

Region 4 U.S. Environmental Protection Agency Science and Ecosystem Support Division Athens, Georgia	
Operating Procedure	
Title: Logbooks	ID: SESDPROC-1002-R0
Issuing Authority: Deputy Director, SESD	
Effective Date: October 1, 2017	

Purpose

This procedure is specific to the Region 4 Science and Ecosystem Support Division (SESD) to maintain conformance to technical and quality system requirements. This procedure defines the process for documenting direct observations in logbooks or other record formats related to laboratory analyses, field investigations, or assessments of field sampling processes and laboratory operations of external entities.

Scope/Application

The requirements of this procedure apply to all personnel who perform work under SESD's quality system. This procedure contains requirements for documenting activities related to laboratory analyses, field investigations, or assessments of field sampling processes and laboratory operations of external entities and serves as a supplement to the overarching requirements for SESD records, outlined in the SESD Operating Procedure for Control of Records (SESDPROC-1001). While this SOP may be informative, 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.

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1.0 Procedure

1.1 General Requirements

General requirements for SESD logbook or other record format entries related to laboratory analyses, field investigations, or assessments of field sampling processes and laboratory operations of external entities:

1. Observations, data and calculations will be recorded at the time they are made.
2. Dedicated bound logbooks will be used.
3. Entries will be legible, containing pertinent, accurate, and inclusive documentation of project activities, free of personal feelings or other terminology which might prove inappropriate.
4. Unless prohibited by environmental conditions, pens with permanent ink will be used to record all data. When environmental conditions do not make it feasible to use permanent ink, entries should be made using a non-smear lead pencil (e.g., 2H or 3H). Upon returning from the field, the project leader will photocopy the penciled section of the logbook and certify, in writing, that the photocopied record is a true copy of the original logbook entry. The photocopy will be included in the project file.
5. Entries in logbooks shall be dated and signed or initialed by staff.
6. Data or other information that has been entered incorrectly shall only be corrected using a single strike-through, date and initials of the person making the correction. Under no circumstances should the incorrect material be erased, made illegible or obscured so that it cannot be read.
7. To demonstrate continuity of the work and maintain the integrity of the data collection process, pages should not be removed from any bound logbook.
8. Blank pages or spaces should not be present in logbooks. Blank areas should be lined through and initialed and dated to prevent the opportunity for back-filling.
9. Logbook pages and books shall be numbered. The numbering format will consist of “page x of y”, where “x” is the current page number and “y” is the total number of pages of the logbook.
10. To facilitate accurate and complete documentation of activities, SESD-generated forms may be used. In order to be utilized, SESD-generated forms must be bound prior to use and adhere to all requirements outlined in this procedure. In cases where unbound pages/forms are necessary due to project requirements or practicality, the appropriate Section Chief and System Manager will determine the best course of action.
11. If pre-printed adhesive labels are used in logbooks or bound forms to facilitate organization of information entry, the SESD staff responsible for taking notes will sign the label with the signature beginning on the label and ending on the page of the logbook such that the label cannot be removed without detection.

1.2 Laboratory Logbooks

The following are requirements for laboratory logbooks, in addition to those established in Section 1.1. Each sample preparation, analysis or equipment check is maintained using logbooks in the appropriate laboratory. Active logbooks are maintained within the laboratory where the instrument or equipment is located and should be maintained with the instrument throughout its useful life. At such time the instrument is removed from service, the logbook is transferred with the appropriate form to the LQM, and then to the SESD Records Room.

1.2.1 Instrument Maintenance Logbooks

Each major instrument shall have a maintenance logbook. At a minimum the following information will be included:

1. Instrument serial number
2. Instrument's unique name
3. Software version
4. In-service date (if known)

In addition, maintenance, service and repair records are maintained in these logbooks. Preventive maintenance schedules should be noted in the log, or in a separate maintenance log. When a service or maintenance call is completed by the vendor, the analyst should place a copy of the documentation or transcribe the details for the work that was performed on the instrument in the logbook. The original work order invoice should be provided to the Office of Program Support for payment. Instrument Maintenance logbooks are purchased as bound record books that contain pre-numbered pages. The numbering convention does not account for the number of pages per book.

1.2.2 Instrument Logbooks

Instrument logs shall include:

1. Instrument serial number
2. Date of analysis
3. Analyst and samples which have been analyzed
4. A reference or a record of which options or analytical conditions were used for analysis
5. Where appropriate, instrument acceptance criteria (e.g., tune criteria, sensitivity checks)

1.2.3 Preparation Logbooks

Preparation logs shall document all information to reconstruct the preparation of samples, reagents, and standards, and should include, but not limited to:

1. Analyst's name
2. Weights
3. Volumes
4. Lot number of digestion tubes
5. ID of any preparation equipment used
6. Certification dates of equipment, if applicable
7. Reagents/standards used
8. Preservation checks
9. Units
10. Any cleanup procedures used
11. Project Number/Name and Workorder Number will be included on each page.

Electronic traceability via Element[®] is an acceptable option for documenting standard preparation. If Element[®] is used as the standard prep log, it is subject to all the requirements of this section.

1.2.4 Analysis Logbooks

Electronic records, including spreadsheets which contain original measurements, may be used to create logbooks if all the required information can be captured by the instrumental software; however, a sequential analysis log must still be created and maintained. This is accomplished by printing a copy of the electronic record and including it in a notebook. These sequential logs must also include failed runs, or sequences which were abandoned prior to completion. When a pre-determined number of pages has been accumulated (e.g., 50 pages), the individual records are combined into a single bound logbook and retained as specified in the SESD Operating Procedure for Records Management (SESDPROC-1001). Any electronic records must accurately reflect actual analytical information. For analyses with holding times < 72 hours, or when time-critical or method-specified times are included in the analysis, the time of analysis must also be recorded.

1.2.5 Laboratory Equipment Logbooks

Equipment Logbooks, such as balance logs, are maintained in the lab in close proximity to the equipment. At a minimum the following information must be included:

1. Equipment serial number
2. Equipment unique name
3. Vendor name
4. In-service date (if known)

In addition, calibration check, maintenance, service and repair information may also be recorded and/or maintained in the logbook.

1.3 Field Operation Logbooks

The following are requirements for field logbooks, in addition to those established in Section 1.1

1.3.1 General Information Required in All Field Operations Logbooks

The following information shall be included either on the front cover or the first page of all field logbooks:

1. Project name
2. Project location
3. Project identification number
4. Project leader (full name)
5. Sample team leader (full name) and initials
6. Sample team member(s) (full names) and initials

In addition, the project's unique identifier (unique identification number(s)) will be included on each page.

Any deviations from the quality assurance project plan (QAPP) that occur while in the field shall be noted in the logbook(s). Field logbook entries that may be considered privileged or confidential information shall be handled in accordance with the relevant sections of SESD Operating Procedure for Control of Records (SESDPROC-1001). The logbooks will be placed in the SESD project file upon transmittal of the final report to the project requestor.

1.3.2 Information Required for Sample Collection

In addition to previously listed requirements, the following information will be included in all field logbooks when **samples** are collected:

1. Applicable SESD Operating Procedures for field sampling.
2. Date and time of collection.
3. Station identification, including GPS coordinates (non-logging GPS units), if applicable.
4. Sample identification.
5. Method of collection.
6. Number and type of containers (describe, as needed).
7. Sample collection equipment.

8. SESD equipment identification number, if applicable.
9. Matrix sampled.
10. Physical description of sample.
11. Sample team member duties (calibration, collection, deployment, etc.).
12. Sample preservation method (e.g., indirect contact with ice), if applicable.
13. Environmental conditions such as rain, wind, smoke, dust, extreme temperature, etc., which may adversely impact quality of samples, if applicable.
14. Location of electronic data file backups, if applicable.
15. Monitoring of condition of ice in coolers or sampler, if applicable.
16. Date and time of sample arrival to SESD. Storage room for samples, even if it is for initial, temporary purposes.
17. Sample team member duties (e.g., calibration, equipment deployment, collection, sample preservation, sample preservation monitoring, etc.).
18. Other pertinent information.

1.3.3 Information Required for Field Measurements

In addition to previously listed requirements, the following information will be included in all logbooks when **measurements** are conducted:

1. Applicable SESD Operating Procedures for field measurement.
2. Date and time of measurement or instrument/equipment deployment.
3. Sample identification, if appropriate.
4. Station identification, including GPS coordinates (non-logging GPS units), if applicable.
5. Sample measurement equipment.
6. SESD sample measurement equipment identification number.
7. Manufacturer name, lot number and expiration date of all pH buffers and chemical standards.*
8. Calibration information, including before and after calibration readings.*
9. Meter and check information.
10. Equipment deployment depth and total depth, if applicable.
11. Pinger identification number and frequency for deployed equipment, if applicable.
12. Date and time of retrieval for deployed equipment, if applicable.
13. Matrix measured.
14. Physical description of matrix.
15. Measurement values for non-logging equipment.
16. Ambient air temperature, where applicable.

17. Environmental conditions that may adversely impact quality of measurement (e.g., rain, wind, smoke, dust, extreme temperatures), if applicable.
18. Equipment or instrument maintenance performed, if applicable.
19. Meter malfunctions, troubleshooting efforts and final status, if applicable.
20. Location of electronic data file backups, if applicable.
21. Measurement team member duties (e.g., calibration, equipment deployment, measurement, maintenance, troubleshooting, etc.).
22. Other pertinent information.

* Entry of calibration information in logbooks is only required for calibrations conducted in the field. All calibrations conducted at the SESD Field Equipment Center or laboratory will be recorded in the appropriate equipment tracking logbook.

1.3.4 Additional Information for Inclusion in Field Activity Logbooks

The following visual information may be included in field logbooks, as appropriate:

1. Maps/sketches.
2. Photographic or video-graphic log.
3. Process diagrams.

1.4 Quality Assurance Field Documentation

The following are requirements for Quality Assurance (QA) field documentation, in addition to those established in Section 1.1. The following information shall be included either on the front cover or the first page of all QA field documentation:

1. Audit/facility name
2. Audit/facility location
3. Audit leader
4. Audit team members
5. Audit dates
6. Audit Identification Number

In addition to logbooks, QA uses checklists to document audits of methods and procedures during the onsite evaluation of laboratories and facilities. These checklists are printed and/or used electronically to document field observations. These electronic checklists are located on the SESD LAN and updated periodically as changes are needed.

1.5 Other Logbooks and Documentation

Some methods and measurements do not use instrumentation to generate a result. For these methods, SESD relies on spreadsheets or other calculating software for recording/documenting original observations made (e.g., weights). All spreadsheets or other calculating software used as logbooks or used in support of data generation will be validated and controlled. All cells, except informational input cells, will be locked to prevent alteration of a formula or essential static information, such as the unique identifier. All calculations in electronic spreadsheets and calculating software files will be hand-validated by the responsible party and submitted through the Section Chief to the appropriate System Manager for approval and posting. The entire spreadsheet or software-generated electronic file will be password protected, which will be assigned by the System Manager at the time of posting on the LAN.

2.0 Definitions

None

3.0 Related Documents and Forms

U.S. EPA, Region 4, SESD, Analytical Services Branch, Logbook Transfer Form.

4.0 References

U.S. EPA, Region 4, SESD, SESD Field Branches Quality Management Plan, SESDPLAN-001, most recent version.

U.S. EPA, Region 4, SESD, ASB, Laboratory Operations and Quality Assurance Manual, most recent version.

U.S. EPA, Region 4, SESD, Records Management Standard Operating Procedures, most recent version.

U.S. EPA, Region 4, SESD, Quality Management Plan, most recent version.

U.S. EPA, Region 4, SESD, SESD Operating Procedure for Control of Records, SESDPROC-002, most recent version.

ISO/IEC 17025: General Testing for the Competence of Testing and Calibration Laboratories, 2nd Ed., 2005, 05/15/2015, Switzerland.

ANAB, ISO/IEC 17025: Accreditation Requirements for Forensic Testing Laboratories, pp. 49, Document Number MA 3011, Effective Date: 02/02/2015.

5.0 Revision History

This table shows changes to this controlled document over time. The most recent version is presented in the top row of the table. Previous versions of the document are maintained by the SESD Document Control Coordinator.

History	Effective Date
SESDPROC-1002-R0, Logbooks, Original Issue	October 1, 2017