documentation, laboratory documentation, photographic records, related historical documents, and reports.
- **Curation** is an integral element of the archaeological process and refers to the long-term management and preservation of archaeological materials and their associated documentation.
- **Curation Facility** is a designated repository for archaeological materials, which can provide accountable, professional curation of collections in a secure, climate-controlled environment on long-term basis.

Due to its significance, planning for curation should begin in the project design phase through consultation with the curatorial facility, which will ultimately receive the collection. Curation expenses and storage fees must be considered in the preparation of project budgets.

Recommendations

The following recommendations for the processing and storage of archaeological materials represent the minimum standards, which are essential if our professional responsibility to preserve archaeological collections for the future is to be realized.

1. Artifact Cleaning

All artifacts should be cleaned unless this will harm the object or result in the loss of potential data (i.e., blood-residue analysis). Cleaning is necessary for the accurate identification and study of most artifact types. Appropriate cleaning procedures depend upon the type and condition of the material.

Due care must be exercised during the cleaning process to insure that the integrity and information value of the object is maintained.

2. Artifact Labeling

2a. Artifacts must be labeled in such a way that the site and intrasite provenience data are retrievable. Labeling must be done in a permanent and archivally stable manner. Where direct labeling on the object is not feasible, other archivally stable methods of permanently maintaining the relationship between an artifact and its provenience may be used (i.e., string tags with acid-free paper for beads).

2b. All diagnostic artifacts must be labeled whenever physically possible. If not appropriate, the object must be packaged in archivally stable materials, which are permanently labeled.

2c. When certain less-diagnostic artifact types occur in large quantities within a specific provenience, all specimens need not be individually labeled. Examples include but are not limited to slag, shell, fire cracked rocks, flakes, window glass, brick, mortar, plaster, and coal (exceptions should include unusual specimens or those of particular research potential). These artifacts may be grouped by material type and placed in a resealable plastic bag with the exterior permanently labeled. In the bag with less diagnostic artifacts, a Mylar or an acid-free paper slip labeled with the provenience information must be included. Other material classes not appropriate for individual labeling (i.e., floral remains, soil samples) should be stored in suitable labeled containers with a labeled Mylar strip placed inside.

2d. All faunal material, which can be physically labeled, should be labeled. Bones too small for individual marking should be placed in a labeled, resealable plastic bag. It is recommended that bones within a provenience unit be bagged separately by zoological class to prevent or reduce the crushing of fragile remains.

2e. An explanation of the label information, including locational data about the excavation units, must be submitted with the collection. It is suggested that one copy be stored with the site artifacts and one with the documentation.

3. Storage

3a. The most suitable artifact storage container currently available is the polyethylene, zip-lock-type plastic bag. Unless the curation facility requires a different container, these should be used. Paper bags and polyethylene bags of less than 2 mm thickness are not acceptable for permanent curation. Exceptionally large or unusually shaped artifacts may require different methods but should be stored using archivally stable materials. Bags should be perforated to allow air exchange and inhibit the development of unwanted microenvironments. Use of unperforated bags, however, may sometimes be appropriate for very climate-sensitive artifacts, which need special storage conditions, such as iron.

3b. It is recommended that all bags be permanently labeled with the appropriate site and provenience information. For certain fragile or sensitive materials (i.e., C14 samples or floral remains), standard-sized glass or other archivally stable containers labeled with the provenience data are recommended.

3c. Artifact storage boxes must be made of archivally stable materials and standard sized. The curation repository will determine the specific type. Consultation with the curation facility before containers are purchased is highly recommended. Artifacts must be packed in such a way as to avoid crushing or otherwise damaging them. It is also mandatory that all packing materials be archivally stable.

3d. All storage containers must be labeled with the site and provenience information. Rather than direct marking of the box, a transparent label holder affixed to the container is suggested. Listing the

contents of the box may be appropriate.

3e. If storage is to be by provenience unit, certain artifact classes (i.e., ceramic vessels, bottles) should be retained in their analytic categories. They should not be disassembled nor the sherds returned to their original provenience for storage. Notation should be made in the provenience-unit documentation that these artifacts are stored elsewhere.

3f. All slides, black-and-white negatives, and prints are to be stored in archivally stable materials.

4. Documentation

Records, notes, reports, catalogs, related historical documents, and photographs are integral components of an archaeological collection. They must be submitted with the artifacts for permanent curation. Two copies of all records are recommended. Paper documentation should be on acid-free paper. Readable copies reproduced by a heat fusion process (e.g., photocopy) are acceptable. Documentation must include the following:

- Ownership document (legal title) for archaeological materials with a complete listing of all components of the collection including the number of containers, their contents and associated provenience units, and all accompanying documentation.
- Catalog of the artifacts by provenience unit, recognizing that there are different levels of cataloging. At a minimum, catalogs must include an identification of the object, material of manufacture, and quantification (count and/or weight).
- Description of the artifact according to the best current levels of professional knowledge is recommended where possible. Notation regarding artifacts stored outside of their provenience unit should be included.
- Copy of the final report, site location data, project scope of work, and any relevant historical documentation pertaining to the site.
- Statement indicating whether conservation treatment was performed, a list of those objects treated, and a complete description of the treatments used. If conservation was not complete, a list of those objects requiring immediate attention must be included.
- Archivally stable photocopy of all original field and laboratory documentation.
- Master set of permanent black-and-white photographs, negatives, color slides, and videotapes using the best current standard films and papers. Slides should be unprojected originals or copies. All photographic material should be minimally labeled with the site, provenience, and catalog number using archivally stable methods.
- Catalog of all photographic materials describing the images.
- Electronic data (i.e., tape, disks) may accompany the documentation and must be accompanied by a by a statement describing the system and software used and the content of each disk, tape, etc. Standardized methods for the storage of electronic data will likely be developed in the future.

5. Conservation

5a. All archaeological excavation carries the professional obligation to preserve the materials recovered through both proper curation and appropriate conservation treatments. Conservation of perishable material is an ethical responsibility and an essential element in the archaeological process. Project design should include a consideration of conservation needs and the funding requirements for this essential service.

5b. Conservation is especially critical for underwater sites of all kinds and can cost up to twice the expense of the fieldwork. Excavation of an underwater site must not be undertaken without conservation facilities established beforehand and adequate funding for conservation dedicated to the project.

5c. Conservation treatments must be appropriate to the artifact's material and its condition, and should reflect the best current standards in methodology and materials. All treatments must be carried out by or under the supervision of an adequately trained professional. All treatments must be fully documented. This documentation must form a part of the site's permanent archive.

5d. The decision to conserve any artifact or class of artifacts is a complex one. It may reflect, in different cases, the condition, uniqueness, research potential, or the exhibit potential of an artifact. It may also reflect the availability of long-term storage under controlled environmental conditions and the degree to which those conditions may be achieved and precisely controlled. Consultation with the curation facility regarding this subject is strongly recommended.

6. Curation Facility

6a. Repositories used for the permanent curation of archaeological collections must provide, **at a minimum**, (1) physical security, (2) climate control, (3) fire suppression, (4) collection monitoring, and (5) access by qualified researchers. These requirements demand adequate space and resources dedicated to the purpose of curation. Curation space within a repository must be organized to allow controlled access, efficient collection retrieval, and optimum preservation. A professional staff, safe and secure storage, effective fire protection, disaster and pest management plans are essential. Collections should be isolated from work areas and people to the extent possible.

6b. For many historic artifacts, climate control is crucial to reduce their rate of deterioration and minimize the need for conservation treatment. Relative humidity (RH) and temperature must be continually monitored and controlled to minimize harmful fluctuations. Control of light levels, especially ultraviolet (UV) radiation is also needed. Regular inspection to detect insect, rodent, or other biological problems; assess structural defects in the physical plant; and monitor the condition of the artifacts is essential. Specific guidelines for humidity, temperature, and light control are as follows:

Curation Facility (cont.)

- **Relative Humidity:** Due to the extreme sensitivity of many artifacts to RH, control of RH is crucial. For most objects, RH should be kept between 40–60% with monthly fluctuations of less than 5%. Iron and some other materials require much lower RH levels for long-term preservation.
- **Temperature:** Normally, lower temperatures are better for artifact curation because chemical and biological activity increases with higher temperatures. In areas where people are present, the temperature should remain between 65° F and 70° F. For storage spaces where people are seldom present, temperatures in the 40° F to 60° F range are desirable. Temperatures in a collections area should never exceed 75° F. Abrupt changes in temperature, which put great stress on artifacts, must be prevented.
- **Light (UV Radiation):** Light levels in collections should not exceed 150 lux (15 footcandles). Control of UV radiation is necessary to protect containers and their labels from deterioration. All light sources should be filtered for UV radiation.

6c. Where possible, the repository selected for curation should be in the same state as the site or in a facility that stores materials from the same region. Preference should be given to a facility that curates other collections from the same site or site area.

7. Deaccessioning

7a. The discarding of archaeological materials by a curation facility is **not** recommended because discard or deaccessioning can jeopardize the ability to study the primary site data, particularly because current levels of knowledge may not adequately recognize the research value of certain artifact classes. Exceptions are live ammunition, toxic or radioactive materials, and other hazardous substances.

However, deactivation of historic ammunition rather than discard is suggested to preserve this often-rare material culture.

7b. In decisions regarding any deaccessioning, materials recovered from good archaeological contexts should be given the greatest priority for retention. First, effort should be made to find a repository that will accept material to be deaccessioned. If unsuccessful, placement in a stable environmental setting, which permits later retrieval of the material, is strongly encouraged. Decisions about any deaccessioning of archeological materials should be made by or in consultation with professional archaeologists. Any deaccessioning must be fully documented, including a thorough description of the material, the procedures used for selection of the artifacts, the sampling techniques employed, and the final destination of the material. This additional documentation must be filed with the primary site documentation. Adequate samples should be retained of any material classes that are deaccessioned. Defining what is an adequate sample will vary by material and should take into account the range of variation within a particular artifact class.

8. Human Remains

Archaeologists can encounter human remains during, and these materials may be curated. All human remains must be treated in a dignified manner and with respect for the deceased individuals. Due to the wide range of potential situations, specific treatment and the ultimate deposition of human remains must be handled case by case and in accordance with applicable laws and religious traditions.

Printed in *The Society for Historical Archaeology Newsletter* (vol. 26, no. 4) December 1993.

For more information contact the Chair of the SHA's Curation, Conservation, and Collections Management Committee, Robert Sonderman at Bob_Sonderman@nps.gov.

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