

National Human Exposure Assessment Survey (NHEXAS)

Region 5 Study

Quality Systems and Implementation Plan for Human Exposure Assessment

Research Triangle Institute
Research Triangle Park, NC 27079
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Field Operations Protocol

RTI/ACS-AP-209-086

Title: Field Use of the Sample Collection and Custody Software

Source: Research Triangle Institute

U.S. Environmental Protection Agency
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Human Exposure Research Branch

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**FIELD
OPERATIONS
PROTOCOL**

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Page 1 of 23

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FIELD USE OF THE SAMPLE COLLECTION AND CUSTODY SOFTWARE

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
<u>1.0</u>	<u>Scope and Application</u>	3
<u>2.0</u>	<u>System Description</u>	4
<u>3.0</u>	<u>Software use</u>	6
<u>Appendix A:</u>	<u>Printout of the Sample Collection Computer Screens</u>	11

1.0 SCOPE AND APPLICATION

Many different kinds of samples will be collected during the RTI/EOHSI NHEXAS Phase I Pilot Study. It will be very time consuming to collect these samples in the participant home, so the information recording method must be as efficient as possible. Also, participants will be allowed a great deal of flexibility in choosing some or all of the sample collection activities that they will complete. Only limited amount of field staff time will be available for sample assignment, accounting and record keeping activities. These factors combine to create a need for sophisticated software that will: (1) allow a user to easily define the type and number of samples to be collected for each participant, and (2) allow simple one-time entry of collection and custody data during sample collection, processing, and shipping activities. An easy to use spreadsheet-based two-part sample collection and custody software package is being developed by RTI for use in NHEXAS.

The software will be used to define the kinds and numbers of samples to be collected for each NHEXAS participant. It will be used on laptop computers to record data collection information as samples are collected at the participant home. Sample custody records will be initiated with the software. The data files prepared for sample collection information will also initiate the data shell for each participant. A shipping component will organize samples for shipping, log shipments, and create hardcopy custody records for each sample. The data shell will be used for sample tracking and accounting. Analysis data files will be used with the sample collection and custody files as the overall NHEXAS database is constructed.

The collection and custody software has been designed expressly for the RTI/EOHSI consortium NHEXAS pilot study. However, the software has been formatted to allow modification so that additional types of field samples and quality control samples can be added, or existing sample types can be removed, while preserving the overall format. The software is also adaptable to other multimedia sample collection studies.

2.0 SYSTEM DESCRIPTION

2.1 Software Objectives

Several objectives were formulated to aid the design and preparation of the sample collection and custody software. These objectives are listed below to provide the user with a brief background.

2.1.1 The software must be easy to learn and use on a laptop computer.

2.1.2 A primary objective of the software is to eliminate the field and lab staff time that would be needed to prepare, organize, track, use, and enter data if paper records were used.

2.1.3 The software will facilitate assessment of completeness of data entry by field staff and supervisors.

2.1.4 Data files prepared for each participant will form the basis for the overall data shell and sample tracking. This would be very difficult to perform in a timely manner with anything other than an electronic data collection format.

2.2 Software Platform

The sample collection and custody data file has been developed in Quattro Pro 6.0 software. This spreadsheet software is easy to use, provides a good Windows graphical interface, is inexpensive, and has a multi-page notebook format that is ideal for use with the complex multi-media sample design. Ease of use was the primary factor in selecting spreadsheet software instead of database software. The data in the spreadsheet can easily be transferred to any of several database software systems.

2.3 Hardware Platform

The sample collection and custody software will run effectively on any computer with at least 25 MHz clock speed, 8 MB RAM, a trackball or mouse pointing device, DOS 6.0 or higher, and Windows 3.1 or higher. The field staff will use MEC Winbook 425SX laptop microcomputers or equivalent. Bar code scanners with wand-mounted electronics and keyboard port entry will be used to enter sample and equipment codes directly into the sample collection software. An external Bernoulli disk drive with removable 90 MB cartridges will be used for high-speed copying of data files for backup and transfer purposes.

2.4 Software Description

A printout of the sample collection software computer screens, divided into pages in the software, is presented in Appendix A. This printout includes all of the samples and QC samples currently scheduled. Additional record lines are available for each sample type, but have been hidden and do not appear on the printout. Software function is described below.

2.4.1 Cover Page (COV)

The cover page is used to set up the file for each participant. The software will use the data entered here to hide all sample records on the later pages except those scheduled for collection with the particular participant. Other associated information about the participant is included to help guide sample collection activities. Software save and print functions are controlled from the cover page.

2.4.2 Summary Page (SUM)

This page will indicate the current data entry status for each sample. It will be used by the field staff and supervisors as a summary list of the samples scheduled for the participant and as a QC check to be sure that all of the required data has been collected.

2.4.3 QC Sample Page (QC)

Quality control samples will be scheduled on this page. If a particular QC sample is selected, its sample record will be revealed on the appropriate sample page.

2.4.4 Sample Pages (AIRV, AIRP, WAT, DUST, BIO, DIET, SOIL, DER, LON1)

The remaining pages will be used to enter sample collection data when the field staff is in the participant home and when the sample is processed or shipped from the field. Each page is used for a particular group of related sample types. It will be very easy to move between pages because of page tabs in the Quattro Pro software. Some of the data in the fields will be default, requiring no entry unless there is a change. Much of the data in the first few fields, including participant and county IDs will be automatically written to the field from the cover page. The data fields on the sample collection pages were derived from the data requirements found in each of the individual sample collection protocols.

Additional fields may be opened to perform operations on the data (i.e., sample volume calculation), either as it is collected or at a later time when the data are transferred to a database.

3.0 SOFTWARE USE

3.1 File Setup

- 3.1.1 It is a goal to have the Field Supervisor at RTI, or his designee, set up the software file for each participant. In some cases, the necessary information will not be received at RTI in time, so the set up will be performed by the field staff.
- 3.1.2 Participant information contained on the Participant Enrollment Form (Figure 1) is used during file set up. The staff member will enter the IDs or appropriate characters in each box on the cover page (COV, Appendix A).
- 3.1.3 The staff member will examine the summary page (SUM, Appendix A) and verify that the correct samples have been selected for the participant's level of participation by comparison with information on the Interviewer Form.
- 3.1.4 The staff member will select the scheduled quality control samples on the quality control page (QC, Appendix A).
- 3.1.5 The staff member will save the file using the save controls on the cover page. If the file is prepared at RTI, it will be saved on the originating computer hard drive and on the Bernoulli drive to be sent to the field. If the file is prepared at the field site, it will be saved to the computer hard drive.
- 3.1.6 If the file is prepared at RTI and sent to the field on disk, the field staff will copy the file to the field computer hard drive and verify that it has been copied.

3.2 Field Data Entry

- 3.2.1 In most cases, the field staff will take the field laptop computer on each visit to the home. (If the computer does not function, or if a computer is not available for some other reason, then the staff may use paper copies of the data collection pages and enter the data after home visits have been completed.)

- 3.2.2 At least one extra, fully charged battery should be carried by the field team. The field team should also have available an AC/DC adapter for use with house current.
- 3.2.3 Computers should not be allowed to reach temperatures below 50°F during transport. Do not leave the computer in an unheated vehicle during cold weather.
- 3.2.4 Turn the computer on at the earliest opportunity once in the home.
- 3.2.5 As each sample is deployed or collected, move to the page which contains the collection information for that sample. Enter the appropriate sample collection or custody information. Information may be keyed from the keyboard or input through the bar code reader when bar coded labels are used.
- 3.3 Shipping Data Entry
 - 3.3.1 The field staff will enter the shipper ID and shipping date into the sample shipping component of the field software before the samples are shipped.
 - 3.3.2 Custody records will be printed from the software for each sample.
 - 3.3.3 Custody records will be shipped to the laboratories along with each sample.
- 3.4 Quality Control
 - 3.4.1 Some of the data entry fields will have range checks. If an input value is out of range, a message will be displayed. Check the value again. If the value is in error, correct it. If the value is correct, override the display message.
 - 3.4.2 A comment code field is available for each sample. Its default value will be 0 (zero). If there is any comment that needs to be made about a sample, change the default value to 1 and write comment text in the comments field. If any sample is not collected, or lost to the point it cannot be shipped, change the value to 2 and write comment text in the comment field. Comments should be included to note any sample collection difficulties or other observations that could conceivably affect interpretation of the sample analysis results. If in doubt, go ahead and add a comment.
 - 3.4.3 Before the computer is turned off at each home, the staff must examine the summary page (SUM) to verify that all of the required data has been collected. Any missing information should be included before leaving the home. (If a

paper form is used for data collection, a staff member is required to look at all data fields to verify that all scheduled information is accounted for.)

- 3.4.4 Upon receipt of the data files from a county (see 3.5.2) the Field Supervisor or his designee will examine the data for completeness and out-of-range values. The field staff will be contacted to try to resolve any problems.

3.5 File Backup and Transmission

- 3.5.1 Before turning off the computer during a home visit it is imperative that a backup file be created. The file must first be saved to the computer's hard drive as soon as the data collection is complete. (The file may also be saved to the hard drive at any time, and more than one time, during the data collection session at a home.) Then a second copy must be made to a 3.5" diskette. Only then may the computer be turned off. One 3.5" diskette will be used for each participant. Each diskette will be stored in a separate location than the computer at the end of the day.
- 3.5.2 After all sample collection and shipping activities have been completed within a county, all of the participant data files will be saved to two Bernoulli 90 MB disks. One disk will be retained at the field laboratory, and the second will be sent to the Field Supervisor at RTI.

NHEXAS PARTICIPANT ENROLLMENT FORM

PAGE 1

SURVEY ID (FI): _____

CHEMISTRY ID (FS): _____

S1 (FS): _____

SAMPLE CODE (FS): _____

A) SAMPLES TO BE COLLECTED (FI) (check each agreed to by participant)**VOCs**

- a) Personal air (wears badge for 6 days) _____ \$15
Includes indoor/outdoor air, water, dust, soil
- b) Workplace (wears 2nd badge for 6 days) _____ \$0
Participant should work >30 hours/week;
2 participants per county needed.

METALS

- a) Personal air (wears pack for 6 days) _____ \$40
Includes indoor/outdoor air
- b) Foods and beverages (duplicate of all _____ \$75 (4 days)
foods and beverages, 4 or 3 days) _____ \$60 (3 days)

BIOLOGICAL

- a) Urine (mornings of 2 days) _____ \$5
- b) Blood (3-4 small tubes at one time) _____ \$20
- c) Hair (small amount, using thinning shears) _____ \$0

B) LONGITUDINAL

- a) Is the participant selected? (FI) _____
- b) Is the participant selected for outdoor VOC? (FI) _____
- c) What are the selected time intervals? (FI) _____ months
_____ months
- d) What samples does the participant agree to collect? (FS) (\$15 first; \$20 second)
1. VOCs in Air (personal, indoor, outdoor) _____
 2. Water (standing, tap) _____
 3. Dust Plate _____
 4. Dust Carpet _____

Figure 1. Participant Enrollment Form.

C) PARTICIPANT INFORMATION (FI)

PAGE 2

Participant Age (in years): _____ years old
Does participant smoke? Yes: _____ No: _____
Do any other people in the home smoke? Yes: _____ No: _____
Is the participant employed full time? Yes: _____ No: _____
Does the participant speak English? Yes: _____ No: _____
Dwelling Structure (check one):
Single Family, detached _____
Multiple Family, participant family has first floor living space _____
Multiple Family, participant family completely on upper floor _____

Survey ID (FI): _____ Chemistry ID (FS): _____

Participant Name (FI): _____

(FI Confirm spelling of first and last names)

Responsible Parent/Guardian Name (If participant is under 18):

Address:

(FS Confirm mailing and FedEx shipping addresses, initial here) _____

Telephone:

Appointment Times:	Date	Day	Time	AM/PM
First Monitoring Visit	_____	_____	_____	_____
Second Monitoring Visit	_____	_____	_____	_____
Third Monitoring Visit	_____	_____	_____	_____

Specific Directions: (Please print directions with enough detail so that someone unfamiliar with the area could find the house or apartment, even at night. Include as appropriate: landmarks, nearest intersection, mileage, distinguishing features like house color or style, apartment floor and location, missing house or apartment numbers, best parking if apartments, identification problems, neighborhood safety information, presence of dogs, etc.)

Figure 1. (Continued)

APPENDIX A

NHEXAS FIELD DATA COLLECTION

COV

PARTICIPANT ID (Chemistry)		AGE	
PARTICIPANT ID (Survey)		PARTICIPANT SMOKER (Y/N)	
COUNTY ID		OTHER SMOKER(S) IN HOME (Y/N)	
FILE NAME		EMPLOYED (Y/N)	
FOOD COMP \$ (First Visit)		HOME STYLE (S or G or U)	
INCENTIVES \$ (Last Visit)			
HOME TYPE (1=core, 2=core+, 3=core++)		VOC OUTDOOR (Y/N)	
AEROSOL IOM (Y/N)		AEROSOL OUTDOOR IOM (Y/N)	
AEROSOL PM10 (Y/N)		AEROSOL OUTDOOR PM10 (Y/N)	
DIETARY (N=none, D=daily, C=composite)		DRINKING WATER Pb, Cd, Cr, As (Y/N)	
URINE SAMPLES (Y/N)		WWT DUST SAMPLES (Y/N)	
BLOOD SAMPLES (Y/N)		SOIL SAMPLES (Y/N)	
HAIR SAMPLES (Y/N)			
OCCUP. VOC (Y/N)			
LONG. SAMPLES (Y/N)			

PRINT

ENTER

CHANGE

SAVE -> HD

SAVE -> FLOP

PARTICIPANT ID:

SUMMARY AND STATUS

COUNTY ID:

		VIS 1	VIS 2	VIS 3			VIS 1	VIS 2	VIS 3		
AIR	VOC-P				LWW/DUST	Pb/Cd/Cr-W					
AIR	VOC-I				LWW/DUST	As-W					
AIR	VOC-O				LWW/DUST	Pb/Cd/Cr-L					
AIR	VOC-OCC				LWW/DUST	As-L					
AIR	AER-P-IOM				WWTDUST	Pb/Cd/Cr-W					
AIR	AER-I-IOM				WWTDUST	As-W					
AIR	AER-O-IOM				WWTDUST	Pb/Cd/Cr-L					
AIR	AER-I-PM10				WWTDUST	As-L					
AIR	AER-O-PM10				SOIL/ENTRY	METALS					
WAT-DRINK	VOC				SOIL/YARD	METALS					
WAT-STAND	Pb/Cd/Cr				DIET/FOOD	METALS					
WAT-FLUSH	Pb/Cd/Cr				DIET/BEV	METALS					
WAT-FLUSH	As				PLATE/DUST	METALS					
WAT-DRINK	Pb/Cd/Cr				CARPET	METALS					
WAT-DRINK	As										
URINE	METALS-2										
URINE	METALS-3										
BLOOD	METALS										
BLOOD	VOC										
BLOOD	ARCHIVE										
HAIR	METALS										

Not scheduled=0; Incomplete=1; Complete, Values out-of-range Value(s)=2; Complete, All in Range(?)

PARTICIPANT ID:

QC SAMPLE COLLECTION SCHEDULE

QC

		DS	FB	FC	CB	QS				DS	FB	FC	CB		
AIR	VOC-P							LWW/DUST	Pb/Cd/Cr-W						
AIR	VOC-I							LWWDUST	As-W						
AIR	VOC-O							LWW/DUST	Pb/Cd/Cr-L						
AIR	VOC-OCC							LWWDUST	As-L						
AIR	AER-P-IOM							WWTDUST	Pb/Cd/Cr-W						
AIR	AER-I-IOM							WWTDUST	As-W						
AIR	AER-O-IOM							WWTDUST	Pb/Cd/Cr-L						
AIR	AER-I-PM10							WWTDUST	As-L						
AIR	AER-O-PM10							SOIL/ENTRY	METALS						
WAT-DRINK	VOC							SOIL/YARD	METALS						
WAT-STAND	Pb/Cd/Cr							DIET/FOOD	METALS						
WAT-FLUSH	Pb/Cd/Cr							DIET/BEV	METALS						
WAT-FLUSH	As							PLATE/DUST	METALS						
WAT-DRINK	Pb/Cd/Cr							CARPET	METALS						
WAT-DRINK	As							<div>PROCESS</div>							
URINE	METALS-2														
URINE	METALS-3														
BLOOD	METALS														
BLOOD	VOC														
BLOOD	ARCHIVE														
HAIR	METALS														

DS=Duplicate Sample

FB=Field Blank

FC=Field Control

CB=Container Blank

QS=QA Duplicate

NHEXAS VOC AIR SAMPLE COLLECTION DATA

PRI. TYPE	TER. TYPE	AN	PER*	LOC	PAR ID	CTY ID	SAMP ID	COLL ID-ST	START		COLL ID-END	END		CAP TIME-HR	COMM CODE	COMMENT(S)
									DATE	TIME		DATE	TIME			
AV	SA	V	1	P											0	
AV	DS	V	1	P											0	
AV	FB	V	1												0	
AV	FC	V	1												0	
AV	SA	V	1	I											0	
AV	DS	V	1	I											0	
AV	FB	V	1												0	
AV	FC	V	1												0	
AV	SA	V	1	O											0	
AV	DS	V	1	O											0	
AV	FB	V	1												0	
AV	FC	V	1												0	
AV	SA	V	1	NW											0	
AV	DS	V	1	NW											0	
AV	FB	V	1												0	
AV	FC	V	1												0	

*Default values; change if different

NHEXAS AEROSOL AIR SAMPLE COLLECTION DATA

PRI. TYPE	SEC. TYPE	TER. TYPE	AN	PER*	LOC	PAR ID	CTY ID	SAMP ID	COLL ID-ST	START		START FLOW	CAL ID	COLL ID-END	END		END FLOW	CAL ID	COMM CODE	COMMENT(S)
										DATE	TIME				DATE	TIME				
AA	IOM	SA	M	1	P														0	
AA	IOM	DS	M	1	P														0	
AA	IOM	FB	M	1															0	
AA	IOM	SA	M	1	I														0	
AA	IOM	DS	M	1	I														0	
AA	IOM	FB	M	1															0	
AA	IOM	SA	M	1	O														0	
AA	IOM	DS	M	1	O														0	
AA	IOM	FB	M	1															0	
AT	PM10	SA	M	1	I														0	
AT	PM10	DS	M	1	I														0	
AT	PM10	FB	M	1															0	
AT	PM10	SA	M	1	O														0	
AT	PM10	DS	M	1	O														0	
AT	PM10	FB	M	1															0	

*Default values; change if different

NHEXAS WATER SAMPLE COLLECTION DATA

PRI. TYPE	SEC. TYPE	TER. TYPE	AN	PER*	LOC	PAR ID	CTY ID	SAMP ID	COLL ID	COLL		ET (HR)*	VOL mL*	PRES ADDED*	CL QUENCH ADDED*	PH	COMM CODE	COMMENT(S)
										DATE	TIME							
WV	DW	SA	V	2	K								40	HCl	Asc. Acid		0	
WV	DW	DS	V	2	K								40	HCl	Asc. Acid		0	
WV	DW	FB	V	2									40	HCl	Asc. Acid		0	
WV	DW	FC	V	2									40	HCl	Asc. Acid		0	
WV	DW	QS	V	2	K								40	HCL	Asc. Acid			
WM	SW	SA	M	2	K							4	230	NONE	NONE		0	
WM	SW	DS	M	2	K								230	NONE	NONE		0	
WM	SW	FB	M	2	K								230	NONE	NONE		0	
WM	SW	FC	M	2	K								230	NONE	NONE		0	
WM	FW	SA	M	2	K								230	NONE	NONE		0	
WM	FW	DS	M	2	K								230	NONE	NONE		0	
WM	FW	FB	M	2									230	NONE	NONE		0	
WM	FW	FC	M	2									230	NONE	NONE		0	
WA	FW	SA	A	2	K								230	NONE	NONE		0	
WA	FW	DS	A	2	K								230	NONE	NONE		0	
WA	FW	FB	A	2									230	NONE	NONE		0	
WA	FW	FC	A	2									230	NONE	NONE		0	
WM	DW	SA	M	2									230	NONE	NONE		0	
WM	DW	DS	M	2														
WM	DW	FB	M	2														
WM	DW	FC	M	2														
WA	DW	SA	A	2									230	NONE	NONE		0	
WA	DW	DS	A	2														
WA	DW	FB	A	2														
WA	DW	FC	A	2														

*Default values; change if different

Location: K=kitchen tap, T=other tap, B=bottled water, O=other source

NHEXAS DUST WIPE SAMPLE COLLECTION DATA

PRI. TYPE	SEC. TYPE	TER. TYPE	AN	PER*	LOC*	PAR ID	CTY ID	SAMP ID	COLL ID-ST	COLL DATE	HEIGHT CM	SURFACE ID	ROOM ID	COMM CODE	COMMENT(S)
LM	WIN	SA	M	2	W									0	
LM	WIN	DS	M	2	W									0	
LM	WIN	FB	M	2										0	
LA	WIN	SA	A	2	W									0	
LA	WIN	DS	A	2	W									0	
LA	WIN	FB	A	2										0	
LM	SUR	SA	M	2	S									0	
LM	SUR	DS	M	2	S									0	
LM	SUR	FB	M	2										0	
LA	SUR	SA	A	2	S									0	
LA	SUR	DS	A	2	S									0	
LA	SUR	FB	A	2										0	
TM	WIN	SA	M	2	W									0	
TM	WM	DS	M	2	W									0	
TM	WM	FB	M	2										0	
TA	WIN	SA	A	2	W									0	
TA	WA	DS	A	2	W									0	
TA	WA	FB	A	2										0	
TM	SUR	SA	M	2	S									0	
TM	LM	DS	M	2	S									0	
TM	LM	FB	M	2										0	
TA	SUR	SA	A	2	S									0	
TA	LA	DS	A	2	S									0	
TA	LA	FB	A	2										0	

*Default value; change if different

Primary Type: LM or LA = LWW method; TM or TA = WWT method

Secondary Type: WIN=window sill, SUR=surface in living area

Location: W=Window sill; S=Surface in living area

Room ID: LR=living room, FR=family room, DE=den, DR=dining room, KI=kitchen, BP=participant's bedroom, BO=other bedroom, HA=hallway, BR=bathroom, BA=basement, UR=utility room, OR=other room

NHEXAS BIOLOGICAL SAMPLE COLLECTION DATA

PRI. TYPE	TER. TYPE	AN	PER*	LOC	PAR ID	CTY ID	SAMP ID	COLL ID-ST	COLL		APPRX VOL-mL*	PICKUP	PREV VOID TIME	COMM CODE	COMMENT(S)
									DATE	TIME		DATE			
UR	SA	M	2	P											
UR	DS	M	2	P											
UR	FB	M	2												
UR	FC	M	2												
UR	SA	M	3	P											
UR	DS	M	3	P											
UR	FB	M	3												
UR	FC	M	3												
BM	SA	M	3	P							3				
BM	DS	M	3	P							3				
BM	FB	M	3												
BM	FC	M	3												
BV	SA	V	3	P							10				
BV	DS	V	3	P							10				
BV	FB	V	3												
BV	FC	V	3												
BA	SA	X	3	P							10				
BA	DS	X	3	P							10				
BA	CB	X	3												
HR	SA	M	3	P											
HR	DS	M	3	P											
HR	CB	M	3												

*Default value; change if different

NHEXAS DIETARY SAMPLE COLLECTION DATA

PRI. TYPE	SEC. TYPE	TER. TYPE	AN	PER	LOC	PAR ID	CTY ID	SAMP ID	COLL DATE	START TIME*	COLL ID-END	END TIME*	TOT g	PICKUP DATE	No. CONT	HOMOG. METH.	COMM CODE	COMMENT(S)
DD	SF	SA	M	1	P					00:01		24:00					0	
DD	SF	FB	M														0	
DD	BV	SA	M	1	P					00:01		24:00					0	
DD	BV	FB	M														0	
DD	SF	SA	M	2	P					00:01		24:00					0	
DD	SF	FB	M														0	
DD	BV	SA	M	2	P					00:01		24:00					0	
DD	BV	FB	M														0	
DD	SF	SA	M	3	P					00:01		24:00					0	
DD	SF	FB	M														0	
DD	BV	SA	M	3	P					00:01		24:00					0	
DD	BV	FB	M														0	
DD	SF	SA	M	4	P					00:01		24:00					0	
DD	SF	FB	M														0	
DD	BV	SA	M	4	P					00:01		24:00					0	
DD	BV	FB	M														0	

*Default value; change if different

NHEXAS SOIL SAMPLE COLLECTION DATA

PRI. TYPE	TER. TYPE	AN	PER	LOC*	PAR ID	CTY ID	SAMP ID	COLL ID-ST	COLL DATE	COLL METH	COMM CODE	COMMENT(S)
SE	SA	M	2	E							0	
SE	CB	M	2								0	
SY	SA	M	2	Y							0	
SY	CB	M	2								0	

*Default value; change if different

Primary type: SE=soil at primary entrance way; SY=soil at primary yard activity area

Location: E=primary entrance; A=alternate entrance; Y=yard primary activity area; S=yard secondary activity area;
R=roadway; O=other method; RC=ring collection; SW=sweep collection

NHEXAS PLATE AND CARPET SAMPLE PERIOD 1 COLLECTION DATA

PRI. TYPE	TER. TYPE	AN	PER	LOC	PAR ID	CTY ID	SAMP ID	COLL ID-ST	START DATE	END DATE	HEIGHT CM	ROOM ID	COMM CODE	COMMENT(S)
DP	SA	M	1	S									0	
DP	DS	M	1										0	
DP	FB	M	1										0	
DC	SA	M	1	E									0	
DC	DS	M	1										0	
DC	FB	M	1										0	

*Default value; change if different

Room ID: LR=living room, FR=family room, DE=den, DR=dining room, KI=kitchen, BP=participant's bedroom, BO=other bedroom,
HA=hallway, BR=bathroom, BA=basement, UR=utility room, OR=other room

EXPLANATION OF REVISIONS

Revisions Made 4/96

Figure 1

This figure was replaced by the more current Participant Form dated 3/4/96.