

Region 4
U.S. Environmental Protection Agency
Laboratory Services & Applied Science Division
Athens, Georgia

Operating Procedure

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Purpose

This document describes general and specific procedures, methods, and considerations to be used and observed by the Laboratory Services and Applied Science Division (LSASD) field investigators when handling and managing samples and other types of evidence after their collection and during delivery to the laboratory. While this SOP may be informative for other businesses, it is not intended for and may not be directly applicable to operations in other organizations. Mention of trade names or commercial products in this operating procedure does not constitute endorsement or recommendation for use.

Scope/Application

The procedures contained in this document are to be used by field investigators when handling and managing samples and other evidence collected to support LSASD field investigations. On the occasion that LSASD field investigators determine that any of the procedures described in this section are either inappropriate, inadequate, or impractical and that another procedure must be used, the variant procedure will be documented in the field logbook, along with a description of the circumstances requiring its use.

Note: LSASD is currently migrating to a paperless organization. As a result, this SOP will allow for the use of electronic logbooks, checklists, signatures, SOPs, and forms as they are developed, which will also be housed on the Local Area Network (LAN) and traceable to each project.

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PROCEDURAL SECTION

1. General Information

1.1. Documentation/Verification

1.1.1. This procedure was prepared by persons deemed technically competent by LSASD management, based on their knowledge, skills and abilities and have been tested in practice and reviewed in print by a subject matter expert. The official copy of this procedure resides on the LSASD Local Area Network (LAN). The Document Control Coordinator is responsible for ensuring the most recent version of the procedure is placed on the LAN and for maintaining records of review conducted prior to its issuance.

2. Sample and Evidence Identification

2.1. Introduction

2.1.1. Sample identification, chain-of-custody records, receipt for sample records and other field records will be legibly recorded with waterproof, non-erasable ink, unless otherwise specified. If errors are made in any of these documents, corrections will be made by crossing a single line through the error and entering the correct information. All corrections must be initialed and dated. If possible, all corrections should be made by the individual making the error.

2.1.2. Following are definitions of terms used in this section:

2.1.2.1. **Field Investigator:** Any individual who performs or conducts field sampling, observation and/or measurement activities in support of field investigations

2.1.2.2. **Project Leader:** The individual with overall responsibility for conducting a specific field investigation in accordance with this procedure

2.1.2.3. **Field Sample Custodian:** Individual responsible for identifying the sample containers and maintaining custody of the samples and the Chain-of-Custody Record

2.1.2.4. **Sample Team Leader:** An individual designated by the project leader to be present during and responsible for all activities related to the collection of samples by a specific sampling team

2.1.2.5. **Sampler:** The individual responsible for the actual collection of a sample

- 2.1.2.6. **Transferee:** Any individual who receives custody of samples subsequent to release by the field sample custodian
- 2.1.2.7. **Laboratory Sample Custodian:** Individual responsible for accepting custody of samples from the field sample custodian or a transferee
- 2.1.3. One individual may fulfill more than one of the roles described above.
- 2.2. Sample and Evidence Identification Procedures
- 2.2.1. Sample Identification

2.2.1.1. The method of sample identification used depends on the type of sample collected. Field measurement samples are those collected for specific field analysis or measurement where the data are recorded directly in bound field logbooks or on the Chain-of-Custody Record. Examples of field measurements and analyses include XRF, pH, temperature, dissolved oxygen, and conductivity. Samples collected for laboratory analysis will be identified by using a stick-on label or a tag which is attached to the sample container. In some cases, such as biological samples, the label or tag may have to be affixed to a bag containing the sample. If a sample tag is used, the sample should be placed in a bag, then the sample and the tag will be placed in a second bag.

2.2.1.2. The following information will be included on the sample label or tag using waterproof, non-erasable ink:

- Project number;
- Field identification or sample station number;
- Date and time of sample collection;
- Designation of the sample as a grab or composite;
- Whether the sample is preserved or unpreserved;
- The general types of analyses to be performed.

2.2.1.3. Other information such as readily detectable or identifiable odor, color, or known toxic properties may be added as deemed necessary by the project leader or sample custodian.

2.2.2. Digital Images – Photographs and Videos

2.2.2.1. When digital images, which include but are not limited to photographs, digital still images, and videos, are taken for purposes of documenting, and supporting a field investigation, a record, containing relevant information, will be kept in a field logbook. The following information will be recorded in the log:

- Digital Image Location or Station Identification
- Description of what the digital image shows
- Date and time the digital image was taken
- Name of the individual that took the digital image
- Digital file name (assigned by camera)
- Orientation, if applicable
- Other pertinent information

2.2.2.2. When digital images are obtained during a field investigation, the permanent record for the official project file, will be stored on a project dedicated data storage device, which includes but is not limited to Secure Digital (SD) card, Compact Discs (CD), or Flash Drives. A new data storage device will be utilized for each project and once the project is completed the device, containing the unaltered investigation-related images, will be labeled with the project's unique identification number, and placed in the official file. Photographs taken for educational or other purposes should be stored on an additional storage device and should not be included in the official project file.

2.2.2.3. It is LSASD's policy that, during a field investigation, official project specific digital images should be obtained using LSASD issued electronics but if the only option field personnel have is to utilize their own electronic equipment the following steps should be taken:

- Record all required digital image information, as described above
- Record devices make, model and owner's name
- Transfer all digital images to a project specific data storage device and adhere to requirements outlined in the EPA Records Management Policy (CIO 2155.3).
- If personal cell phones are used, email a copy of the photograph to the employee's official EPA email account.

Note: On November 30, 2021, the Office of Mission Support (OMS), EPA Headquarters, has informed the Agency that removable/external media (thumb drives, external hard drives, and solid-state drives) will be banned for use. OMS has provided a process to request an exemption by routing an exemption request through the LSASD Deputy Director to the Region 4 Information Security Officer (ISO). At the time that this SOP was approved for use, EPA

mobile devices, keyboards and mice, printers, digital cameras, and lab and/or field instruments are authorized. Check for updates to the policy when instituting work following this SOP.

2.2.3. Identification of Physical Evidence

2.2.3.1. Physical evidence, other than samples, will be identified, when possible, by recording the necessary information on the evidence. When samples are collected from vessels or containers which can be moved (drums for example), the vessel or container should be marked with the field identification or sample station number for future identification. The vessel or container may be labeled with an indelible marker (e.g., paint stick or spray paint). The vessel or container need not be marked if it already has a unique marking; however, these markings will be recorded in the bound field logbooks. In addition, it is suggested that photographs of any physical evidence (markings, etc.) be taken and the necessary information recorded in the field logbook.

2.2.3.2. Occasionally, it is necessary to obtain copies of recorder and/or instrument charts from facility owned analytical equipment, flow recorders, etc., during field investigations and inspections. A unique identifier will be recorded on the document with that information as well as the following recorded in the logbook:

- Starting and ending time(s) and date(s) for the chart;
- An instantaneous measurement of the media being measured by the recorder will be taken and entered at the appropriate location on the chart along with the date and time of the measurement; and
- A description of the location being monitored, and other information required to interpret the data such as type of flow device, chart units, factors, etc.

2.2.3.3. The field investigator will indicate who the chart (or copy of the chart) was received from and enter the date and time, as well as the field investigator's initials.

2.2.3.4. Documents such as technical reports, laboratory reports, etc., should be marked with the field investigator's signature, the date, the number of pages and from whom they were received. Documents that are claimed by a facility to be "confidential" and, therefore, potentially subject to the Confidential Business Information requirements, will be handled in accordance with LSASD Operating Procedure for Control of Records (LSASDPROC-1001).

3. Chain-of-Custody Procedures

3.1. Introduction

3.1.1. Chain-of-custody procedures are comprised of the following elements: 1) maintaining custody of samples or other evidence, and 2) documentation of the chain-of-custody for evidence. To document chain-of-custody, an accurate record must be maintained to trace the possession of each sample, or other evidence, from the moment of collection to its introduction into evidence.

3.2. Sample Custody

3.2.1. A sample or other physical evidence is in custody if:

- It is in the actual possession of an investigator;
- It is in the view of an investigator, after being in their physical possession;
- It was in the physical possession of an investigator and then they secured it to prevent tampering; and/or,
- It is placed in a designated secure area.

3.3. Documentation of Chain-of-Custody

3.3.1. The following are used to identify and demonstrate how sample integrity is maintained and custody is ensured.

3.3.1.1. **Sample Identification:** A stick-on sample label or a tag should be completed for each sample container using waterproof, non-erasable ink as specified in Section 2.2.1.

3.3.1.2. **Sample Seals:** If appropriate, samples should be sealed as soon as possible following collection using a custody seal with EPA identification. The sample custodian or project leader will write the date and their initials on the seal. The use of custody seals may be waived if field investigators keep the samples in their custody as defined in Section 3.2, from the time of collection until the samples are delivered to the laboratory analyzing the samples.

3.3.1.3. **Field Sample Custodian:** The field sample custodian is the person designated by the project leader to receive and manage custody of samples while in the field, including labeling and custody sealing.

3.3.1.4. **Chain-of-Custody Record:** The field Chain-Of-Custody record is used to document the custody of all samples or other physical evidence collected and maintained by investigators. All physical evidence or samples will be accompanied by a Chain-of-Custody Record. This form may be generated by sample custody management software (Section 5) or it may be a pre-printed multi-sheet carbonless form for hand entry of required information. The Chain-of-Custody Record documents transfer of custody of samples from the sample custodian to another person, to the laboratory or other organizational elements. The Chain-of-Custody Record will not be used to document the collection of split samples where there is a legal requirement to provide a receipt for samples (see Section 4, Receipt for Samples Form (CERCLA/RCRA/TSCA)). The Chain-of-Custody Record also serves as a sample logging mechanism for the laboratory sample custodian. A separate Chain-of-Custody Record should be used for each destination or laboratory used during the investigation.

3.3.1.5. All information necessary to fully and completely document the sample collection and required analyses must be recorded in the appropriate spaces to complete the field Chain-Of-Custody Record. The following requirements apply to Chain-Of-Custody records generated by either sample custody management software or by hand entry on pre-printed forms:

- All sampling team leaders must sign in the designated signature block.
- One sample should be entered on each line and not be split among multiple lines.
- If multiple sampling teams are collecting samples, the sampling team leader's name should be clearly indicated for each sample.
- The total number of sample containers for each sample must be listed in the appropriate column. Required analyses should be entered in the appropriate location on the Chain-of-Custody Record.
- The field sample custodian, project leader or other designee, and subsequent transferee(s) should document the transfer of the samples listed on the Chain-of-Custody Record. Both the person relinquishing the samples and the person receiving them must sign the form. The date and time that this occurs should be documented in the proper space on the Chain-of-Custody Record. The exception to this requirement would be when packaged samples are shipped with a common carrier. Even though the common carrier accepts the samples for shipment, they do not sign the Chain-of-Custody Record as having received the samples.
- The last person receiving the samples or evidence will be the laboratory sample custodian or their designee(s).

- 3.3.1.6. The Chain-of-Custody Record is a uniquely identified document. Once the Record is completed, it becomes an accountable document and must be maintained in the project file. The suitability of any other form for chain-of-custody should be evaluated based upon its inclusion of all the above information in a legible format.
- 3.3.1.7. If chain-of-custody is required for documents received during investigations, the documents should be placed in large envelopes, and the contents should be noted on the envelope. The envelope will be sealed, and an EPA custody seal placed on the envelope such that it cannot be opened without breaking the seal. A Chain-of-Custody Record will be maintained for the envelope. Any time the EPA seal is broken, that fact will be noted on the Chain-of-Custody Record and a new seal affixed, as previously described in this section.
- 3.3.1.8. Physical evidence such as video tapes or other small items will be placed in an evidence bag or envelope and an EPA custody seal should be affixed so that they cannot be opened without breaking the seal. A Chain-of-Custody Record will be maintained for these items. Any time the EPA seal is broken, that fact will be noted on the Chain-of-Custody Record and a new seal affixed.
- 3.3.1.9. EPA custody seals can be used to maintain custody of other items when necessary by using similar procedures as those previously outlined in this section.
- 3.3.1.10. Samples should not be accepted from other sources unless the sample collection procedures used are known to be acceptable, can be documented and the sample chain-of-custody can be established. If such samples are accepted, a standard sample label containing all relevant information and the Chain-of-Custody Record will be completed for each set of samples.

3.4. Transfer of Custody with Shipment

3.4.1. Transfer of custody is accomplished by the following:

- Samples will be properly packaged for shipment in accordance with the procedures outlined in LSASD Operating Procedure for Packing, Marking, Labeling and Shipping of Environmental and Waste Samples (LSASDPROC-209).
- All samples will be accompanied by the laboratory copy of the Chain-of-Custody Record. If pre-printed forms are used, the white and pink sheets will be sent. If sample custody management software is used to generate the Chain-of-Custody Record, the laboratory copy is identified with an “L” in the upper right corner. If multiple coolers are needed for shipment to a

particular laboratory, the laboratory copy of the Chain-of-Custody Record for the entire shipment is placed in a sealed plastic bag in one of the coolers. When shipping samples via common carrier, the "Relinquished By" box should be filled in; however, the "Received By" box should be left blank. The laboratory sample custodian is responsible for receiving custody of the samples and will fill in the "Received By" section of the Chain-of-Custody Record. One copy of the Record will be provided to and retained by the project leader. After samples have been received and accepted by the laboratory, a copy of the Chain-of-Custody Record, with LSB sample identification numbers, will be transmitted to the project leader. This copy will become a part of the project file.

- If sent by mail, the package will be registered with return receipt requested. If sent by common carrier, an Air Bill should be used. The Air Bill number, shipment tracking number or registered mail serial number will be recorded in the remarks section of the Chain-of-Custody Record.

4. Receipt for Samples Form (CERCLA/RCRA/TSCA)

4.1. Introduction

4.1.1. Section 3007 of the Resource Conservation and Recovery Act (RCRA) of 1976 and Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) of 1980 require that a "receipt" for all facility samples collected during inspections and investigations be given to the owner/operator of each facility before the field investigator departs the premises. The Toxic Substances Control Act (TSCA) contains similar provisions. The laws do not require that homeowners or other off-site property owners be given this form.

4.2. Receipt for Samples Form

4.2.1. If necessary, a Receipt for Samples form, using either the pre-printed form or one generated by sample custody management software, is to be used to satisfy the receipt for samples provisions of RCRA, CERCLA and TSCA. The form also documents that split samples were offered and either "Received" or "Declined" by the owner/operator of the facility or site being investigated (if a sample is split with a facility, state regulatory agency or other party representative, the recipient should be provided (if enough sample is available) with an equal weight or volume of sample). All information must be supplied in the indicated spaces to complete the Receipt for Samples form.

- The sampler(s) must sign the form in the indicated location
- Each sample collected from the facility or site must be documented in the sample record portion of the form. The sample station number, date and time of sample collection, composite or grab sample designation, whether split samples were collected (yes or no should be entered under the split sample column), a brief description of each sampling location and the total number of sample containers for each sample must be entered.
- The bottom of the form is used to document the site operator's acceptance or rejection of split samples. The project leader must sign and complete the information in the "Split Samples Transferred By" section (date and time must be entered). If split samples were not collected, the project leader should initial and place a single line through "Split Samples Transferred By" in this section. The operator of the site must indicate whether split samples were received or declined and sign the form. The operator must give their title, telephone number and the date and time they signed the form. If the operator refuses to sign the form, the sampler(s) should note this fact in the operator's signature block and initial this entry.
- The Receipt for Samples form is an accountable document after it is completed. A copy of the form is to be given to the facility or site owner/operator. The original form must be maintained in the project files.

5. Sample Custody Management Software

5.1. The container labels and the Chain-of-Custody record should be generated using a sample custody management software to streamline the documentation required by LSASD and/or the Contract Laboratory Program (CLP) for sample identification and chain-of-custody. When possible, the sample custody management software should be used during all field investigations. Once the appropriate information is entered into the computer, the software will generate stick-on labels for the sample containers and will generate sample receipt forms and chain-of-custody records for the appropriate laboratory. The advantages to this system include faster processing of samples and increased accuracy. Accuracy is increased because the information is entered only once, and consequently, consistent for the bottle labels, sample receipt forms and chain-of-custody records.

References

LSASD Operating Procedure for Control of Records, LSASDPROC-1001, Most Recent Version

LSASD Operating Procedure for Packing, Marking, Labeling and Shipping of Environmental and Waste Samples, LSASDPROC-209, Most Recent Version

USEPA Region 4 Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM), November 2001

USEPA Digital Camera Guidance for EPA Civil Inspections and Investigations, July 2006

Revision History

History	Date
Replaced Chief with Supervisor	April 22, 2023
<p>LSASDPROC-005-R4, Sample and Evidence Management, replaces SESDPROC-005-R3</p> <p>SOP put into the new SOP format.</p> <p>General: Corrected any typographical, grammatical, editorial errors and SOP reference updates.</p> <p>Added text in Section 2.2.2 for transferring digital files and EPA policy requirements for using removable storage media.</p>	October 2021
<p>SESDPROC-005-R3, Sample and Evidence Management, replaces SESDPROC-005-R2</p> <p>General: Corrected any typographical, grammatical, and/or editorial errors.</p> <p>Cover Page: SESD's reorganization was reflected in the authorization section by making John Deatrick the Supervisor of the Field Services Branch. The FQM was changed from Bobby Lewis to Hunter Johnson.</p> <p>Revision History: Changes were made to reflect the current practice of only including the most recent changes in the revision history.</p> <p>Section 2.2.2: Revised to clarify accreditation and agency requirements for digital images. Also, language was added to accommodate new storage techniques.</p>	May 25, 2016
SESDPROC-005-R2, Sample and Evidence Management, replaces SESDPROC-005-R1	January 29, 2013
SESDPROC-005-R1, Sample and Evidence Management, replaces SESDPROC-005-R0	November 1, 2007
SESDPROC-005-R0, Sample and Evidence Management, Original Issue	February 05, 2007