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-UA-T-6.0**

Title: Laboratory Assistant Training Plan--General

Source: The University of Arizona

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

LABORATORY ASSISTANT TRAINING PLAN--GENERAL

1.0 Purpose and Applicability

This SOP describes the training sequence of incoming Student Laboratory (lab) Assistants. The procedure is designed to provide them with an overview of the projects in terms of project goals, structure and laboratory needs. This overview familiarizes the student lab assistants with project components and personnel at all levels and the training enables them to follow procedures consistently thereby producing accurate and precise lab data.

NHEXAS Border and Other Health + Environment

ESC 7.14.97

2.0 Definitions

2.1 HOUSEHOLD IDENTIFICATION NUMBER (HHID) = A unique identification number assigned to a study household containing subjects. An associated letter (or extension) defines any divisions of single households into multiple units.

2.2 LAB DATA PACKET = A large (9.5" x 12.5") manila envelope holding the physical lab data forms.

2.3 PACKET PREP = def (1) personnel in this part of the project prepare material for use in the field. This includes (a) pre printing labels (b) assembling all data forms and questionnaires to be completed (c) assigning equipment for field use; def (2) location in the building where packet assembly is performed.

2.4 QA = QUALITY ASSURANCE = all those planned and systematic actions necessary for ensuring the validity, integrity, preservation and retrievability of the data.

2.5 QC = QUALITY CONTROL = those quality assurance actions providing a means to control and measure the characteristics of an item, process, or the establishment of requirements.

2.6 STUDY or PROJECT = The NHEXAS Arizona Project sponsored by EPA and defining distributions of human exposure to selected metals, pesticides and VOCs within the state of Arizona. The study will be conducted by the University of Arizona/Battelle/IIT Consortia.

2.7 RESPONDENT or SUBJECT = A person participating in the NHEXAS Arizona Project. Subjects will be assigned a HHID. Within a family subjects are assigned an Individual Respondent Numbers (IRN). Each subject is identified by an HHID IRN combination number.

2.8 SAMPLE TRACKING = the method of determining where samples or equipment are residing.

3.0 References

None

4.0 Discussion

The training described in this SOP takes 4-5 weeks to accomplish. This is the minimum, first stage training procedure. Subsequent training takes place through one-on-one instruction by the Project Laboratory Supervisor or other trained personnel (including those of Battelle) depending on the task.

5.0 Responsibilities

5.1 Project Laboratory Supervisor

(a) Hires, fires, supervises, disciplines and praises the student throughout his or her employment with the study.
(b) Schedules student training and introduces student to appropriate personnel.
(c) Negotiates the student's work schedule (no less than 15 hrs/week).
(d) Instructs Students on the specifics of the equipment calibration and laboratory procedures.
(e) Instructs Students on equipment and data QA check procedures.
(f) Trains Students in supplemental procedures as the need arises.
(g) Instructs Students on the locations of supplies and resources and provides him or her with needed materials.

5.2 Project Data Coordinator

(a) Receives data from the Project Laboratory Supervisor.
(b) Questions any apparent inconsistencies found within the data and clarifies them.
(c) Provides an overview of the data section of the project.
(d) Stresses the importance of the lab form consistency and completeness for data entry purposes.
(e) Must approve any change in the Laboratory Data Forms once a data base has been created.

5.3 Project Data Manager

(a) Provides an overview of the Local Area Network (LAN).
(b) Provides the student with a "username," "password," instructions on changing the assigned "password," and workspace on the network.
(c) Responds to hardware or software problems encountered by students.

5.4 Departmental Administrative Assistant completes all paperwork for hire and directs student in the steps required by personnel.

5.5 Office Manager (or delegate) shows student required office procedures:

(a) Sign in / Sign out board.
(b) Sign in and Sign out book recording hours worked.
(c) Appropriate technique for completion of time cards.

(d) Notebook of Student work requirements and Memos.

5.6 Principal Investigator or Project Manager (or delegate) will cover the study goals, the types of data collected and a project overview.

5.7 Packet Prep describes how buckets are assembled for the field and how buckets are broken down and forms are compiled as household "packets."

5.8 Field Team Leader describes the field procedure, explains the field use of all forms, questionnaires and answers any questions regarding field procedures.

5.9 Project Field Coordinator schedules student for field visits illustrating different field collection procedures. Project field coordinator also demonstrates sample storage, custody and transfer for lab analysis.

5.10 Project Laboratory Coordinator schedules observation and training time for the Student with a technician performing each of the lab procedures within a survey.

6.0 Materials and Equipment

These will be specified in each of the SOP's the student is trained to perform.

7.0 Standard Operating Procedure

7.1 Training Sequence (Steps are dated and Initialed by personnel conducting the training on the "Laboratory Assistant Training Record" (Figure 1.)

7.1.1 Orientation

(a) The Student is hired and told to report to the Project Laboratory Supervisor at the Study Lab at a given time.

(b) The Student is introduced to other personnel and sent to the Administrative Assistant who will complete the paperwork required for hiring. (1-3 hours duration).

(c) The Student returns to the study office and is instructed on office procedures related to the sign-in/sign-out board, sign-in and sign- out book recording hours worked, appropriate technique for completion of time cards and the notebook containing of Student work policies and procedures including requirements and memos. The student is shown where the SOP's are housed so he/she may consult them at will (1 hour).

(d) Presentation/Discussion of the overall project goals and approaches by the Principal Investigator or Project Manager or informed delegate (1.5 hours). At this time the student is instructed to make an appointment with Packet Prep.

(e) Packet Prep & a Team Leader discuss the assembly of data forms and their use in the field with the student. Packet prep provides the student with a complete set of forms. The Team Leader instructs

the student on completion of the forms and keeping a daily diary for one week. The student completes all forms experienced by the subject (5 hours). The Student is told to report to the Project Field Coordinator.

(f) The Project Field Coordinator schedules the Student for visits in all 3 project stages so the student can observe all field procedures at least once. [Field Visits will take place over a 1 to 2 week period (total time 12 hours)]. The student is sent to the Project Data Coordinator.

(g) The Project Data Coordinator schedules observation time for the Student with staff completing data procedures including log-in, coding, entry, verification and validation procedures. All data procedures within a survey will be observed (total time 6 hours). The Student is sent to the Project Data Manager.

(h) The Project Data Manager familiarizes the student with the LAN and computers the student is able to use. The student is assigned a username and password. The student is instructed to immediately change the password so that he/she is the only one to know it. The student is instructed not to give his/her password to any other person.

(i) The Project Data Manager demonstrates how batches of processed laboratory data are appended to master databases. He explains the process of changing and documenting any erroneous data in these databases and stresses that if the Lab uncovers erroneous data it is to be reported immediately to the Project Data Manager for correction. The Student is sent to the Project Laboratory Coordinator for training in specific techniques.

NOTE: The Student now has a fairly complete view of what the data is and from whence it comes. The next series of training steps apply to individual lab procedures.

7.1.2 Training for a Procedure (following an SOP)

(a) The Lab Supervisor selects the first procedure to train a student to perform.

(b) The student is asked to read the appropriate SOP.

(c) The lab supervisor (or his delegate) demonstrates the procedure and completion of appropriate forms.

(d) The student is asked to attempt the procedure and is observed and advised (Figure 1).

(e) When the student *successfully* completes the task on 5 sequential trial days (different days), without coaching, he/she is certified as trained. The training form in Figure 2, is only signed by the laboratory supervisor when the training is *successfully* completed. No signature will be given for unsuccessful evaluations.

(f) Each week during the first six weeks the student will be observed by the lab supervisor in each procedure mastered and corrected as needed (Figure 2).

(g) After the 6 week trial period, task completion will be monitored monthly (Figure 2).

(h) Corrective action will be noted on the form. Successful completion will simply be initialed and dated.

(i) Work since the last QA check will be evaluated for error and noted as necessary (Figure 3).
(j) If an error is observed the student will be retrained (steps d-i) or dismissed.
(k) Several procedures can be taught and documented simultaneously.

7.2 QA Checks

(a) Performance will be observed and documented until completed independently and accurately for 5 successive days (Figure 2).
(b) The correct task completion will be verified and documented weekly for 6 successive weeks.
(c) After the successful 6 weeks observations, monthly observations will be made and documented (Figure 1).

7.2.1 Tolerance limits

Failure to follow the required SOPs will not be permitted.

7.2.2 Detection Limits

a) During training procedural errors will be identified ~~an~~ and corrected immediately.
b) During the trial period, weekly evaluations will be made.
c) After certification, monthly evaluations will be performed to identify procedure implementation errors.

7.2.3 Corrective Action

a) During the instruction and certification period verbal warnings and corrective instructions will be issued and errors documented in the Personnel error log (Figure 3).
b) After re-training continued failure to conform to the SOPs or inappropriate implementation of the SOPs can be cause for dismissal.

8.0 RECORDS

8.1 The Student Data Assistant Training record is completed and placed in the personnel file maintained by the Lab Supervisor. Each procedure mastered is added to the from as it is mastered.

8.2 Performance monitoring will be documented on the Performance Documentation Sheet.

8.3 Errors in processing will be logged in the Performance notebook (Figure 3) maintained in the lab.

Figure 1: Student Lab Assistant Training Record

LABORATORY ASSISTANT TRAINING RECORD		
Instruction Type	Student Completion (Student Initials & Date)	Training Personel (Title Initial & Date)
Office Procedure		
Packet Forms & Questionaires Completed		
Field Overview		
Field Overview		
Field Schedule Stage 1		
Stage 2 Visit 1 Visit 2		
Stage 3 Visit 1 Visit 2 Visit 3		
LAN Account & Password		
Data Processing		
Lab Procedures		

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Figure 1 (cont.): Student Lab Assistant Training Record

Instruction Type	Student Completion (Student Initials & Date)	Training Personel (Title Initial & Date)

Figure 1 (cont.): Student Lab Assistant Training Record (supplemental).

SUPPLEMENTAL LABORATORY PROCEDURE TRAINING RECORD

Instruction Type	Student Completion (Student Initials & Date)	Training Personel (Title Initial & Date)

Figure 1 (cont.): Student Lab Assistant Training Record

Instruction Type	Student Completion (Student Initials & Date)	Training Personel (Title Initial & Date)

_____ has completed preliminary "basic" training
(Student Name)
for Laboratory Technique used in the NHEXAS Arizona Project.

_____
(Lab Supervisor) (Date)

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Figure 2: Performance Evaluation Log

Performance Evaluation Log
NHEXAS Arizona

Employee Name: _____

Procedure # and Name	5 Sequential Days (Supervisor Init'l and Date)					First 6 Weeks After Training						Monthly Review
#1												
#2												
#3												
#4												
#5												
#6												
#7												
#8												
#9												
#10												
#11												
#12												
#13												
#14												

Other Comments:

Figure 3: Personnel Error Log

Laboratory Personnel Error Log
NHEXAS Arizona

Employee Name: _____

	Beginning	Ending
Poor Performance	____/ ____/ ____	____/ ____/ ____

Procedure in which errors occured:

Sample Type and ID #'s Affected:

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Resolution:

Comments: