National Human Exposure Assessment Survey (NHEXAS)

Arizona Study

Quality Systems and Implementation Plan for Human Exposure Assessment

The University of Arizona
Tucson, Arizona 85721

Cooperative Agreement CR 821560

Standard Operating Procedure **SOP-BCO-T-1.0**

Title: General Laboratory Training Plan

Source: The University of Arizona

U.S. Environmental Protection Agency
Office of Research and Development
Human Exposure & Atmospheric Sciences Division
Human Exposure Research Branch

General Laboratory Training Plan

1.0 Purpose and Applicability

This SOP describes the training sequence followed by each member of the technical staff at Battelle who participates in the NHEXAS project (University of Arizona/Battelle/Illinois Institute of Technology Consortium). The procedure is designed to provide them with an overview of the project in terms of project goals, structure, and laboratory requirements. This overview familiarizes the technical staff with project components and personnel at all levels, and the training enables them to follow procedures consistently, thereby producing reliable and meaningful laboratory data.

Border and other Health & Environment ESG.14.97

2.0 Definitions

2.1 Quality Assurance (QA): all those planned and systematic activities necessary to ensure the validity, integrity, preservation, and retrievability of the data.

2.2 Quality Control (QC): all those quality assurance activities providing a means to control and measure the characteristics of an item, process, or the establishment of requirements.

2.3 Study or Project: The NHEXAS Arizona Project sponsored by EPA and designed to define distributions of human exposure to selected metals, pesticides, and volatile organic compounds (VOCs) within the State of Arizona. The study will be conducted by the University of Arizona/Battelle/Illinois Institute of Technology Consortium.

2.4 Sample Tracking: the method of determining where samples or equipment are located at any time.

2.5 Training Records: the documentation that provides evidence of technical proficiency.

3.0 References

None.

4.0 Discussion

The training described in this SOP generally takes place at Battelle through one-on-one instruction by the Project Laboratory Director or other trained personnel, depending on the assignment.

5.0 Responsibilities

5.1 Co-Principal Investigator (co-PI)

(a) Covers the overall project goals.
(b) Covers Battelle's specific role in the project.
(c) Covers the types of samples that are collected.
(d) Describes the types of analyses needed.
(e) Discusses the types of data that are generated and data processing needs.

5.2 Project Laboratory Director

(a) Supervises, evaluates, and disciplines technical staff involved in the project.
(b) Schedules training, as required, with appropriate personnel.
(c) Sets work schedules in consultation with co-PI and technical staff.
(d) Instructs technical staff in the specifics of equipment calibrations, data calculations, and other laboratory procedures.
(e) Instructs technical staff on QA check procedures for equipment and data.
(f) Instructs technical staff in supplemental procedures, as required.
(g) Assists technical staff in locating supplies and resources, and in acquiring needed materials.

5.3 Sample Custodian

(a) Logs out samplers and other equipment sent to sampling team at University of Arizona.
(b) Logs in exposed samples returned to Battelle from University of Arizona for analysis.
(c) Informs co-PI and relevant Project Laboratory Directors of the arrival of new samples for analysis and alerts them to any problems or inconsistencies noted with regard to the samples.

5.4 Project Data Coordinator

(a) Receives data from the Project Laboratory Director.
(b) Investigates any inconsistencies found within the data and gets clarifications.
(c) Provides information to the co-PI for an overview of the data generated in the laboratories at Battelle.
(d) Stresses the importance of consistency in the laboratory data forms and completeness for data entry purposes.

(e) Must approve any change in the Laboratory Data Forms once a data base for the analytical results has been created.

5.5 Department Manager (or Designee)
(a) Informs all staff personnel of correct procedures for completing time cards.
(b) Explains other relevant procedural issues to departmental staff members.
(c) Approves purchases involving departmental funds.
(d) Approves requests for capital equipment purchases.
(e) Approves appointment of new hires.

6.0 Materials and Equipment

These are specified in the individual SOPs that the staff member is trained to perform.

7.0 Procedure

7.1 Training sequence

7.1.1 Orientation

7.1.1.1 The co-PI designates staff members to serve as Project Laboratory Directors, Project Data Coordinator, and Project Sample Custodian.

7.1.1.2 The co-PI explains the overall objectives of the project as well as the sample and analysis needs to the Project Laboratory Directors, Project Data Coordinator, and Project Sample Custodian.

7.1.1.3 The Project Laboratory Directors select staff members to serve as laboratory personnel for the project.

7.1.1.4 The co-PI and Project Laboratory Directors explain the overall objectives of the project as well as specific sample and analysis needs at Battelle to the laboratory personnel.

7.1.1.5 The laboratory personnel are shown where the various SOPs are housed so that they may consult them at will.

7.1.1.6 The Project Laboratory Directors, Project Data Coordinator, and Project Sample Custodian discuss the various data forms and their respective uses with the laboratory personnel, who are instructed in how to complete the forms.

7.1.1.7 The Project Laboratory Directors, Project Data Coordinator, and Project Sample Custodian instruct the laboratory personnel in the protocols to be followed in respect of sample custody and archiving as well as submission of completed data forms to the Data Coordinator for entry into the databases.

7.1.2 Training for a Specific Procedure

7.1.2.1 The Project Laboratory Director selects a procedure and laboratory personnel with appropriate background to perform the procedure.

7.1.2.2 The laboratory personnel are requested to read the appropriate SOP.

7.1.2.3 The Project Laboratory Director (or designee) discusses the procedure and associated forms with the laboratory personnel.

7.1.2.4 The laboratory personnel are requested to carry out the procedure according to the SOP.

7.1.2.5 On successful completion of the assigned procedure, the staff member is certified as trained.

7.1.2.6 Any corrective action needed will be noted by the Project Laboratory Director (or designee).

7.1.2.7 Steps 7.1.2.2 through 7.1.2.6 will be repeated for each procedure.

7.2 Quality Assurance Checks

Independent and successful completion of the procedure by the staff member will be verified and documented.

7.2.1 Tolerance Limits

Failure to follow the relevant SOPs will not be permitted.

7.2.2 Detection Limits

7.2.2.1 During training, procedural errors in the SOPs will be identified and corrected immediately.

7.2.2.2 After certification, periodic evaluations will be conducted to identify procedural implementation errors.

7.2.3 Corrective Action

7.2.3.1 During the instruction and certification period, verbal advice and corrective instructions will be issued.

7.2.3.2 Continued failure to conform to the SOPs or inappropriate implementation of the SOPs can be cause for removal of the staff member from the project team.

8.0 Records

8.1 Training records can be any form of documentation that provides evidence of technical capabilities.

8.2 Training records must include the actual tasks learned in detail and to what level of ability (if applicable), names of the trainer and trainee, date training was performed, and the dated signatures or initials of the trainer and trainee attesting to the successful completion of the training.

8.3 Previous experience prior to employment at Battelle must be documented. A memo/list of past experience approved by the co-PI would be an appropriate document for this project.

8.4 Copies of certificates of course attendance and a course description should be included in the training record.

8.5 Records must be kept current as training is completed. These records should be reviewed by the staff member on an annual basis to assure completeness.

8.6 Original training records shall be kept on file in the departmental administrative secretary's office. Copies may be filed elsewhere.

8.7 All training records of a staff member will be archived following termination of employment with Battelle.

Figure 1. Battelle Laboratory Training Record. The Supervisor signs and dates this form for each of the procedural steps successfully completed.

Battelle Laboratory Training Procedure Document for _____
(Technician's Name)

Procedure (Sign & Date)	SOP Read (Initial & Date)	Procedure Discussed (Sign & Date)	Trial Procedure Performed Sign & Date)	Certification (Successful Comp) (Sign & Date)

Comments:

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