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Standard Guide for Preservation of Charred Documents[1]

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ε[1] NOTE—Editorial corrections were made to Section 7 in May 2011.

1. Scope

1.1 This guide provides procedures that should be used by forensic document examiners (Guide E444) for the preservation of charred documents.

1.2 These procedures include evaluation of the sufficiency of the material requiring preservation.

1.3 The particular methods employed in a given case will depend upon the nature of the material available for preservation.

1.4 This guide does not cover all procedures to preserve charred documents. Consultation with a document conservationist, archivist, or related material expert, as well as reference materials, may be necessary.

1.5 This guide does not replace knowledge, skill, ability, experience, education, or training (Guide E2388) and should be used in conjunction with professional judgment.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

E444 Guide for Scope of Work of Forensic Document Examiners

E2388 Guide for Minimum Training Requirements for Forensic Document Examiners

E2711 Guide for Preservation of Liquid Soaked Documents

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *bone folder, n*—a piece of shaped bone or other material, such as plastic or Teflon, typically used by bookbinders to crease paper and to separate pieces of paper that are stuck together.

3.1.2 *charred documents, n*—documents damaged by heat or fire.

3.1.3 *parylene processing, n*—the deposition of a clear polymer coating on a document(s) within a vacuum chamber to strengthen and stabilize the document(s).

3.1.4 *polyester film encapsulation, n*—a process whereby a document is sealed between two sheets of polyester film to preserve, stabilize, and facilitate handling.

3.1.5 *submersion, v*—the placement of a document(s) into an appropriate liquid to facilitate cleaning, unfolding, or separation of the document(s).

4. Significance and Use

4.1 The procedures outlined here are grounded in the generally accepted body of knowledge and experience in the field of forensic document examination and related fields. By following these procedures, a forensic document examiner can reliably process charred documents to optimize their preservation.

5. Interferences

5.1 Items submitted for examination may have inherent limitations that interfere with the procedures in this Guide. Limitations should be noted and recorded.

5.2 The results of prior storage, handling, testing, or processing can adversely affect the preservation of the document(s). The document(s) should be immobilized as soon as possible to minimize damage prior to its preservation.

5.3 The extensive time required for some procedures and the type of procedures chosen can conflict with investigative needs and other forensic examinations. Coordination with the submitter, experts in other forensic disciplines, and other relevant individuals might be warranted.

5.4 Take necessary precautions to prevent disturbance of the charred documents by air circulation in the examination area .

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

6. Equipment and Requirements

6.1 Appropriate light source(s) of sufficient intensity to allow fine detail to be distinguished.

NOTE 1—Natural light, incandescent, LED or fluorescent sources, or fiber optic lighting systems are generally utilized. Transmitted lighting, side lighting, and vertical incident lighting have been found useful in a variety of situations.

6.2 Magnification sufficient to allow fine detail to be distinguished.

6.3 Picks, such as dental picks, probes, and tweezers.

6.4 Atomizer.

6.5 Trays, tanks, and pliable screening.

6.6 Bone folder or similar device.

6.7 Polyester film or other encapsulation material, as required.

6.8 Imaging or other equipment for recording observations, as required.

6.9 Other apparatus and supplies, such as cotton batting or newsprint-lined boxes, plate glass stock, humidity chamber, laboratory oven, and chemicals, as appropriate.

6.10 Sufficient time and facilities to complete all applicable procedures.

7. Procedure

7.1 All applicable procedures should be performed and noted when appropriate. These procedures need not be performed in the order given.

7.2 Document procedures performed, relevant observations, and results.

7.2.1 Images should be made to document the initial condition of the evidence and subsequently as needed.

7.3 It is at the discretion of the examiner to discontinue or limit the procedure outlined in this guide when further processing is no longer practical or appropriate. Document the reasons for such a decision.

7.4 Evaluate the charred document(s) for the following:

7.4.1 The nature and components of the document(s).

7.4.2 The condition and extent of charring.

7.4.2.1 If the document(s) is wet, refer to Guide E2711.

7.5 Determine the appropriate procedures to optimize preservation of the document(s).

7.5.1 For a multiple-page document or a charred mass of documents:

7.5.1.1 Attempt to separate and flatten the pages using appropriate equipment, such as bone folders, picks, probes, and tweezers. It may be necessary to humidify, submerge, or otherwise stabilize the documents. Various methods, such as humidifying, atomizing, submersing, or fuming, may be used to apply water or other appropriate solvents or binders.

7.5.2 For a single-page document, flatten if necessary.

7.6 Encapsulation or other stabilization process, such as parylene processing, may be appropriate.

7.7 Other forensic examinations may be conducted as required.

8. Keywords

8.1 arson; charred documents; encapsulation; forensic sciences; paper analysis; parylene; preservation; questioned documents