

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-4.0

Title: Field Personnel 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

Notice: The U.S. Environmental Protection Agency (EPA), through its Office of Research and Development (ORD), partially funded and collaborated in the research described here. This protocol is part of the Quality Systems Implementation Plan (QSIP) that was reviewed by the EPA and approved for use in this demonstration/scoping study. Mention of trade names or commercial products does not constitute endorsement or recommendation by EPA for use.

Field Personnel Training Plan

1.0 PURPOSE AND APPLICABILITY

This SOP describes the training sequence of incoming Field Team Members. The training procedure is designed to provide new team members with an overview of the goals, structure, and design of this research project and their role within it. Familiarity with the individual components and overall scope of the study will help to insure appropriate collection, handling, and processing of data of high quality for the NHEXAS, Arizona projects of the University of Arizona/Battelle/Illinois Institute of Technology consortium.

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2.0 DEFINITIONS

- 2.1 BUCKET = A plastic container with a buckle top. One bucket is assigned to each household to be visited. Household identification and stage numbers are listed on the outside of the container. The bucket contains all paperwork to be completed by field staff or household respondents. It serves as the primary vehicle for securing and transporting forms, data and samples to and from the field through the course of the study.
- 2.2 DATA COORDINATOR = The employee of the research project who supervises data batching, entry, and verification.
- 2.3 FIELD = The sampling environment or the site at which data will be collected. This is almost always at the residence of the primary respondent.
- 2.4 FIELD KIT = A sampling tool-box containing appropriate collection and storage utensils.
- 2.5 FIELD COORDINATOR = The employee of the research project who supervises field data collection and operations. The Field Coordinator collates individual data into HH packets, and upon completion of all visits, sampling, and QA checks, forwards the packet to the Data Coordinator.
- 2.6 FORM, PHYSICAL = The paper or "hard copy" original of the data which is collected in the field. Form is also a generic term for any piece of paper data, such as records and check sheets, questionnaires, etc., which are collected for analysis.
- 2.7 HOUSEHOLD(HH) = The residence occupied by study respondents.
- 2.8 HOUSEHOLD IDENTIFICATION NUMBER(HHID) = A unique number and character combination which is assigned to each respondent household for identification purposes. This number must be recorded on all data (forms, samples, questionnaires and correspondence) generated by the household.

- 2.9 MATERIALS TECHNICIAN = The employee of the research project who is responsible for assembling and assigning field forms, questionnaires and equipment for field use.
- 2.10 N/A = Not Applicable.
- 2.11 PACKET = A sturdy envelope-like container that can be fully closed and is large enough to hold the physical data forms generated from sampling and surveying a study household.
- 2.12 QUALITY ASSURANCE(QA) = All those planned and systematic actions necessary for ensuring the accuracy, validity, integrity, preservation and utility of collected data.
- 2.13 QUALITY CONTROL(QC) = Those quality assurance actions providing a means to control and measure the characteristics of a datum, process, or the adherence to established parameters.
- 2.14 SAMPLE = That piece of physical data which is collected from the study participants for the purpose of scientific analysis.
- 2.15 TEAM LEADER = The member of the field team who is primarily responsible for respondent contact, data collection, field form and questionnaire completion, and site QC checks of all data.
- 2.16 TEAM MEMBER = The member of a field team responsible for assisting the Team Leader in the collection of data and quality control checks in the field.
- 2.17 TRACKING DATABASE = A database system containing information about the custody, transfer and storage of hard copy data, electronic data, field samples, and field sample aliquot.
- 2.18 VISIT = A scheduled appointment with participating respondents at their place of residence (HH) for the collection of samples, questionnaires and other data.

3.0 REFERENCES

- 3.1 Lebowitz, M.D. 1993. Study Design (Revision of 31 Dec. 1993). EPA NHEXAS Cooperative Agreement.

4.0 DISCUSSION

- 4.1 This SOP outlines generalities in the training plan for incoming field team members. Team members are expected to execute their responsibilities in an exhaustive and comprehensive fashion in accordance with stated protocol. Team members work as a cohesive unit to provide the research project with data of the highest quality. The team

member is the fundamental field unit of this research project. The quality and integrity of the data collected by each Team member affects subsequent aspects of the research project.

- 4.2 Data collected without compliance to minimum quality control checks and standards are considered questionable and of limited use to the research endeavor. Proper sample collection, custody and handling must be of primary concern to all field staff.

5.0 RESPONSIBILITIES

5.1 Project Field Coordinator:

- (a) Hires, fires, disciplines, and promotes the Field Team Member throughout the Team Member's tenure with this research project.
- (b) Schedules new Team Member training and introduces new Team Member to appropriate personnel.
- (c) Negotiates the Team Member's work schedule.
- (d) Instructs Team Member on the essentials of collection techniques.
- (e) Instructs Team Member on deportment and responsibilities.
- (f) Instructs Team Member on design of the research project.
- (g) Instructs Team Member on respondent privacy and confidentiality issues.
- (h) Instructs Team Member on QA and QC in pre/post field environments.
- (i) Instructs Team Member on data transportation, handling, storage, shipment and chain of custody procedures.

5.2 Office Manager (or delegate) demonstrates required office procedures:

- (a) Sign-in and Sign-out Board and procedures,
- (b) Sign-in and Sign-out Log to record hours worked,
- (c) Appropriate technique for completion and submission of time cards for pay as applicable,
- (d) Format for internal communication and memos.

5.3 Departmental Administrative Assistant completes all paperwork necessary for hire and directs new Team Members through the hiring process.

5.4 Co-Principal Investigator or Field Coordinator details study goals, project requirements and expectations.

5.5 Project Data Coordinator (or delegate):

- (a) Instructs Team Members on the concepts and specifics of post field data coding, data entry, verification and validation.
- (b) Arranges Team Member data orientation session with a designated Data Entry employee.

5.6 Project Data Manager

- (a) Provides an overview of the local computer network.
- (b) Provides a local computer network account.

- 5.7 Project Laboratory Supervisor orients Team Member to pertinent lab activities and schedules observation sessions.
- 5.8 Other Team Members (employed for at least six months) will explain the field staff's role and responsibilities in the study:
- (a) Overall quality of data collected from the HH under their charge,
 - (b) HH and Respondent interaction with the study,
 - (c) In field coordination and direction of team members,
 - (d) Quality assurance & control issues in the field,
 - (e) Obtaining all data according to protocol,
 - (f) Properly storing and labeling the collected sample,
 - (g) Fully completing all applicable fields on data form,
 - (h) Quality control checks in the field.
- 5.9 The new Team Member is held responsible for active participation in the training process.

6.0 MATERIALS AND REAGENTS

6.1 Materials

- (a) A HH packet with all study forms,
- (b) Equipment as designated by pertinent SOP,
- (c) Updated volume of all field related, and select other protocols,
- (d) Bound volume of the Quality Systems and Implementation Plan(IP),
- (e) Field Ancillary Training Binder,
- (f) Personal copy of New Team Member Training Record (Fig.1).

6.2 Reagents - N/A

7.0 PROCEDURE

7.1 Preparation - N/A

7.2 Training

Training is only the first step toward competence in the field. The Project Field Coordinator maintains a policy of continually enhanced training for all Field Team Members.

Upon completion of the steps outlined below, the Team Member will be considered competent, having satisfactorily performed all tasks under direct instruction and supervision of assigned Team Members.

7.2.1 Training Sequence

Steps are dated and initialed on the New Team Member Training Record (Fig.1) by the personnel conducting the training such as assigned supervising team members, the Field Coordinator, other project coordinators. Due to task oriented nature of this training design,

slight variation in 'training time' may occur. However, this variability will most likely approach the approximate training times listed after each step in the training sequence below.

7.2.2

- (a) The Team Member is hired and told to report to the Field Coordinator at an appointed time.
- (b) The new Team Member is introduced to other personnel and sent to the Departmental Administrative Assistant who will complete the necessary paperwork to complete the hiring process and obtain building keys. (1-3 hrs).
- (c) The Team Member returns to the Field Office and is instructed on office procedures related to the sign-in / sign-out board, sign-in and sign-out log for recording hours worked, appropriate technique for the completion and submission of time cards, internal communication networks and memos (1 hr.).
- (d) Presentation/Discussion of the overall project goals and approaches is given by the Co-Principal Investigator or Field Coordinator. The new Team Member is shown the location of the SOPs, the QSIP and the Field Ancillary Training Binder. The new Team Member is assigned a "Buddy" - senior Field Team Member (1 hr.). For the duration of training, the New Team Member will coordinate work schedules with their "Buddy" who will reinforce the new members orientation to pre-, in-, and post-field responsibilities (1-20 visits).
- (e) Team Members review data forms, questionnaires and records with new Team Member. The new Team Member is provided with their own HH packet. The Team Members instruct the trainee on the completion of all forms and how to maintain the diet and activities diaries. The new Team Member submits written comments about completion times, problems encountered, etc, for all questionnaires to Field Coordinator within two weeks.
- (f) New Team Member accompanies "Buddy" on all field visits and serves apprenticeship. Tasks are integrated and supplemented with SOP documentation, post field visit appraisals, and co-worker feedback.
- (g) All field team members (including the new Team Members) are required to lead a brief discussion on NHEXAS related topics from the Ancillary Training Binder, the QSIP or the SOPs during the monthly in-service. The responsibility of leading the discussion in rotation with other team members promotes a shared sense of learning and feedback among the Field Team.
- (h) The Project Laboratory Supervisor schedules observation time for the new Team Member with an approved Laboratory Technician who explains the problems associated with inadequate sampling. All

laboratory procedures in the current study will be observed. Lab observations will be interspersed with field visit apprenticeship (6 hrs).

- (h) The Project Data Coordinator instructs the new Team Member on the concepts and specifics of post field data coding, data entry, verification and validation. This involves an orientation with a designated data entry employee to familiarize the new Team Member with the common problems, errors, and data management challenges created by poor data collection techniques. The new Team Member receives feed-back on the data that they have helped collect (6 hrs).
- (i) The Project Data Manager provides the new Team Member with an overview of the local computer network and a network user account. The Team Member is instructed to share their password with no-one (1 hr)
- (j) Meetings between the new Team Member, the "Buddy," and the Field Coordinator are held weekly to discuss performance until the Team Member has achieved proficiency in all assigned tasks. Thereafter, team meetings and performance evaluations are held monthly.
- (k) Overall training is expected to require at least 80 - 100 hrs of active learning to achieve minimal standards of competence. When the new Team Member successfully completes a task (without coaching) on five sequential trial visits to different homes he/she is certified as trained. The Team Member will be observed in every certified skill at least once per month by senior Team Members or the Field Coordinator when performing Field Audits. Specialized tasks will be assigned to the Team Member as the need arises and the Team Member demonstrates ability.

7.3 Calculations - N/A

7.4 Quality Control

Corrective actions will be noted on the Training Record. Successful completion will simply be initialed and dated. Performance will be observed until completed independently and accurately on five separate occasions before certification.

8.0 RECORDS

8.1 New Team Member Training Record

This record (Fig. 1) provides the Field Coordinator and the new Team Member with an objective record of tasks accomplished. It is used to supplement weekly qualitative feedback from the "Buddy" and the new Team Member in their meeting with the Field Coordinator. The form will be kept on file by the Project Field Coordinator and will be available for inspection by QA field audit team.

FIGURE 1. TEAM MEMBER TRAINING RECORD. PAGE 1 OF 4

Field Team Member Training Record

FORM = UA-T4.0-1.0

NAME:	SSAN: - -
DATE OF HIRE : ____/____/____	INITIALS [____]
TRAINING START DATE ____/____/____	TECH ID #. [____]

ASSIGNED BUDDY: _____

ITEM	TRAINEE		TRAINER	
	initials	date	initials	date
Personnel / Admin	[____]	____/____/____	[____]	____/____/____
Office Procedures	[____]	____/____/____	[____]	____/____/____
Building Keys Issued	[____]	____/____/____	[____]	____/____/____
Computer Account	[____]	____/____/____	[____]	____/____/____
Project Overview	[____]	____/____/____	[____]	____/____/____
QA/QC Briefing	[____]	____/____/____	[____]	____/____/____
Forms/Qx Completed	[____]	____/____/____	[____]	____/____/____
Lab Orientation	[____]	____/____/____	[____]	____/____/____
Data Orientation	[____]	____/____/____	[____]	____/____/____
	[____]	____/____/____	[____]	____/____/____
	[____]	____/____/____	[____]	____/____/____
	[____]	____/____/____	[____]	____/____/____

INSERVICES:

1995	1	2	3	4	5	6	7	8	9	10	11
1995	1	2	3	4	5	6	7	8	9	10	11

FIGURE 1. TEAM MEMBER TRAINING RECORD. PAGE 2 OF 4

Team Member Name: _____

TASK	Trainer & Trainee Initials & Date					
	1	2	3	4	5	6
Department						
Leadership						
Field QA & QC						
Tracking System						
Field Kit Prep						
HHID & IRN Assignment						
Chain of Custody Proc.						
Field Form Completion						
PM Operation & Setup						
PID Operation						
Soil Sample Collection						
Floor Dust Collection						
Surface Wipe Sampling						
Dermal Wipe Sampling						
Thin Film Collection						
Air Sentinel Operation						
Active VOC Collection						
Low Flow Controller Cal.						
Passive VOC Sampling						
Food Sample Collection						
Water Sample Collection						
Biological Sampling						
GPS Operation						
Distance Estimation						

FIGURE 1. TEAM MEMBER TRAINING RECORD. PAGE 3 OF 4

Team Member Name: _____

TASK	Trainer & Trainee Initials & Date					
	7	8	9	10	11	12
Deportment						
Leadership						
Field QA & QC						
Tracking System						
Field Kit Prep						
HHID & IRN Assignment						
Chain of Custody Proc.						
Field Form Completion						
PM Operation & Setup						
PID Operation						
Soil Sample Collection						
Floor Dust Collection						
Surface Wipe Sampling						
Dermal Wipe Sampling						
Thin Film Collection						
Air Sentinel Operation						
Active VOC Collection						
Low Flow Controller Cal.						
Passive VOC Sampling						
Food Sample Collection						
Water Sample Collection						
Biological Sampling						
GPS Operation						
Distance Estimation						

FIGURE 1. TEAM MEMBER TRAINING RECORD. PAGE 4 OF 4

Team Member Name: _____

Interview Skills Training Log

INTERVIEW #1.	DATE ____/____/____	Unbiased	[]
		Respect	[]
		_____	[]

INTERVIEW #2.	DATE ____/____/____	Unbiased	[]
		Respect	[]
		_____	[]

INTERVIEW #3.	DATE ____/____/____	Unbiased	[]
		Respect	[]
		_____	[]

INTERVIEW #4.	DATE ____/____/____	Unbiased	[]
		Respect	[]
		_____	[]

INTERVIEW #5.	DATE ____/____/____	Unbiased	[]
		Respect	[]
		_____	[]

Date Initial Training Completed ____/____/____

Team Member Signature _____ Buddy Signature _____

Field Coord Signature _____

COMMENTS: